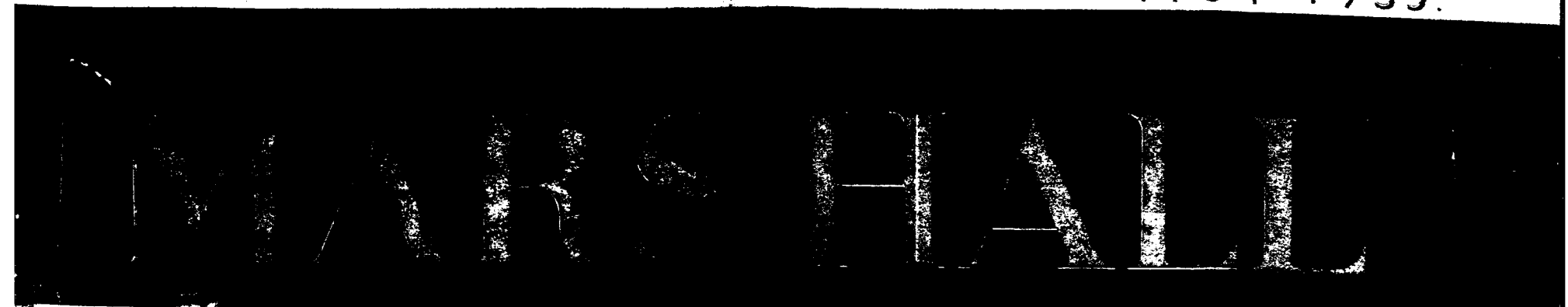


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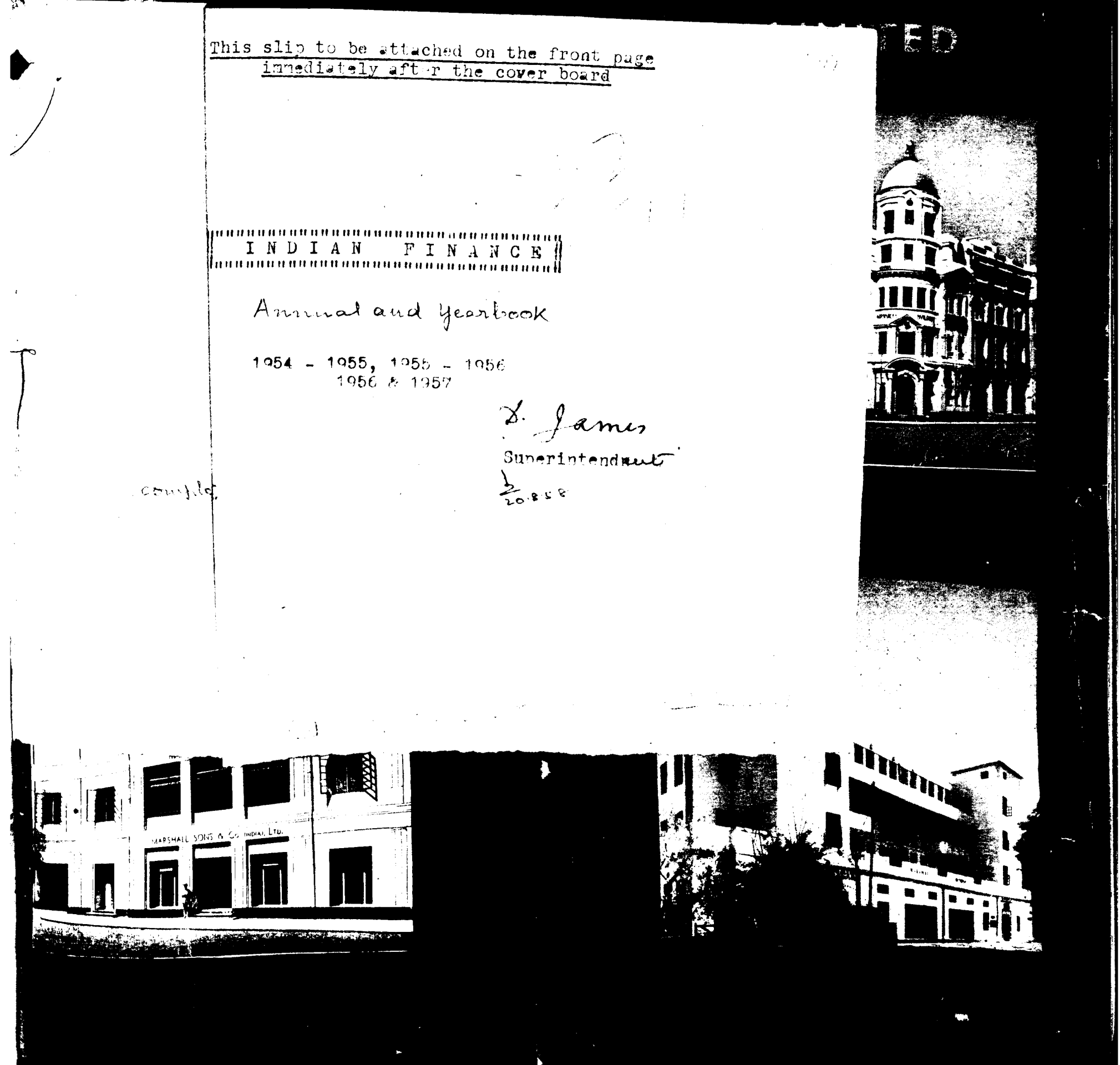
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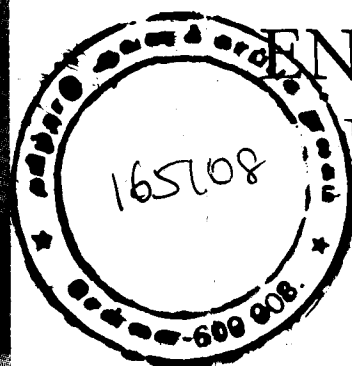
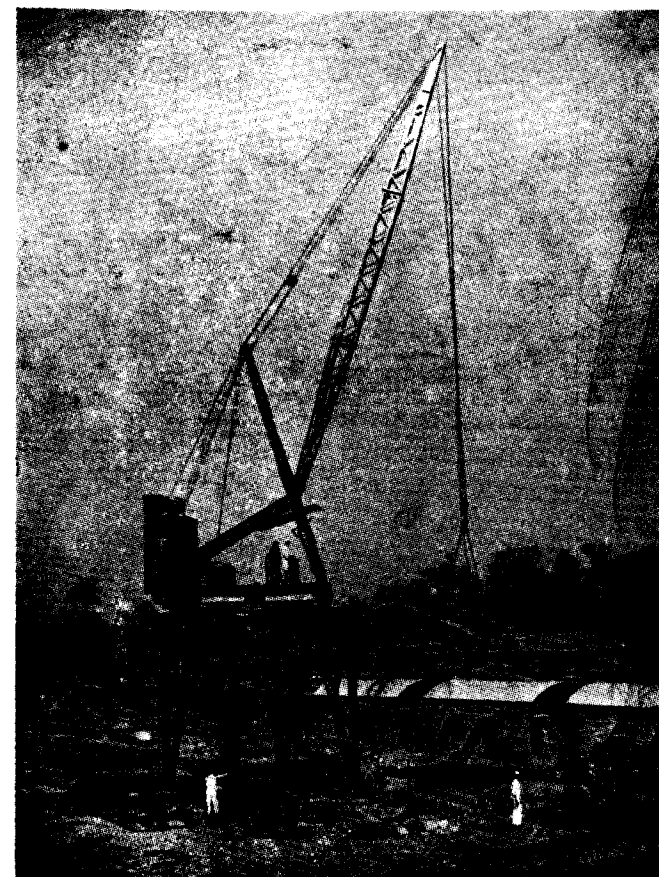
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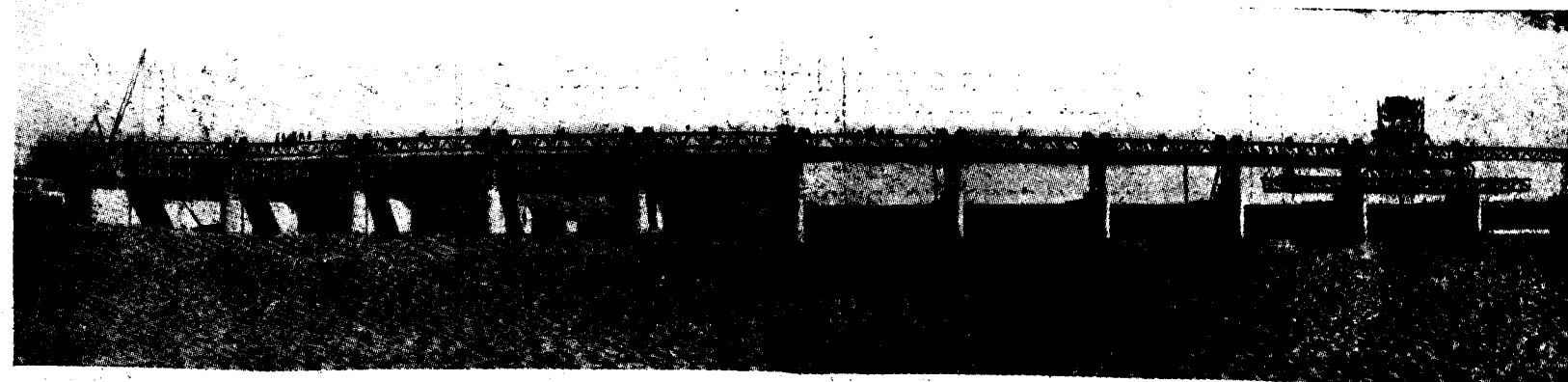


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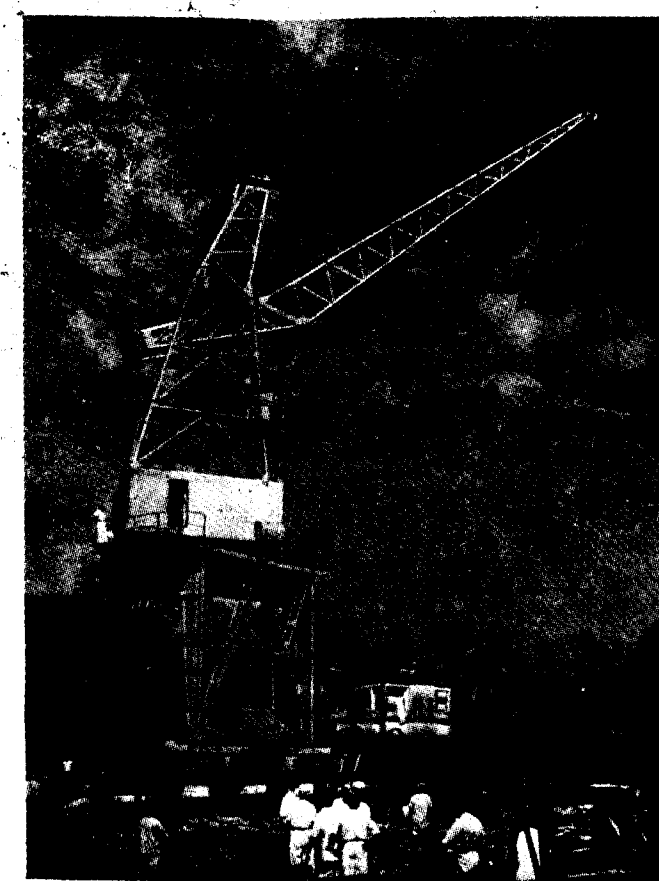
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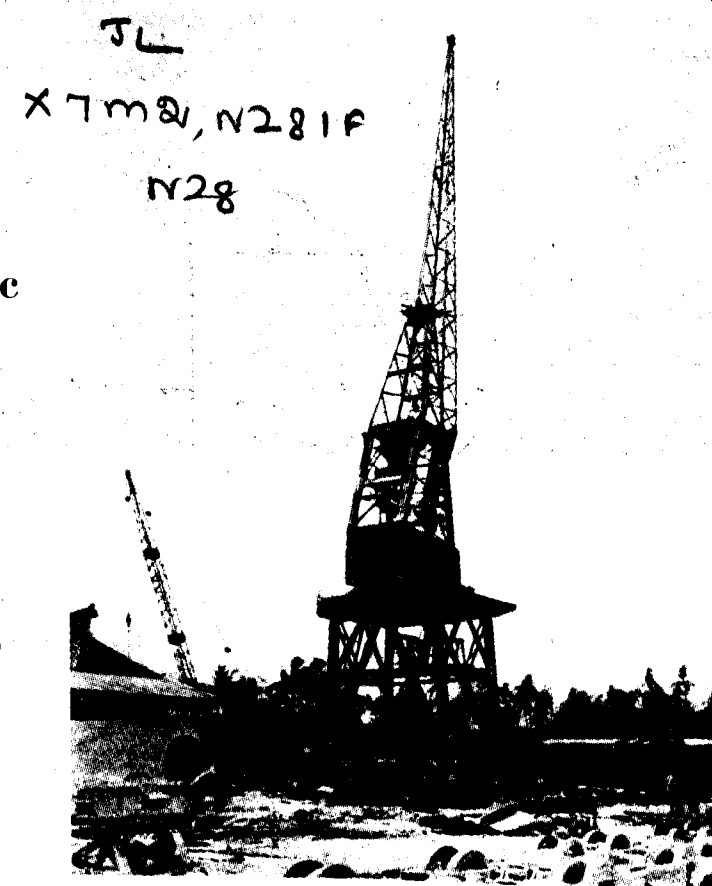


Jessop Sluice Gates in the course of erection at the Durgapur Barrage of the Damodar Valley Corporation. On the left are five undersluices each 60 by 18 ft., followed by six of the twentyfour weir gates each 60 x 15 ft. At the further end there will be five undersluices each 60 x 19 ft. The 10 ton erection crane designed and built specially for this contract can be seen at the right.



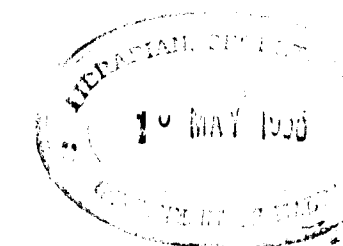
One of twentyfour cranes for Alexandra Dock, Bombay.
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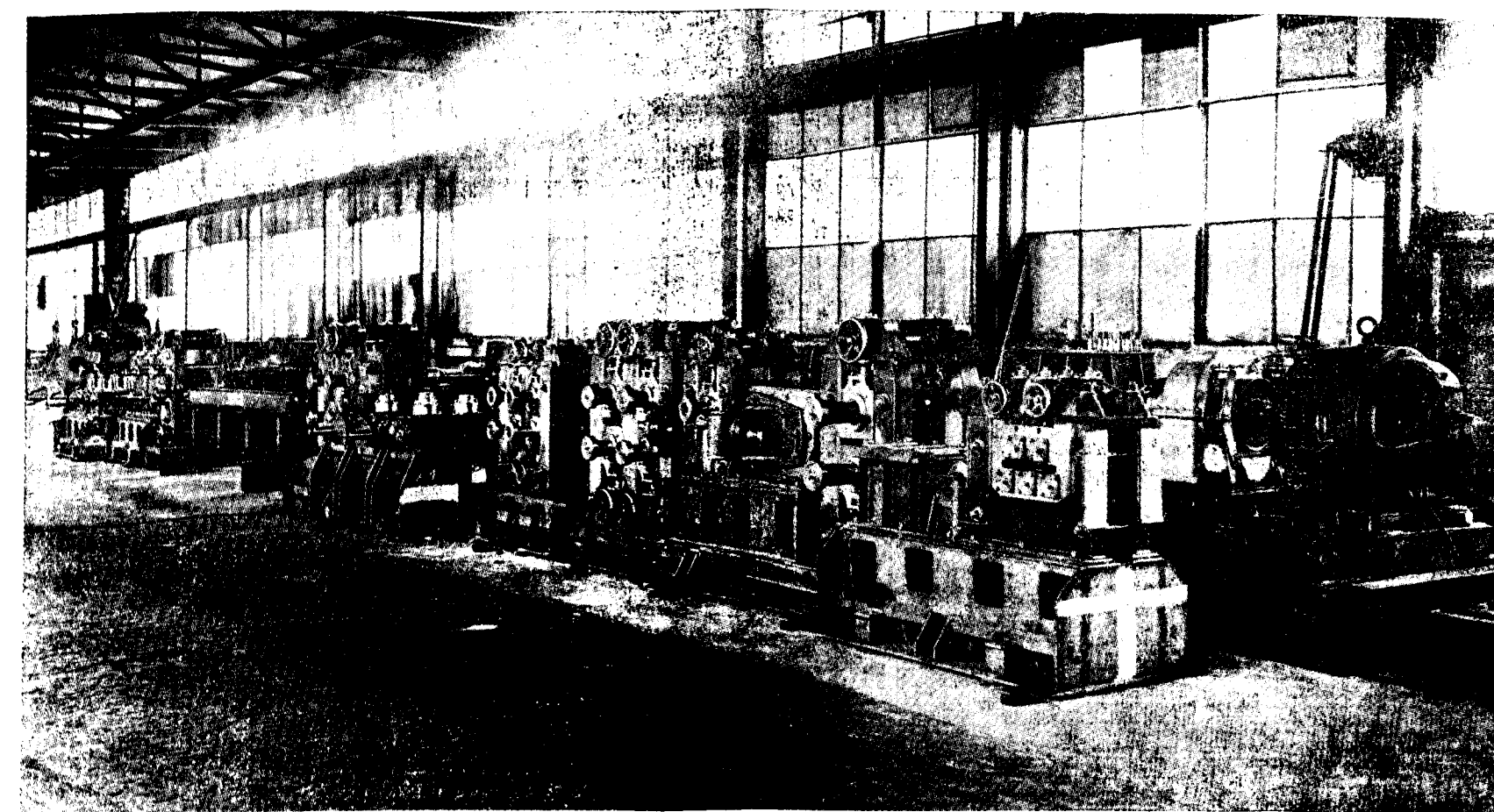
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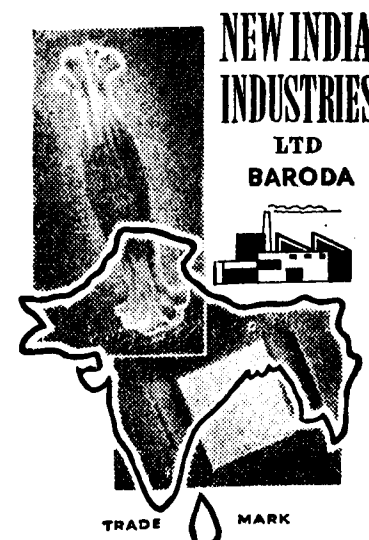
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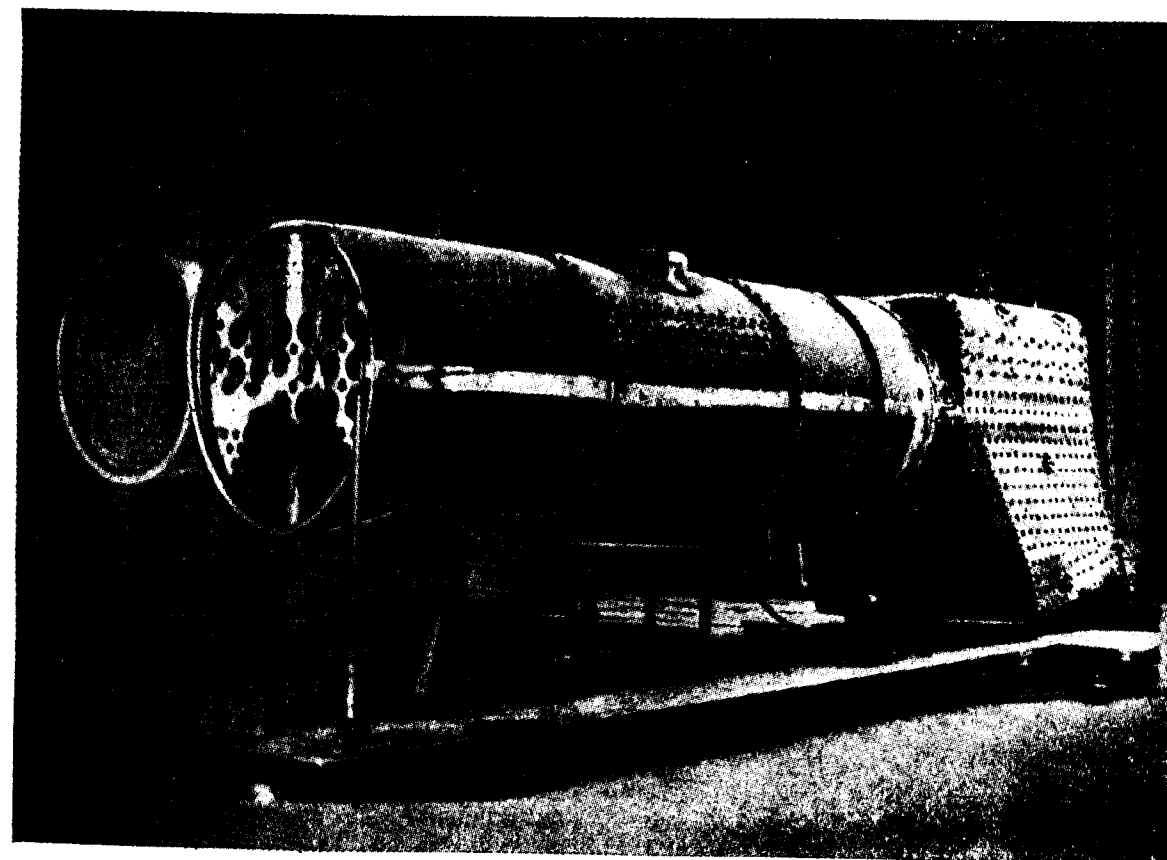
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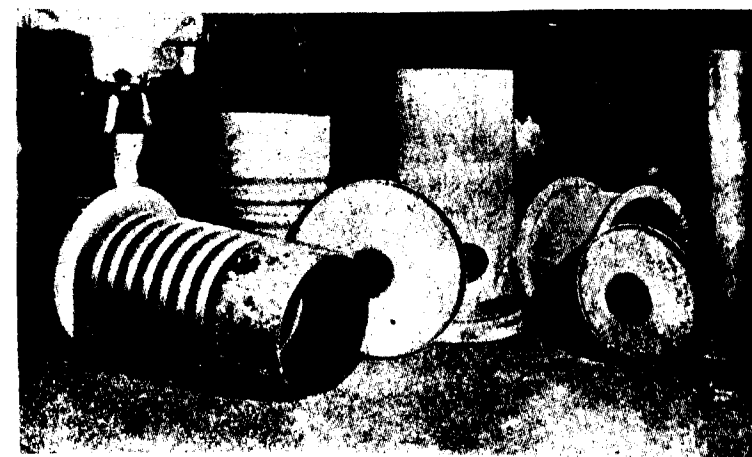
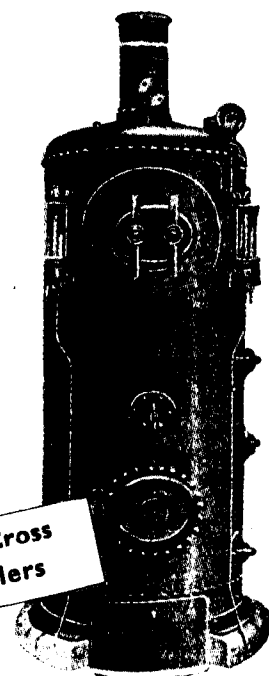
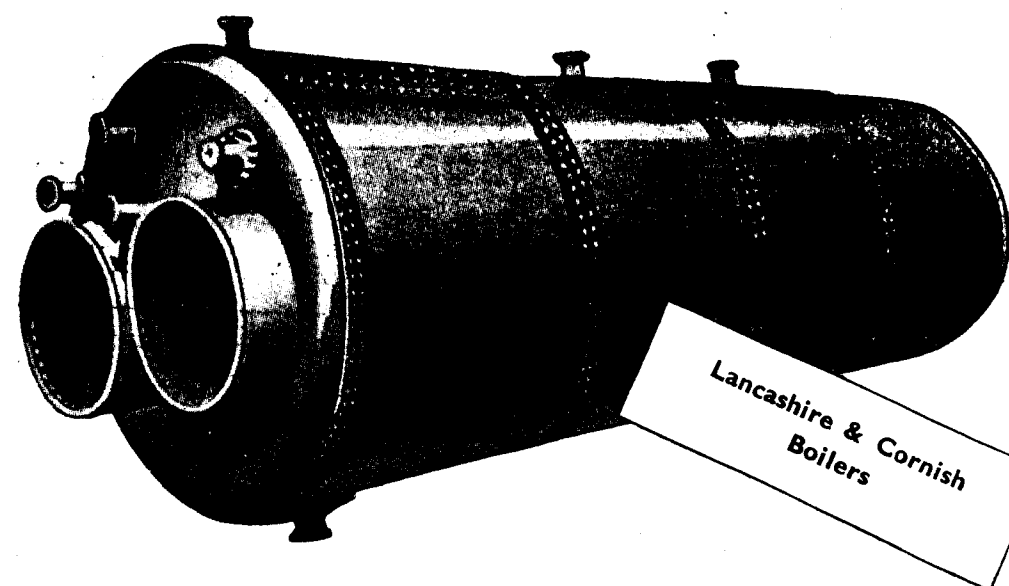
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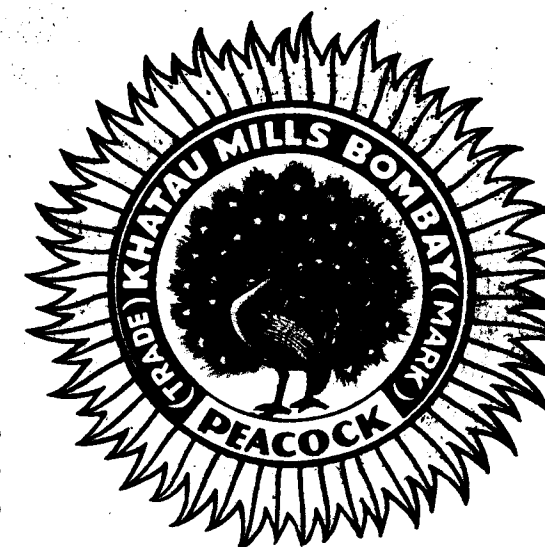
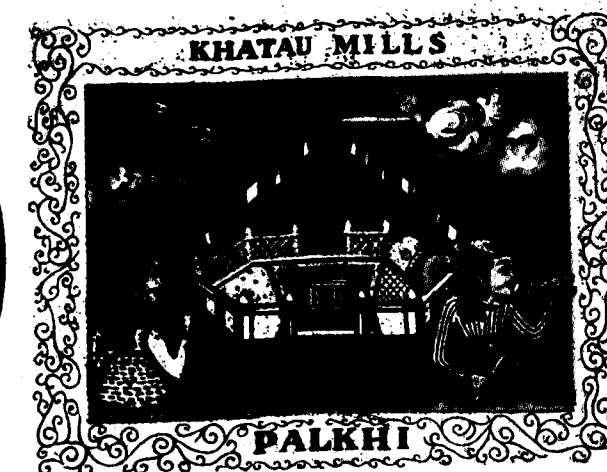
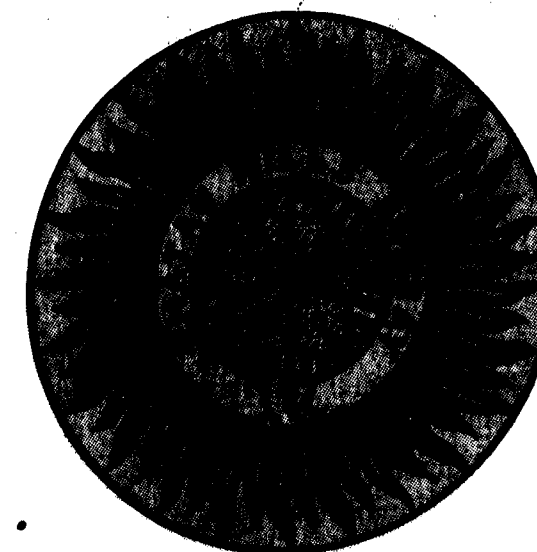
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Indian Finance

ANNUAL AND YEAR-BOOK 1954-55

Concept of Co-operative Co-existence Significance of the Taxation Enquiry Commission Implications of "Socialistic Pattern of Society"

IT WAS inescapable that the first three years of the First Five-Year Plan should have fitted by without creating, in the public mind, the firm impression that ambitious plans had been triumphantly achieved. If, on the one hand, there was the none too happy experience of planned expenditures lagging woefully behind schedule, there was, on the other, the equally disheartening fact that, barring one or two exceptions of note, no tangible evidence of achievement was offered. It might have been that the very nature of the plan precluded quick results flowing from it; with the concentration of energies and resources on multi-purpose projects, the end of the third year of the plan witnessed, it is true, some praiseworthy improvements in agricultural production and, almost accidentally, some increase in industrial production. While it would have been foolish to anticipate speedy results, it was unfortunate, but nevertheless a fact that could not be refuted, that the general expectation was for a quick amelioration from the sub-standard conditions of living that India as an independent nation started out with. In this background, it is not surprising that an almost imperceptible sense of defeatism should have obtained as the financial year 1953-54 drew to its close.

Such short-falls in the implementation of the plan could and would have wreaked greater havoc than the suspicion of failure that they engendered at that time, were it not for the brighter aspect that some of the more important Indian industries were then wearing. Primarily, the revived and robust export demand for tea and jute goods was an opportune factor which prevented any surrender to feelings of apathy or diffidence. For, had Indian economic and business conditions been otherwise than as cheerful as they happened to be, the temptation to be influenced by recessionary talk from America would have been the greater. As it was, the immediate sense of prosperity was, as it were, taken advantage of to relegate into the subconscious any more than a superficial consideration of the significance of or the repercussions that would flow from any shortfall of size between targets and actual achievements in the First Plan.

II

THIS was a fortunate happening, in more ways than one. In the first place, to have judged or guessed at the results that might finally be achieved by the progress in achievements in the first three years alone might have been disastrous; and it would have been difficult to avoid reaching the conclusion that the Plan was a failure, and would so prove to be; that, therefore, a hasty, incorrect and unnecessary verdict on the Plan was prevented might be said to be one of the decisive factors which has enabled the progress in the fourth year of the Plan.

At the same time, while a prominent sense of the shortfall would have been disabling, a second factor of importance was that the subconscious thought of failure goaded each section interested in the Plan and in the executing of it to fresh attempts: the immediate weeks before Sir Chintaman Deshmukh's Budget for 1954-55 were, consequently, coloured and influenced by the expectation that the Indian Finance Minister, mindful that his proposals would relate to the fourth year, would seek to provide incentives and decide upon measures which could create the atmosphere in which development and expansion would be made a more facile task. But the expansion of incentive was governed and qualified by the knowledge that Government themselves would require to lay their hands upon substantially larger sums of revenue for the completion of schemes in the public sector. Both this expectation and this apprehension were, however, largely to be falsified.

For, Sir Chintaman's Budget for 1954-55 was one that frankly and unashamedly confessed that it was marking time. The new proposals scarcely were major changes in taxation. It was made clear that the Taxation Enquiry Commission's Report and recommendations were being awaited and that, pending their receipt, Indian taxation policy would not be sought to be changed.

III

WHILE Sir Chintaman Deshmukh had the choice before him to frame a Budget designed to provide incentives, to further export promotion, and to help the materialisation of big and bold borrowing programmes, he was content with a Budget undistinguished in all these respects. Conditions were propitious for an incentive Budget. The occasion demanded an export promotion Budget. The pattern of gilded behaviour in the leading countries demanded a ways and means Budget which would depend at least as much on fresh borrowings as on deficit financing.

In a sense, therefore, there was disappointment, and no thrill, for those who had been looking forward to an incentive Budget, to a vision inspired and enthusiasm inspiring Budget. Disappointment on this account was prone to obscure what may be described as the "solid" virtues of the Budget. For, Sir Chintaman, presumably, felt called upon to outline his proposals from the sole standpoint of the importance that attaches to the fourth year of the Five-Year Plan.

As Sir Chintaman pointed out, "Government attach the greatest importance to the implementation of the Five-Year Plan and it is their intention to take all measures to remove the procedural and other impediments to the progress of the development schemes." It was not to be doubted that the whole country would support the Government in their view of the importance of the Plan, and to the extent that the Budget held out promise of fulfillment of the Plan more satisfactorily than any other set of proposals, it could have been said to be justified in spite of some noticeable shortcomings here and there.

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FOR a better understanding of the 1954-55 Budget, a general survey of public finance at the time would be useful. It may be recalled that when the Draft outline was first published in the middle of 1951, surplus budgets were the rule both at the Centre and in the States, though the latter were not quite free from indications of an early change of an adverse kind. Against the background of those surplus budgets, which may be said to have even improved when the export duties seemed to give a higher yield, a Plan which had Government surpluses as its ultimate foundation seemed at once reasonable and heartening. But, in the two years preceding, the change-over to deficit budgets was both rapid and extreme. Of the States, it may be said that they never quite recognised their responsibility for producing surpluses which would enable them to make their respective contributions to the total financial resources required for the Plan. Reliance on the rich uncle of a Central Government and deference to the demos on whose votes they must rely for continuance in office both suggested that the primrose path of improvidence could be trodden gaily and with more or less complete impunity. At the Centre, the emergence of conditions in which continued export duties would mean a fatal setback to our exports ushered in a period of deficits in place of the surpluses of earlier years. In fact, if one examined the sources of the surpluses of those times, one could see clearly that they were of the most unstable and unreliable kind—so unstable and unreliable that the wisdom or bona fides of the reliance on surpluses for planning would be extremely dubious. The conditions which led to the loss of large revenue from export duties at the Centre had also their manifestations in the decline of the yield from the Sales tax and other States taxes which depend on the levels of business activity for maintaining their yield to the Government.

It will be seen from this that the change from surplus budgets to deficit budgets was also accompanied by a change to a lower tempo of business activity. The question of enabling a revival of business activity through larger incentives to production and a larger volume of purchasing power for consumers' expenditure arose along with the question of avoiding deficits and striving for surplus in Government budgets. As regards the Plan itself, it was common knowledge that the progress of expenditure on projects had not been commensurate with the enthusiasm shown by the Governments in making appropriations for the purpose. Over a wide field, expenditure lagged behind the allotment of funds for the purpose. This is indeed understandable, since, apart from the bigger projects, the preparations for which were in the hands of experts with complete knowledge of the whole field to be covered, the majority of smaller projects were such as to make the authorities feel their way and watch their step. In these conditions, it was idle to expect that the expenditure in the first three years would be proportionate to the total. In point of fact, Sir Chintaman vouchsafed the information that, in the first three years of the Plan, the expenditure, taking both the States and the Centre together, would be "of the order of Rs. 1,000 crores, a few crores less and not more." Besides, the total outlay originally intended was also stepped up for various reasons. Just as the figure of Rs. 1,700 crores in the Draft outline had to be increased to Rs. 2,069 crores in the final plan, the latter figure was stepped up by a further Rs. 175 crores on account of schemes conceived in the main for the cure of unemployment. The distinctive feature of the position then was the convergence of three adverse developments, namely, the emergence of deficits, the increase in the financing requirements of the Plan and the need to stimulate business activity not merely by accelerating the progress of the Plan, but also by provision of incentives to production and enlargement of consumer expenditure.

THIS position was by no means peculiar to India. To a greater or lesser extent, and in varying degrees, these dilemmas had been experienced by countries like Britain and the US. Britain led the way by an incentive budget in 1953. The Eisenhower Administration adopted the cutting of expenditure as the starting point of the measures it will adopt for taking better care of business activity. President Eisenhower made it clear time and again that, if a recession should occur and gain in strength, he would be found ready to adopt measures for further relief in taxation, even a reduction of the minimum taxable limit for income-tax. The differences between India and these advanced industrial nations, both in respect of the national economy and in respect of public finance, would have precluded the adoption of the same measures in our case also. But the combination of problems in the same manner as elsewhere suggested the advisability of a similar approach on the part of the Finance Minister in India.

Needless to say, there were large sections of the public who would not only have welcomed changes of this kind but were also expecting them, to some extent. Of further incentives to production or business activity, the Budget was wholly innocent. Nor were there efforts at direct increase of consumer expenditure. In fact, the increase in the excise duty on cotton cloth was, from this point of view, a retrograde measure. Export trades were left to make the most of the reduction in, or relief from, export duties which had been effected in the past. And, as for big borrowing programmes, the Government hoped to raise only Rs. 75 crores from the market against Rs. 53 crores of maturities and against a total ways and means requirement of Rs. 474 crores and a net deficit of Rs. 250 crores. Here again, beyond an exhortation to the average citizen to work harder and save more, there was little of a bold stroke of financial statesmanship.

Nevertheless, it can hardly be contended that such problems were shirked or that the principal needs of the position had not been sought to be met according to their priorities. For it required uncommon courage to acquiesce in continued deficits both on revenue and on capital account, to regard deficit financing as a help in these conditions rather than as an additional danger, to stick to the resolution to enlarge and speed up the Plan, when all the narrow financial conditions suggested the acceptance of its slow progress as at least a blessing in disguise.

THE Finance Minister's course will be better appreciated in the light of the general features of the Budget position at that time. The Budget for 1953-54, with revenue placed at Rs. 439.26 crores and expenditure at Rs. 438.81 crores, was a balanced one with a nominal surplus of Rs. 45 lakhs. In the revised estimates, revenue came down to Rs. 413.69 crores and expenditure to Rs. 430.65 crores. Of the drop of Rs. 25.57 crores in revenue, Rs. 18 crores were accounted for by the non-receipt of the instalments expected from Pakistan. Customs revenue was expected to be down by Rs. 10 crores.

On the expenditure side, the revised estimates showed an improvement of Rs. 8.16 crores. Against an increase of Rs. 1.68 crores under debt services and Rs. 3.64 crores under "miscellaneous", there was a drop of Rs. 1.57 crores in the cost of revenue collections, Rs. 2.7 crores in Civil Administration and Rs. 8.73 crores in the provision for extraordinary charges.

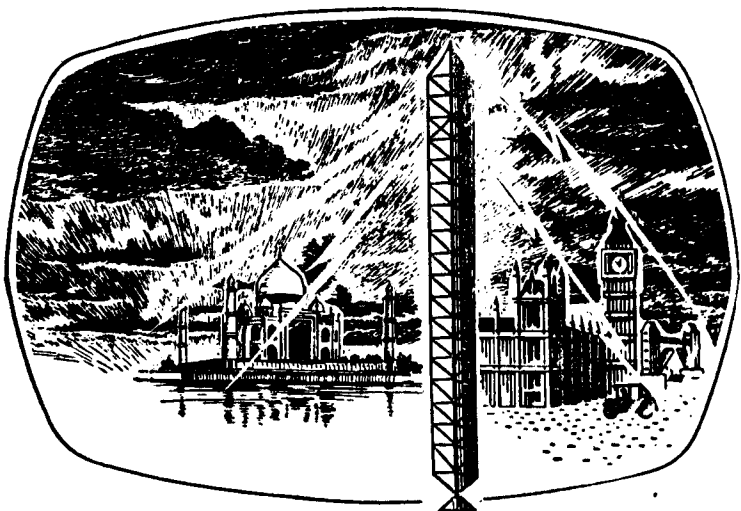
In spite of such slackening of expenditure, 1953-54 was expected to end with a deficit of Rs. 16.96 crores, instead of the nominal surplus of Rs. 45 lakhs.

For 1954-55, revenue was placed, without taking the new tax proposals into account, at Rs. 441.03 crores and expenditure at Rs. 467.09 crores leaving a deficit of Rs. 26.06 crores on revenue account. On the revenue side, the customs revenue was put Rs. 15 crores higher at Rs. 175 crores mainly on the strength of the increased imports of sugar and the increased yield from the import of commodities which carried high revenue duties. In the field of excises, a decline of Rs. 2½ crores from sugar was to be offset by an increase of Rs. 1 crore under tobacco. While income and corporation tax was not expected to show any change, credit was taken for a revenue of Rs. 4 crores from the newly imposed estate duty. An increase of Rs. 5 crores over the current year's Rs. 12½ crores under currency and mint and a receipt of one instalment of payment from Pakistan were also taken credit for.

Expenditure for 1954-55 was put at Rs. 467.09 crores of which Rs. 205.62 crores were on defence and Rs. 261.47 crores under civil heads. The increase of Rs. 30.5 crores in civil expenditure was attributed to the rise in the tempo of developmental expenditure which was reasonably to be expected in 1954-55.

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The first 'Beam' wireless service between India and the U. K.



The first world-wide shortwave broadcast by Philips

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- 1935 Multi-inductance construction — an epoch-making development in receiver design.
- 1937 Silentode Valve for the best short-wave listening.
- 1938 First radio receiver with bandspeed.
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Philips introduce Super M Technique

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VII

THE capital Budget for 1953-54 provided for an expenditure of Rs. 76.64 crores; but this was revised to read as no more than Rs. 63.9 crores. For 1954-55, the total provision was for Rs. 145.75 crores, the large increase being due to the higher tempo of developmental expenditure. For State Governments, loans were provided for Rs. 160 crores in 1953-54 and Rs. 214 crores in 1954-55.

A deficit of Rs. 26.06 crores on the basis of the then existing taxation rendered new tax proposals to some extent altogether necessary. One of the principles underlying the new proposals was the desirability of gradually replacing the import duty on raw materials by excise duties on the goods manufactured from them. The import duty on raw cotton was abolished at a cost of Rs. 4 crores. The import duty on some varieties of steel was to be withdrawn at a cost of Rs. 25 lakhs. The new excise duties which were to offset these losses included an increase of 6 pies per yard on superfine cotton cloth and the duty on other varieties by 3 pies a yard. These were expected to yield a revenue of Rs. 6.5 crores. Two other proposals were an excise duty of 1½ annas per yard on art silk and moderate duty on cement, soap and footwear. The incidence of these duties was not expected to exceed 10 per cent of the value. The total revenue from these new duties was estimated at Rs. 3.75 crores. In addition the preferential import duty on betel nuts was increased by 6½ annas a lb. to yield a revenue of Rs. 3 crores. The preference given to the UK on imports of motor cars and parts was to be withdrawn; and the gain to revenue was Rs. 2.5 crores. The net effect of these proposals was to raise additional revenue of Rs. 12 crores and bring the uncovered deficit down to Rs. 14.21 crores.

The reduction of the deficit by Rs. 12 crores, it will be generally agreed, was of little importance in the long-term outlook of national finance, except to the extent that the attempt to shift the basis from customs to excise could have been expected to be followed by a lasting success. As the Finance Minister then pointed out, the question was not whether we should have more or less of the orthodoxy which insists on balanced budgets and the like, but whether we should not aim, at that stage of the evolution and development of our national economy, at maximisation of our national resources for the sake of planned development. The problems of incentive to production were not touched, if only because the revision of income tax was a subject of enquiry by the Matthal Commission along with other questions.

The crux of the 1954-55 Budget, therefore, lay in the quiet and complacent, almost enthusiastic acceptance of deficit planning as the key to a number of problems. Sir Chintaman's budget for 1954-55 was an eloquent assertion of the Government's determination that the Plan shall be completed within the appointed time. A richer or more heartening promise for the future, it was hard to imagine.

Later in the year, with steadily improving industrial production, and with prospects for industries generally bright, stock exchanges witnessed a buoyancy that seemed to indicate near-boom conditions. For, while the absence of industry incentives did disappoint business circles, the fact that there was, largely, no increase in or extension of taxes more than offset the negative aspect of the Budget. Towards the end of the year, however, when it was known that the Taxation Enquiry Commission had submitted their report, conjecture and speculation as to its contents were much in evidence. It was the general opinion, based on a commonsense assessment of the criteria that would have weighed with the Commission and their approach to the task they were entrusted with, that their Report would, in market parlance, be "favourable". But sections, whose identity with speculative habits was well known, ventured to think aloud that the recommendations would spell the death-knell of private enterprise. Such views derived not a little of their strength from the hasty interpretation that was given to the remark, late in 1954, that Mr Nehru had it in mind to set an objective of a socialistic pattern of society for India. This phrase is not as yet clearly and correctly understood. But, in spite of the disturbances in business sentiment consequent, on the one hand, on misleading leakages of the tone and content of the Matthal Commission's Report and, on the other, on the misunderstanding of the phrase, socialistic pattern of society, the beginning of 1955 was in welcome contrast to the manner in which 1954 was ushered in.

REVENUE

	Budget 1953-54	Revised 1953-54	Budget 1954-55
Customs	1,70,00	1,60,00	1,75,00
Union Excise duties	94,00	93,55	92,60
Effect of Budget Proposals	..	..	Plus 11,85
Corporation Tax	36,62	38,40	38,35
Taxes on income other than Corporation Tax	68,08	69,31	70,67
Estate Duty	..	..	25
Opium	2,00	2,07	1,85
Interest	3,05	2,78	2,78
Civil Administration	11,18	10,34	10,48
Currency & Mint	15,69	15,41	20,42
Civil Works	1,53	1,62	1,63
Other sources of revenue	8,69	10,69	7,92
Posts & Telegraphs net contribution to General Revenues	2,30	2,02	1,50
Railways—Net contribution to General Revenues	7,65	7,50	7,37
Extraordinary Items	18,47	..	10,21
Total Revenue	4,39,26	4,13,69	4,41,03
Effect of Budget Proposals	..	..	Plus 11,85

EXPENDITURE

Direct Demands on Revenue	32,49	30,92	32,19
Irrigation	19	19	16
Debt Services	37,17	38,85	40,00
Civil Administration	71,27	68,57	86,08
Currency and Mint	2,57	2,56	2,63
Civil Works and Miscellaneous	..	..	..
Public Improvements	15,06	14,75	15,54
Pensions	8,36	8,59	8,45
Miscellaneous:—			
Expenditure on Refugees	12,67	12,67	10,23
Subsidy on Foodgrains	..	1,77	..
Other Expenditure	8,34	9,98	9,74
Grant to States Etc.	26,37	26,36	32,48
Extraordinary Items	24,48	15,76	23,97
Defence Services (Net)	1,99,84	1,99,68	2,05,62
Total Expenditure	4,38,81	4,30,65	4,67,09
Surplus (+)	..	+45	—14,21
Deficit (—)	..	—16,96	—14,21

VIII

AS 1953 was drawing to its close, there began to appear on the American business horizon what seemed to be irrefutable signs of recessionary trends. The topic of the hour then was Mr Colin Clark's thesis that it would be difficult to prevent the American recession of 1954 from developing into full scale depression. Having regard to the repercussions that were felt as a result of the US recession of 1949, world economists were not a little bothered about the possibility of suddenly changed economic conditions. It was an air of caution, an atmosphere of precaution, that obtained when the world moved into 1954. The most remarkable thing about 1954 had been that, not only were recessionary trends in America quick to reverse themselves, but the world at large found itself free of sympathetic reactions to business changes in the USA. The American recession of 1954-55 was a commodity for internal consumption only. We might, perhaps, consider that the failure of the American recession to spread to other countries is the exception to the rule that American booms and slumps export themselves. The last half of 1954 witnessed a marked improvement in the American economy and a pleasant continuance of boom conditions in the rest of the world.

An index of the trends of the economy in India is the statutory statement of the Reserve Bank; and notes in circulation were at a level of Rs 1200.49 crores, that is to say, Rs 68.34 crores higher than the figure obtaining at the end of 1953. 1954 was marked, in the money market, by the fact that there was hardly any real slack season. Money was usable almost the whole of the year, and this accounted for the higher level of note circulation.

Central Government deposits were reduced substantially from Rs 113.43 crores to Rs 54.89 crores. The decline would have indeed

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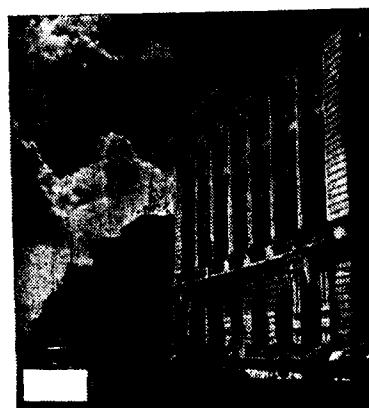
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been severe were it not for the high Rs 157 crores gleaned by the New Loan. These vast sums may be said to represent moneys spent, or to be spent in the year, on development projects.

It was in the statement of the position of Scheduled Banks that the improvement in the Indian economy was best brought out. From the late 1940s until 1952, the trend in the case of banks was one of steadily declining deposits. That trend was halted in 1952, and put on the reverse track in 1953, when a small-sized gain in deposits was to be discovered at the end of the year. Figures at the end of 1954 showed that there was the substantial increase of Rs. 94.08 crores in deposits. While, normally, a quantum of the increase in deposits to the extent of about 50 per cent would have gone towards investment in Government securities, the uncertain behaviour of gilt-edged in 1954 limited the rise in investments to Rs 12.94 crores. On the other hand, the expansion in advances was as high as Rs 76.05 crores to Rs 137.14 crores. Instead of adding to their investment portfolio, banks apparently preferred to improve their cash position. For, balances with the Reserve Bank were almost 50 per cent higher at Rs 65.63 crores while money at call registered an increase of Rs 9.68 crores to Rs 22.39 crores. It may be said that, had the gilt-edged market behaved better, more bank funds would have been available to Government.

The New Loan in 1954-55 was something of a surprise—with the emphasis on the shock aspect of it. The loan was announced while yet the 1953-54 busy season had still some considerable time to go. It was kept open for all those weeks, for a period extending to nearly five months. At the end of it all, subscriptions amounted to Rs 157 crores. In spite of the fact that the State Governments were to be allocated funds from the Loan in lieu of their individual borrowings, this, nevertheless, represented receipts far larger than the original Budget estimates.

Therefore, with the success, quantitatively, of the New Loan of 1954-55, it seemed as if recourse to deficit financing would be on a considerably smaller scale than was estimated in the Budget. But the very large sum of money that was appropriated by the New Loan of 1954-55, and the unusual circumstances which surrounded the Loan, caused an apathy in the gilt-edged market such that the index of Government securities was almost unchanged at 90.4 against 90.3 during a period when the index of variable dividend securities sharply improved from 98.0 to 114.2. For all that the World of Finance was blessed with a striking improvement in the form of increasing deposits, the money market proved to be indifferent and gloomy as a result of gilt-edged policy. For, while the World of Finance was marking time in India, the World of Business was marching ahead.

As we have said before, the variable dividend index rose sharply from 98.0 to 114.2. The investing public's confidence thus shown was fully justified by the figures available of production. In every important sector, the indices of industrial production were headed upwards. The index for cotton cloth improved from 126.1 to 135.8; for jute goods from 84.0 to 101.5; for steel from 134.4 to 136.9 (November); for nonferrous metals from 126.3 to 138.7; and for cement from 282.2 to 301.0. All these indices refer to December 1953 and December 1954. The general index of industrial production, in the same period, improved from 144.7 to 159.9 (November). Electricity energy generated went up sharply from 594.8 million KWH in December 1953 to 653.8 million KWH in November 1954. Even as the indices of production rose, the index numbers of wholesale prices showed a healthy decline. The index number of industrial raw materials fell by 13.6 points to 438.4, while that for semi-manufactured articles dropped by 8.0 points to 348.0. The general index was 18.2 points lower at 368.8, while, to the man in the street, heartily welcome was the sharp fall of 45.0 points to 318.4 in the index number of food articles. The steadily higher production fully reflected the robust confidence in the advance of Indian business in 1954.

IX

BUT, we repeat, there was at that time continuing to obtain an uncertainty and uneasiness that waited upon the publication of the Report and recommendations of the Taxation Enquiry Commission. Very late in 1954, it became known that the findings of the Matthal Commission were likely to be made public at Budget time. Consequently, the period till the end of February 1955 was one in which thinking minds, as it were, marked time.

Then came the Budget for 1955-56, which has been analysed in an article in this year book. This particular Budget is noteworthy not only for what it contains as for what it conspicuously omits. The Finance Minister made much of the fact that his speech did not have any reference to the phrase "Socialistic Pattern of Society". Was the budget for 1955-56, then, one which did not fit into the scheme that has been suggested by Mr Nehru, when he announced the objective of a socialistic pattern of society for India? It seems to us that this question can best be answered by reference, firstly, to the Budget and, secondly, to the Matthal Commission's Report.

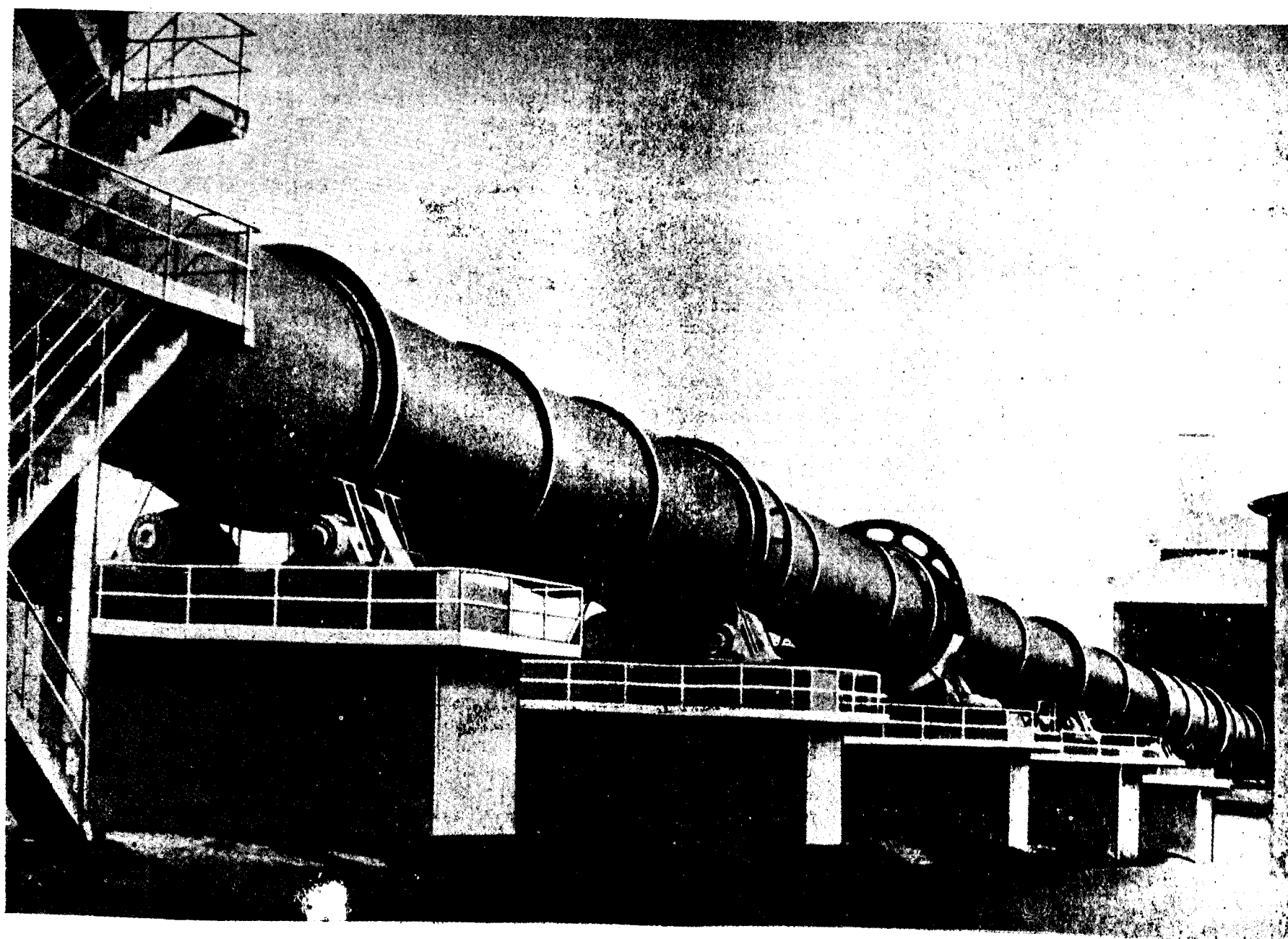
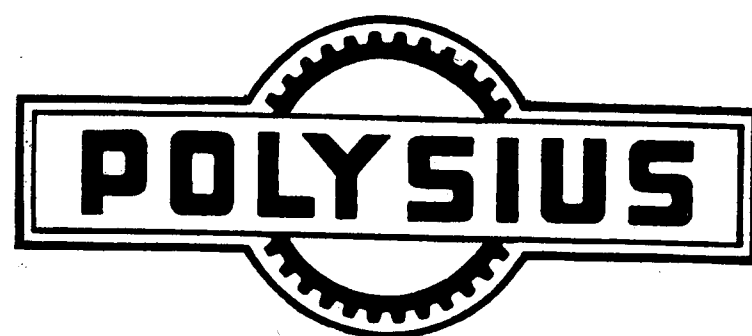
As far as concerns the Budget, there is in it every appearance of incentive to industry. The Development Rebate, a recommendation of the Matthal Commission which Sir Chintaman has accepted and implemented, should prove to be of far-reaching significance. Tax relief to the extent of 25 per cent of the cost of all new plant and machinery is a considerable contribution towards the provision to industry of resources with which to embark upon either modernisation or further expansion. At the same time, the Budget has been accused of penalising the individual by way of increased income-tax and a fresh set of excise duties.

In this context, however, Sir Chintaman has sought to prove that the incidence of taxation on an individual who earns Rs 10,000 per annum is, in fact, lower under the new proposals than was the case under the previous income-tax rates. But it seems clear that the focal point of the Budget is the Development Rebate, that the piece de resistance of the Budget is the provision of ample incentive for industry. In this light, we may undertake an appreciation of what the Matthal Commission's recommendations will mean to the Indian economy in future years.

The Finance Minister has himself affirmed that fiscal and taxation policy in India, in years to come, will be governed by the recommendations, suggestions and directives that are embodied in the Taxation Enquiry Commission's Report. It might be said that the Matthal Commission have reached conclusions which should make it possible for the stated objective of Mr Nehru to be achieved. But, at this juncture, the question that will inevitably come to mind is: What exactly will this socialistic pattern of society constitute?

Our understanding of the phrase is that it denies any dogmatic application of text-book principles of socialism. This, perhaps, is due to the recognition that private enterprise has, and must continue to have, an important role in the Indian economy. There seems the tacit and implied acceptance of a mixed economy for India. But the shape and constitution of that mixed economy is governed by the immediate needs of the Indian people. There needs, first, a substantial development of industry; and it is necessary, second, that we add considerably to employment opportunities in the country. These two needs will largely decide the proportion in which industrial activity will be divided as between the private and public sectors. In some fields, it is inevitable that Government should consider that production should be restricted and reserved for the State; it is as certain that, in other fields of industry, the endeavours of private enterprise will be more fruitful and successful. If this reading be correct, it follows that the Indian socialistic pattern of society will comprise complementary endeavours between private enterprise and the State. It is important, as much for democracy in India as for democracy in this part of the world, that the experiment at evolving an Indian brand of socialism be a success; and the success or failure of this experiment will be decided by the end of the Second Five-Year Plan.

Already, details of the Second Plan are being drawn up. If the test of democracy in South-East Asia is to be the Second Plan, it is vital that the State no less than private enterprise be aware of the implications of having decided upon the objective of a socialistic pattern of society. In our view, two implications seem clear beyond all doubt. The first is that there is due recognition of the existence, and of the importance of the existence, of the two sectors, each by the other. Due recognition here implies that there is acceptance of the rights and privileges no less than the duties and responsibilities of each of the sectors. Such recognition, in turn, means that there should be ever-increasing co-operation between the two sectors. Such co-operation and such mutual acceptance of each sector's role would suggest that the slogan on which India can make a success of its experiment in mixed economy will be: Co-operative Co-existence. If there is such Co-operative Co-existence, there would be little reason to doubt the success of the Second Plan or the success of the test of democracy in India and in South-East Asia.



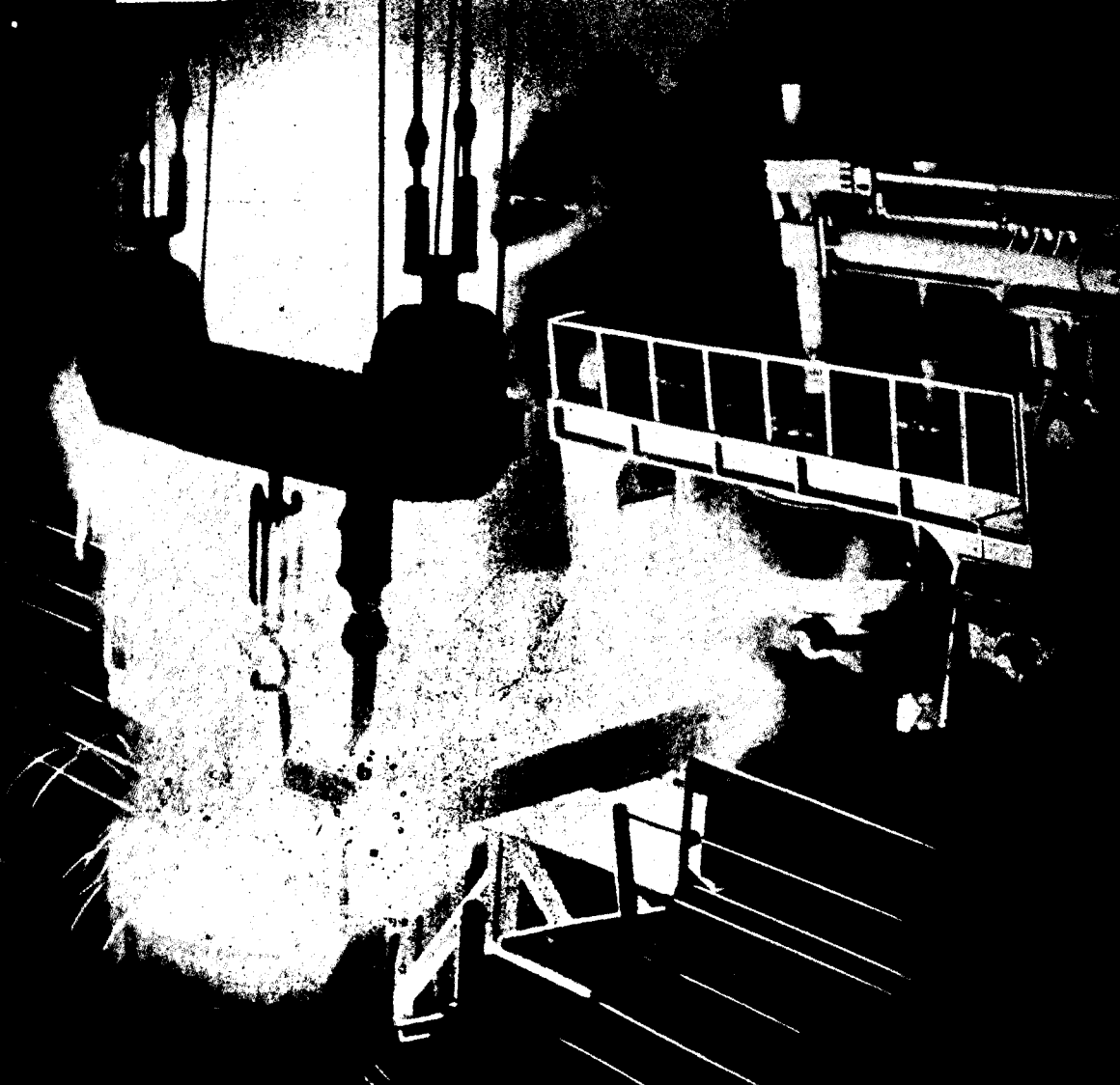
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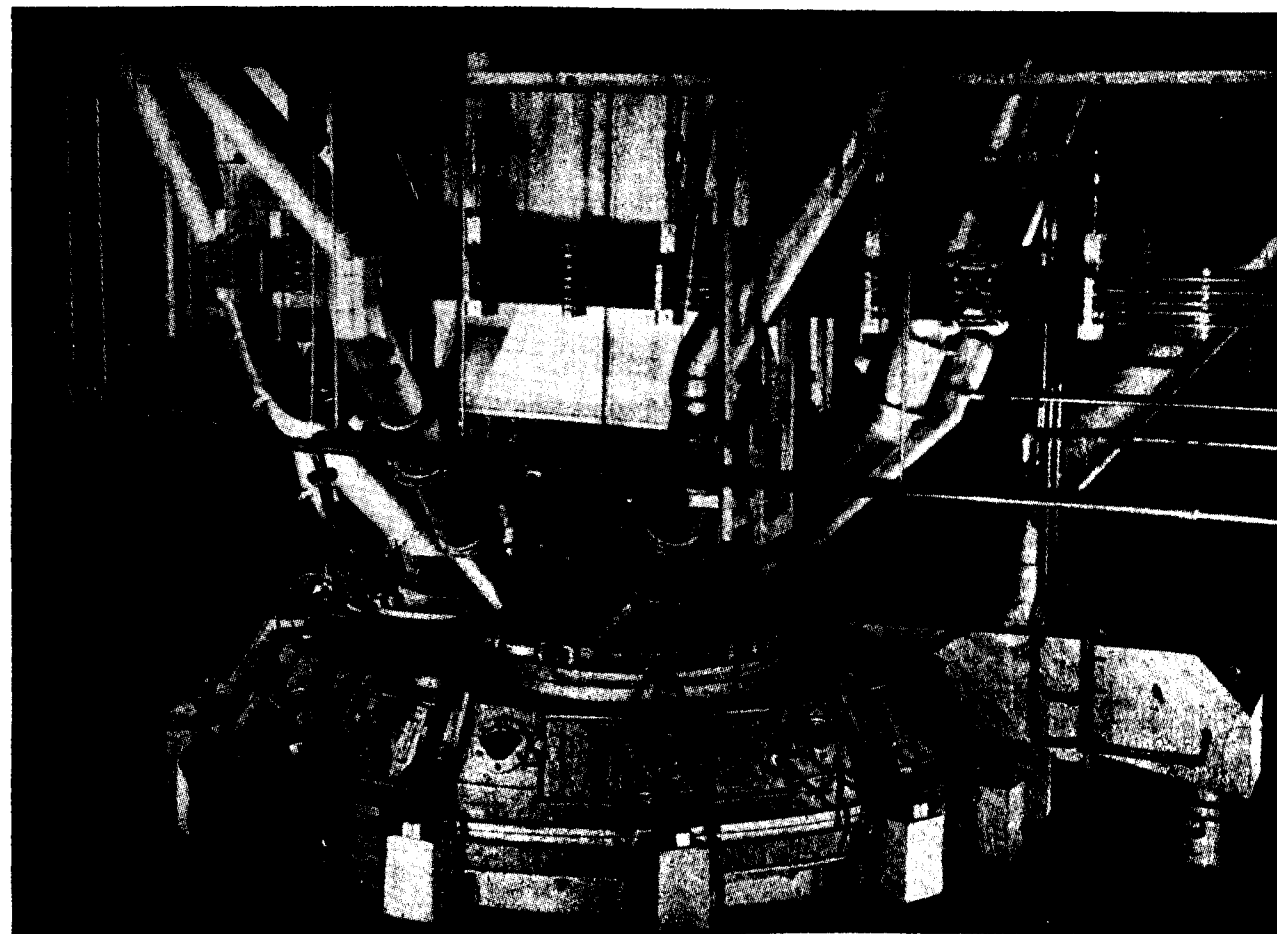
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PRODUCTIVITY IN INDUSTRY

By Dr. N. DAS I.C.S.

AS is well-known, the overall industrial production reached a post-war peak level during 1953, the index of production having risen from 105.0 in 1950 to 135.2 in 1953. During the first half of 1954, a still further rise was registered, the average for these six months being as high as 141.0. As far as can be foreseen, even this figure is likely to be exceeded at the end of the current year.

And yet we are told that productivity in industry is going down. Complaints come mainly from employers, both Government and private, many of whom assert that the Indian worker—alas!—no longer has his heart in his job and is prone to go slow, or idle away his time and energy. This, however, is vehemently contested by workers who hold the view that there has been no fall in productivity. According to them, if there has been a fall in isolated undertakings, the blame therefor should be laid, not at the door of labour, but at the door of the management. Now, it is not impossible for rising industrial production to co-exist with diminishing productivity, particularly if the number and size of industrial units have been on the increase. Over a long period, however, such a state of affairs would be highly improbable, as no entrepreneur would invest capital and enterprise in new undertakings, or even in the expansion of existing ones, if he saw that turnover per unit input was going down.

What exactly is meant by the term "productivity" as applied to industry? The common practice is to link productivity with labour. "The productivity of labour in an economy as a whole is the ratio of total output to total labour input; the productivity of labour in a particular industry or plant is the ratio of the output of that industry or plant to labour input there in."

The above is rather a narrow view of productivity. As has been emphasised in the recent ILO report on "Higher Productivity in Manufacturing Industries", productivity is the ratio between the output of wealth produced and the input of resources used up in the process of production. In other words, the problem of productivity is that of making more efficient use of all types of resources employed—of using them to produce as many goods and services as possible at the lowest possible real cost. To link productivity in industry with labour only is to ignore the other factors in the productive process.

Why then is productivity expressed, in everyday parlance, in terms of input of labour? This is because the input of labour is a simpler concept than the input of resources in general, and can be measured statistically in terms of man-hours, man-days, man-weeks or man-years. "Resources", on the other hand, is far too comprehensive a

term and the factors included therein cannot always be reduced to a statistically measurable denominator. That is why it has been said that when two people talk about productivity, they may often be talking about quite different things.

The importance of the study of productivity in industry arises from the fact that higher productivity provides opportunities for raising the general standard of living by (a) making available larger supplies of both consumer goods and capital goods, (b) increasing real earnings, and (c) effecting improvements in working and living conditions. Practical methods of increasing productivity have, therefore, been very much under discussion in recent years. In the U.S.A. in particular, this has been a subject of meticulous study. As is well-known, productivity in manufacturing industries in that country is generally from two to five times as great as in Europe and many times as great as in underdeveloped countries. It is because of this American leadership in the field of productivity that, a few years ago, an Anglo-American Council of Productivity was set up to enquire into the factors responsible for high productivity in U.S.A. and also to consider how far conditions could be created for increasing industrial productivity in U.K. This team submitted as many as fifty-eight reports and listed among factors responsible for high productivity in U.S.A. such diverse conditions and circumstances as extensive use of mechanical aids, economic handling of materials, good layout of factories, offices and stores, modern methods of costing, production planning and control, work study, progressive attitude of management and even a spirit of competition!

Almost similar conclusions were reached by the conference of sixteen experts from thirteen countries held under the auspices of the ILO in Geneva in December 1952. The meeting came to the unanimous conclusion that productivity in industry should not be looked upon as something which can be attributed to the attitude and efforts of labour only. Said these experts: "Even when productivity is used, for purpose of measure and comparison, as a ratio between input of labour and output of goods, changes in productivity revealed by this ratio may be, and often are, influenced by changes in machinery, equipment, plant organisation and raw materials, as well as by changes in the quantity and quality of labour. It is highly important in analysing productivity changes to keep all such factors in mind, as they all affect final cost figures."

The warning given by these experts is particularly applicable to India where we are apt to jump to the facile conclusion that it is only labour which is at fault and that

once labour 'plays its part,' productivity will increase. In recent months productivity studies have been carried out, under the auspices of the ILO, in a number of industrial undertakings in this country and they all reinforce the thesis that industrial productivity is the result of many variables, of which the quantity and quality of labour is only one factor and not even the most important one.

Even when we think in terms of productivity of labour (and not of industrial productivity in general), we often confuse it with efficiency, which is primarily a measure of the worker's efforts. We forget that the worker is not a complete master even of his own productivity. His productivity is conditioned by the tools and machines used, the techniques followed, the nature of the raw materials consumed and the technical organisation of the factory where he works. These latter factors often have more influence on productivity than the physical or mental effort the worker makes.

Now, productivity may be comparatively easy to measure in the field of agriculture, but it is not so in the manufacturing industries. Comparison becomes difficult in the latter field because output cannot always be examined in physical units. If output is examined in monetary terms, it may so happen that the high physical productivity is masked by the relatively low price at which the product is sold in an imperfect market. Secondly, the conditions under which articles are manufactured vary so widely from country to country that a comparison of even physical productivity may be unfair to countries in which the technical and social organisation of production is not up-to-date.

The factors which affect the productivity of labour may be classified under three broad heads: (a) general factors; (b) technical factors; and (c) human factors. Under 'general factors' would come such influences as climate, geographical distribution of raw materials, organisation of the labour market, degree of unemployment, labour shortages and labour turnover. 'Technical factors' include standardisation of work and material, wear and tear of machinery, the quality and amount of machinery available, the distribution of labour as between different operations, the degree of integration within the factory, and control of raw materials. Equally important are the 'human factors' such as labour management relations, social and physical conditions of work, wage incentives, physical fatigue, composition of the labour force and trade union practices.

When, therefore, we speak of the low productivity of labour in Indian industries, we ought to bear in mind the impact of all these three

sets of factors on their efficiency, and, ultimately, on their productivity. While it is not denied that in some undertakings, the number of men employed in various production processes is more than the optimum number required for a given output, and hence productivity per worker is low, there is no conclusive evidence to show that productivity of labour in the true sense of the term has been on the downward grade.

The above statement applies with equal, if not greater, force to industrial productivity as a whole. Increase in output by greater effort is not synonymous with increase in labour productivity. In industries where labour costs are low in comparison with material costs and capital costs, attention will have to be paid primarily to economising materials or making better use of machines. In an underdeveloped country like India, the shortage of capital and the abundance of labour are often such as to make it more important to increase output per machine than to increase output per worker. Higher productivity calls for concerted efforts on the part of members of all groups engaged directly or indirectly in production. Such efforts may require, in some cases, far reaching changes in the attitudes of all concerned—and not merely of labour. While the machinery for co-operation between employers and workers should be used to the fullest possible extent for the purpose of promoting higher productivity in industry, action is also required in the fields of organisation and control of production and proper and efficient use of plant and equipment. It should not be overlooked that higher productivity requires the maintenance and development of a correct balance in the production capacities of all the various factors which enter into the making of an industrial undertaking.

Higher productivity is not an end in itself, but a means to promoting social progress and strengthening the economic foundations of human wellbeing. In order that higher productivity does in fact lead to higher standards of living, it is essential that the benefits accruing therefrom should be equitably distributed among capital, labour and consumers. Workers sometimes resist measures to increase productivity under the apprehension that higher productivity involving as it often does technological improvement, may lead to unemployment. Not infrequently, they fear that employers would get all the benefits from higher productivity. It is, therefore, of the utmost importance that action to raise productivity in industry should be accompanied by appropriate employment policies and by measures to ensure that the benefits of higher productivity are fairly distributed through higher wages or lower prices or both.

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PLANNING OF SMALL-SCALE INDUSTRIES OF INDIA

By Prof. V. G. RAMAKRISHNAN

THE Planning Commission of the Government of India have envisaged a scheme of systematic development of small-scale industries for the implementation of the Five-Year Plan. The problem of planning of small industries in India is to be considered against the whole background of national economy and not merely as a comparison between small scale and large scale industrial structures. Small scale industries in India are both economically important in the present and capable of affording an improving livelihood to large numbers of people in the future. It may be first of all worthwhile to mention one or two general considerations that support this view.

Any sudden or revolutionary change in the economic organisation of a community involves social dislocation and the suffering caused by this may for a long time outweigh the economic gains of the re-organisation. The experience of Great Britain in the period in which modern industry was established amply illustrates this; in India the effects of large-scale industry and factory employment are likely to be even greater because the change involved is greater. The way a man lives is intimately related to the way he makes a living; the form that family life takes is dependent on the forms that property rights and employment systems take; an established economic system exercises a moral as well as an economic control over the individuals within it. It is important, therefore, if even the most necessary economic reorganisation is not to cause misery, to study all its effects and to control the transition, even delaying it if necessary, from one economic phase to the next. It is very necessary to emphasise the wider social effects of economic change, since the protective policy hitherto adopted has tended to accelerate the development of factory industry without any regard to its secondary effects.

In one of its aspects the change from small scale to large scale enterprises is a change from rural to urban conditions. It is easier to provide education and regulate industrial conditions for an urban population; but it is also much more expensive. Moreover, rural conditions are better understood and the population knows how to adopt itself to them, since the vast majority have always lived under them. Now rural depopulation is not peculiar to India; it is a tendency noticed in practically every country that has population statistics. It is due to two causes, neither of which is itself bad; the growing efficiency of agricultural operations which makes it possible to feed the world's population

with less and less labour and to the growing separation of industrial and agricultural work. The second of these is a cause of rural depopulation, because the industries that used to be carried on in connection with agricultural work—textiles, agricultural implement making, milling, etc.—are now more and more concentrated in towns. The combination of part-time industrial work with agriculture still survives in most countries. In India it is possible that small industries could be made so efficient as to survive in competition with urban large-scale industries. Such a possibility is worth exploring since the preservation of such industries would reinforce agriculture and preserve the rural community to which the population is accustomed.

A further consideration is that the urbanised agriculturist in large scale industry is usually rather a helpless person. Modern industry affords a relatively high standard of life to the skilled and educated wage-earners of Western Europe and America who can organise effective trade unions and, being enfranchised, can command the protection of the State. Its effects on the workers is very different, when these safeguards are lacking.

There must be very few observers of the results of rapid industrialisation in western countries who would not wish, if they had the power to start afresh, to plan it differently and especially to plan it in a way which would avoid huge urban concentrations and leave more open spaces so as to allow all factory workers the chance of keeping in touch with the country and even perhaps devoting part of their time and energy to cultivating the soil. The gradual changeover to the use of electricity for the supply not only of motive power but also for certain manufacturing and metallurgical processes and the resulting construction of central stations on a large scale have made the dispersion of factories much more possible than was the case when the Industrial Revolution transformed the face of England and other western countries.

The small industries are of very different types. First, there are the trades which satisfy the everyday needs of the people. In India, westernisation has not yet destroyed the traditional habits of consumption. There are many goods not of a kind that can be produced by mechanical methods in large factories. Everywhere there are small manufacturers turning out simpler kinds of durable consumers' goods for local sale.

The importance of the small unit in these manufacturing industries is explained not so much by technical reasons but rather by the abundance of labour and the scarcity and narrow diffusion of capital in present-day India. The pressure on the labour market caused by agriculture is so great that there is nothing in the nature of standard rates of pay. The small workplaces are staffed by members of a family who work for long hours for very low returns and by very cheap labour from the country.

Mass production is less prevalent in India owing to influences both on demand and supply side; many kinds of goods in demand in India are not standardized enough to lend themselves to large scale production; on the side of supply, the fundamental influence is the abundance of labour and the scarcity of capital compared with western industrial countries. The optimum technical unit in production depends on the relations between the prices of the factors of production, and that is because these price relations are markedly different in India from what they are in industrial countries.

Technical units of small size in any industry may of course be quite compatible with large scale control. For example, in Japan, many of the Japanese shop-owners are working under the orders of merchant employers or factory proprietors who furnish them not only with orders and detailed instructions but also with financial assistance and technical advice and often with materials and tools. Thus a small unit, though formally independent, may be virtually a part of a large firm from a financial and administrative standpoint. Where this is so, the activities of many plants can be conducted by a large organization and so can share in the economies that attend large-scale buying, marketing and financing. In this way the predominance of the small technical unit in many industries may be regarded not as an indication of the economic weakness of the country but as representing an appropriate adaptation of industrial methods to the economic conditions existing there. The size of technical unit (or plant) in India is, therefore, bound under existing economic conditions to be far smaller than that found in corresponding industries in western countries and yet attain a level of efficiency which permits their survival in modern industrial conditions.

Since the majority of small industries are conducted not as registered companies or limited concerns, but as private family concerns, it is out of the question to find out how much money is invested in them.

In a country where there are thousands of petty businesses, each of which employs less than a score of workers, and, therefore, does not come within the scope of the Factories Act (which defines a factory "as a place wherein twenty or more persons are engaged in industrial labour") there is no basis on which we can hope to compute the number of persons engaged in small industries.

Small industries may be divided into three types: (1) those in which production in a small scale has certain advantages and is not affected by large-scale production to any great extent, (2) those in which small-scale production is concerned with making certain parts or with certain stages of production in a manufacturing process in which the predominant role is played by a large-scale industry, and (3) those in which a small-scale industry has to compete with a corresponding large-scale industry.

Among the industries of the first type, mention may be made of the manufacture of locks and padlocks, wax candles, buttons, **chappals** and badges. While these industries may be run on an individual basis, they should be organised through groups, primarily with a view to facilitating sale and marketing and the financing of production.

Among the small industries of the second group, the manufacture of cycle parts, electrical goods, cutlery, pottery and agricultural implements are important examples. During the war, the smaller engineering units made great progress; subsequently, however, many of them were hard hit by the shortage of iron and steel. With the increased supply of pig iron and iron and steel, for which the Five Year Plan provides, these industries will undoubtedly revive and expand. Nevertheless this development will be possible only by the reservation of spheres of activity for a particular industry as a whole, supported by considerable assistance in finance, organisation, and training on the part of the Central and State Governments.

Of the third type, namely, industries open to serious competition from corresponding large-scale industries, the best example is furnished by the handloom industry. It is, however, very necessary that in respect of industries of the second and third types the Central Government should arrange for early consideration of how the principle of common production programmes should be applied in detail to different industries. The nature of the programme will, of course, vary with each industry.

In some cases the essential points will be that the supply of raw materials should be assured, a sphere of production ear-marked and perhaps a small cess levied on the large-scale industry. In other cases, it will be an integrated programme in which large and small units are essentially complementary.

The field of employment both in public service and in large-scale industry being limited, small industries offer the most promising opportunity for the employment of persons with some training and education. Furthermore, small industries and handicrafts have great importance as a means of providing employment for women in their homes. During the war, new small industries sprang up all over the country for the purpose of meeting defence requirements. Though many of them have since disappeared, the experience of these war-time industries, manufacturing articles which are now once again imported from abroad, clearly indicates that there is room for expansion in this field. Hitherto there have been hardly any considered programme of development and improvement and the growth of small industry over the past two decades has been an unplanned process, lacking some of the elements that make for efficiency and stability. The planned development of small industry is a task of immense magnitude and import-

ance, but the Central Government have now taken it in hand and, as a first step, programmes for a few selected industries, such as the manufacture of woollen goods, sports goods, agricultural implements, brass-ware and bell metal and cycle parts, are being prepared in consultation with the States concerned.

Any attempt to assess the future position of these small industries raises the all-important question of how to plan their further development. In a basically agricultural country like India, development calls for that kind of co-ordination which will maintain a fair equation between agriculture and industry, and as between large scale and small scale industries, the latter have an equal, if not a higher, priority in any scheme of planned industrialisation in India. It is gratifying to note that this aspect has been recognised to some extent in all the recent plans, official and non-official, relating to a planned economy for India.

In any scheme of planning, industries should be organised in such a way that over a whole planning period the ratio of capital, including land and buildings, to net product would not be too high in view of the plentiful labour and comparatively less capital in India. In the production of consumption goods small scale industries which require a comparatively small

amount of capital equipment would play an important part. One lesson we have to learn from the Russian Five Year Plans is that while developing certain basic industries, it should be our aim to develop the consumption goods industries so as to meet our essential requirements and we should encourage smaller industrial units. Further economic planning, as can be seen from the economic programme of Soviet Russia, should be a calculated effort on the part of the public authorities to secure within a given period of time the maximum well-being for the community by the most economical allocation of the available resources. It will, therefore, be found necessary to collect full information about the resources available within the country without which no scheme of planning can be launched.

The other important pre-requisite is that we should put before the country some definite ideas regarding the practical lines of planning, which will double the national income and the output within a specified period of, say, 10 or 15 years. In India it is well to bear in mind that the conditions in the different States are so diverse that it may sometimes be difficult to secure benefits to all areas at the same pace. A successful plan involves unified action by a central authority, and in this respect, the existence of autonomous States makes it difficult to administer an All-India

plan, and such constitutional difficulties are likely to limit considerably the scope of a planned economy in India.

In a letter to State Governments, the Planning Commission have expressed the view that there are many fields other than large-scale industries which should have a prior claim on the resources of State Governments. The Commission are of the opinion that with their knowledge of local raw material resources and markets, the State Governments could make a vital contribution to national development by devoting their resources and personnel to small-scale and cottage industries. The first thing for State Governments is to conduct economic surveys of resources. The Census of small industries might aim at getting statistical information regarding (1) the number of persons engaged in these industries distinguishing workers on their account, employers, employees, (2) the quantity and value of raw material used, (3) the quantity and value of finished products, (4) the quantity and value of products sold, (5) total wages paid to employees and (6) hours of work of employees. In fact, the State Governments will do well to recognise that planning is no longer a faith but a technique and they should formulate a dynamic programme of industrialisation in relation to the small-scale industries in their respective areas.

The Problems of a Mixed Economy for India

By GOBINDA CHANDRA MANDAL, M.A.

DURING the 19th century Western economies were dominated by private capitalistic enterprise which brought about vast economic developments. In the wake of these developments various problems centering round the interrelation of individual freedom and welfare of the social aggregate cropped up requiring progressive increase in state interference with private enterprise. Since the beginning of the 20th century the practice of State-interference rapidly developed into a system of dual or mixed economy.

Mixed Economy in Free India.

Free India has been definitely bent upon pursuing a mixed economy. This is manifest in the Industrial Policy Statement of 1948. The policy accepts the principle of Government ownership of and control over the production of armaments, atomic energy and railway services. Moreover the policy imposes upon the State responsibility for the development of some key industries e.g. coal, iron and steel, air-craft manufacture, ship-building, manufacture of telephone, telegraph and wireless. This responsibility is, however, to be limited by the necessity of private co-operation of capitalistic enterprise. The policy, again, reserves for the Government the right to take over or control any private undertaking whenever it fails to work in consistency with the public interest. In connection with the recent economic policy debate in the Lok Sabha the Government has reasserted its faith in a mixed economy.

Objective of a Mixed Economy:

The main objective of a mixed economy is a harmonious combination of private and public enterprise. In a full-fledged socialist economy there is always the dangerous possibility of regimentation of economic life and elimination of individual choice under a highly centralized bureaucratic authority. A mixed economy is expected to minimize such a possibility. Its purpose is to combine maximum individual freedom with maximum social welfare.

The Twin Questions of Full Employment and Economic Expansion:

The practice of a mixed economy is, however, beset with a number of peculiar difficulties of its own. The questions—which arise in connection with the working of a mixed economy are these: Can mixed economy provide the necessary drive in breaking through the stagnation which characterizes an underdeveloped economy like that of India and release the forces of economic expansion within a reasonable length of time? How far can a mixed economy succeed in achieving full or a high level of employment without lowering the real-wage-rate? Whatever may be India's achievements in the industrial sphere dur-

ing the inter-war period, India is still considered to be an underdeveloped and capital-scarce economy. Capital equipment of its agriculture is extremely small. Productive efficiency in agriculture is consequently extremely low. There is still an overwhelming dependence on agriculture as a source of living. The problem for India is to supply enterprise both in agriculture and industries.

It should be remembered that industries have developed in India under a high degree of profit-stimulus. A steady supply of cheap labour and cheap raw materials has served to an enormous extent the cause of industrialization in India till the end of the second World War. It is now appreciable that the rate of profit per unit of capital has tended to decline since the close of World War II and this is tending to discourage industrial investment. This is possibly largely due to a shift in the distribution of income in favour of the primary producing-sector through a comparatively larger rise in prices of raw materials and agricultural products in general. But it should be noted that in spite of the surmise of transfer of income from the industrial to the agricultural sector of the economy, there has been little expansion of the capital-equipment of agriculture. This is possibly owing to the fragmented character of Indian agriculture. Indian agriculture is dominated by peasant-farming and has provided little room for capitalist farming. Whatever increase in the income of the peasantry might have occurred has been utilized in raising their consumption-standard, and it has made little contribution towards the building up of an investible surplus. This is natural on the part of a population having a high marginal propensity to consume. One of the problems facing the mixed economy of India is how to harmonize the relation between the rural and urban sector of the economy so as to secure agricultural progress consistent with industrial expansion.

Promotion of industries in a backward economy is a pioneering work. As there is not a readily available supply of technical and business intelligence, as these essential requisites of industrialization have to be acquired through experience, rewards must needs be commensurate with the cost of such experience.

Again, there is the question of full employment. Expansion of employment may mean higher cost of production where plants are already fully utilized or it may mean supply of goods in excess of what can be disposed of under the existing condition of demand. Private entrepreneurs would not be agreeable to offer larger employment at the existing level of wages if there has not been any rise in the demand for their products. The question

of larger employment can be successfully tackled by a mixed economy only if it is rooted in the co-operation of all progressive trade unions and employers' associations embracing major portion of the economy.

Fiscal Policy:

A judicious fiscal policy can go a long way towards securing industrial expansion without any detriment to working-class-living or interests of other sectors of the economy. The fiscal policy should be such as would diminish all idle savings and canalize such savings into productive capital formation both in the industrial and agricultural sectors of production. Part of such savings can also be utilized in improving human capital through 'community-consumption-measures.' Provision for better housing facilities, social security, health services and educational facilities for the masses of people are examples in point.

Monopolistic Tendencies:

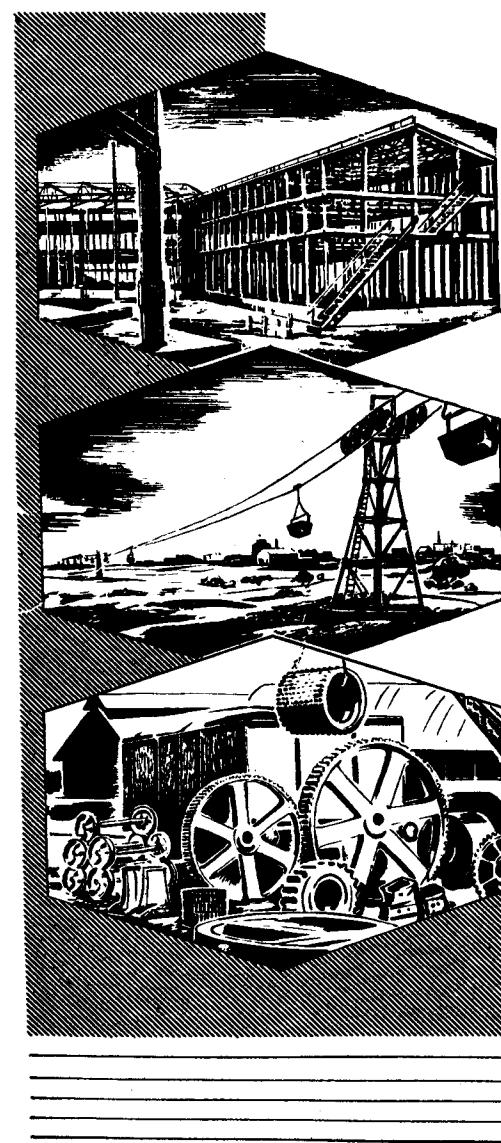
It should be noted that monopolistic tendencies have already made their appearance in the realm of industrial production. Monopolistic production attains equilibrium far below the point of fullest utilization of the productive plants and here is little desire on the part of a firm under monopoly to reach the opti-

mum size which minimizes cost. Apart from this monopolistic concerns are in a position to establish monopolistic control over the supply of capital and prevent it from flowing into the hands of small and new concerns. On all these grounds the growth of monopolism is highly inimical to economic expansion. It is necessary, therefore, that the fiscal policy of India should be discriminative in favour of small and new companies as against the big and old ones. It must also be discriminative in favour of savings actually spent on productive equipment as against idle accumulations.

Towards Economic Democracy:

- Democratizing capital,
- Democratizing Technical Knowledge.

An important step towards economic democracy under a mixed economy is to diffuse productive power through the pursuance of a proper fiscal policy showering special favours on small units of production or new entrants in the field of business. But much has also to be done in this direction by democratizing credit facilities. The Shroff Committee on Finance for the Private Sector appointed by the Reserve Bank of India in October 1953 has pointed out that assistance rendered so far by Governments



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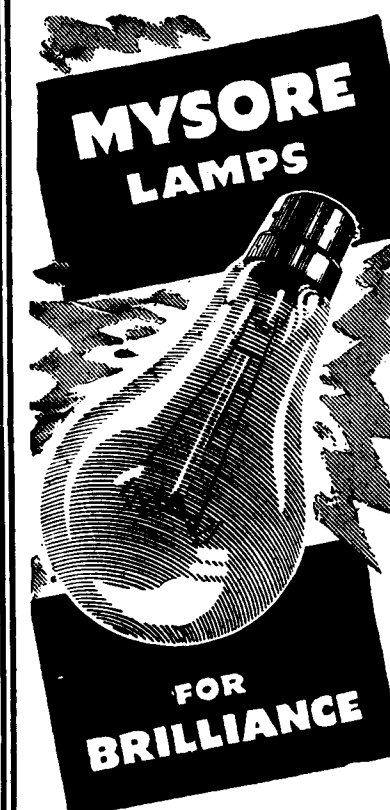
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under the State Aid to Industries Acts has for various reasons been more or less of a token character. The committee has recommended the formation of a special Development Corporation for small industries immediately. The special Development Corporation should, according to the committee, have an initial share-capital of Rs. 5 crores subscribed by the Reserve Bank, commercial banks, insurance companies and private subscribers, the Central and State Governments having to supply an interest-free loan of Rs. 10 crores for a minimum period of 15 years. The Industrial Finance Corporation is rendering financial assistance, for whatever it is worth, to big concerns. It is of no use for small industries and small concerns. The lacuna in financial provisions for small or medium-sized industries is long-felt. The Shroff Committee's recommendation for making up this leeway is immensely valuable. If the nation is seriously interested in economic decentralization and the small or medium-sized concerns are to play a progressive role in the fulfilment of this object, no pains should be spared in immediately giving concrete shape to a plan for development corporation for the purpose.

Apart from this, much has got to be done towards the democratization of technical and business knowledge. It is necessary that

production - cum - training centres should be started all over the country and even in rural areas for extensive dissemination of technical and business knowledge. It is well-known that private workshops or business concerns are not helpful in communicating business or industrial experience to the public. The necessity of a large number of public workshops for the purpose cannot be dispensed with. Facilities of technical and practical business training are quite inadequate in comparison with their need. Special effort must have to be devoted towards removal of this drawback. Financial provisions will be fruitless or remain on paper unless synchronized with business and technical training.

Administrative Efficiency:

Last of all, the success of a mixed economy will obviously depend to a great extent upon efficient functioning of the administrative machinery. This is because of the special responsibility which devolves on the State in ensuring economic expansion at a reasonable rate. The administrative machinery must be worthy of this responsibility. It must be dynamic and has to be revitalized by the inclusion of men having imagination and a solid background of experiences in different fields of activities. In this connection the writer feels tempted to quote below the observations of E.F.M. Durbin who was a renowned

economist and an exponent of democratic planning having at the same time a considerable experience of governmental administration:—

"I think it is a mistake to suppose that recruitment to the Civil Service should take place exclusively at the age of twenty-two or twenty-three. The Service needs a variety of experience. * * * There is no reason, however, why a small number of posts at senior level (say one quarter of the posts held by Assistant Secretaries) should not be filled by men in their early thirties from outside the Service by advertisement and open competition. * * * The inflow of men at a later stage in life and at a higher level would continually freshen the service, keep it in touch with the development of administrative technique, maintain its intellectual communication with the larger world and do a great deal to break down the cloistered seclusion of Whitehall—the 'place apart' (cf. E.F.M. Durbin, Problems of Economic Planning, page 114. These observations were related to the British Civil Service)"

Again, the administrative procedures obtaining at present in India are obsolete and can never fit into the new task of setting in motion a progressive economy. Fortunately, there has been, of late, larger and larger realization of the need

for administrative reforms since the commencement of the Five Year Plan and particularly following Dean Appleby's report on the matter

Revitalization of the administrative machinery, inter-departmental co-ordination at all levels and adaptation of procedures to the new situation are the three tasks on the administrative front whose fulfilment is urgently called for by an actual programme of the mixed economy of India.

Conclusion.

Apart from the excessively modest character of the first Five-Year Plan its actual progress has been admitted to be below expectation. A Plan for development loses its significance unless its actual fulfilment is appreciably rapid and unless it holds out prospects of sufficiently rapid improvement of the economic well-being of the nation. The purpose of a mixed economy is noble. Ideally it contains the best of what civilization has got to offer. It is based upon the principle of encouraging the progressive forces and curbing the reactionary ones. It depends upon a minimum exercise of coercion. But it will be an utter failure if its leadership is not able to build up the maximum community of purpose both in the governmental administration and among the people at large—which alone can help a nation tide over the difficulties of a great crisis.

FAITH IN INDIAN ECONOMY

By S. P. JAIN

A seven year period has wrought remarkable changes in the economy of our country. What was at the close of 1947 an anxious and uncertain picture of insufficient supplies of essential requirements has changed into a record of steady progress in many directions. Greater agricultural and industrial production has brought about a condition of larger supplies of agricultural produce and manufactured goods. The feeling of scarcity has given place to an assurance of plenty and availability of goods at reduced prices. This is not a mirage but a reality and the prevailing prosperity is based in strong and sure foundations as is evident from the various healthy forces now operating in the economy.

The progress has been achieved notwithstanding the Government's preoccupations with acute political problems; notwithstanding also the hesitant approach to problems of expansion and the psychology of cautious expenditure actuated by fear of inflationary spirals. It is common knowledge that the whole plan for national development was influenced by Government's assessment about cropping up of inflationary forces in the country. The inherent strength and resilience of our economy permitted not only a rapid recovery but also appreciable improvement in the position. While the results have proved false the fears of pessimists within and outside the Government, they have also justified the firm stand of those who had advocated a bolder plan and accelerated pace of development as the only method of creating greater employment and improving the standard of living of the people. It is not my purpose here to minimise or exaggerate the part played or achievement made by the Government or any section of the community. What is significant is the fact that the economy of our country has gained from the expansion work undertaken during the past few years and it could sustain greater activities to meet the needs of the growing population.

It is gratifying that during the last twelve months what I have called the psychology of hesitation has given place to a deliberate and even anxious effort towards expansion in a big way. This has been forced obviously due to the menacing problem of unemployment. This is now an issue of paramount importance confronting the Government and the people. All shades of opinion urge vast expansion and no quarter appears to be given to fears of inflation and so forth.

The ground work achieved during the last seven years facilitates an ambitious programme of development. Industrial output has gone up over 40 per cent and production of food stuffs has risen by about 31 per cent. The resulting gains have favoured giving active support and

impetus to the private sector for a greater amount of expansion. The purchasing power and money available with the traders and the industry though affected by reduced returns and curtailed profits cannot be said to be lower than what they were during the war period, thanks to the large investments and in-

creased production particularly in certain directions. The purchasing power of the rural population has not been affected as is feared in some quarters on account of the decline in prices of agricultural produce. In this connection, the following table gives an impressive picture.

	AREA ('000 acres)			YIELD ('000 tons)		
	1951-52	1952-53	1953-54	1951-52	1952-53	1953-54
CEREALS:						
Rice ..	73,665	74,209	76,646	20,741	22,495	27,079
Wheat ..	23,450	24,285	26,098	6,039	7,383	7,792
Jowar ..	39,144	43,339	42,990	5,944	7,260	7,691
Bajra ..	22,839	26,550	28,820	2,299	3,150	4,246
Maize ..	8,073	8,897	8,982	2,021	2,823	2,854
PULSES:						
Gram ..	16,857	18,014	18,893	3,293	4,165	4,551
OILSEEDS:						
Groundnut ..	11,798	11,850	11,356	3,045	2,884	3,772
Linseed ..	3,402	3,335	3,369	316	359	365
FIBRES:						
Cotton ('000 bales) ..	16,198	15,693	17,027	3,133	3,131	3,935
Jute ('000 bales) ..	1,951	1,817	1,196	4,678	4,605	3,129

While it will be seen that production of rice and wheat has gone up by 31 per cent and 30 per cent respectively, the decline in the price index shows that the net gain has been in favour of the cultivators. The price index in respect of rice touched the peak of 546 in 1953-54 and declined to 427 in December 1954. The decline is just over 20 per cent. In regard to wheat the peak figure of 601 in 1953-54 went down to 484 in December 1954—a drop of a little less than 20 per cent. Thus in the cases of rice and wheat which account for bulk of the production and value of foodgrains, the rural sector's income has been higher by anything between 10 to 15 per cent. In the case of other foodgrains also, a somewhat similar position obtains.

Other positive factors conducive to greater expansion activities are also indicated. The Scheduled bank deposits have gone up by 88 crores of rupees excluding borrowings from banks. Till two years ago, the trend was one of declining deposits. The sound improvement in the economy has helped savings. The question, therefore, appears to be one of utilising the favourable trends and channelising available resources to greater developmental work. It may be said that the work is handicapped not so much by lack of finance as by the ability to use available resources and the lack of conducive conditions. While the note circulation rose by 68 crores of rupees to 1,200 crores the money supply increased only by 41 crores from January 1954 to November 1954 to over 1,800 crores. The bank advances rose by 45 crores. We know that in spite of their commitment, the Government did not have to resort to deficit financing. The facility of long-term credit for plants and machinery is now available from foreign machinery manufacturers. Impression abroad is gaining ground that India is a good investment risk. The credit corporations, the recommendations of the

various Committees such as the Shroff Committee, Gorwala Committee and the Handoo report as regards consortium of banks and Insurance companies for underwriting new flotations in the private industrial sector are all important factors towards a rapid development. They must inject confidence and optimism into even the most pessimistic. The combined expenditure of the Government of India and the allied Nations in India that has been largely responsible for the war-time economic prosperity was not of a higher order than 600 crores of rupees per year. The contemplated expenditure under the Second Five-year Plan in the public and private sectors is of the order of Rs. 1,000 crores per year. Our economy is in a position to sustain and also provide for this expenditure. I am confident that the country's expansion activities will not have to be curtailed or kept under check as in the immediate past years either due to lack of finance or due to fears of adverse forces affecting the economy. To put the country and the people on the basis of a rising standard of living expansion activities have to be stepped up to create greater employment and for augmenting the purchasing power. Hinged as the entire expansion Plan is on the question of employment which is acknowledged as a grave matter, forces that endeavour to undermine the efforts for expansion cannot sustain.

The results will depend on the amount that is invested and also the directions in which the investment is made. There is scope for work for every employable person. We should launch upon a nationwide construction scheme for houses, roads, bridges etc. There is in this sphere no limit to the scope for employment and also no question of greater investment bringing diminishing returns. The expenditure will directly affect the working forces. It will also be psychologically an encouraging factor for all the

people in that they will feel as active participants in national development. Such a programme of work will create demand for various commodities such as bricks, cement, steel and in each of these spheres there will be further off-shoots of requirements. With greater purchasing power, need will be created for various types of consumer goods and a momentum for all round expansion work will be created. The whole scheme carrying out in its chain hospitalisation, education, etc., apart from contributing to betterment of life will provide abundant scope for remunerative employment to unskilled, semi-skilled, skilled and the educated classes. In this national effort, the objective and the result will be creation of earnings that would ensure a reasonable standard of living round the year.

One cannot forget, in this context of expansion activities, the proposals for Company Law amendment, the compensation clause, socialistic enunciations, nationalisation and rumours of possible recommendations of the Taxation Enquiry Commission etc., which are deterrents that chill the atmosphere. But I have no doubt that they will be adjusted in such a manner as to further the larger interests of the economy. The basic factors operating in the economy are strong enough to prevent other forces from constituting any really serious difficulty to the nation's development. Any one pessimistic about the success of such expansion plans, has either not realised the current forces in the economy or is merely interested in temporary gains through speculative activities. What has been done during the last seven years is unmistakable demonstration of what the country can do and, availing the greater opportunities now created, the achievement is bound to be better.

I am one of those who strongly believe that there is tremendous scope and need for the private industrial sector in our economy. The sector has also proved its bonafides through its efforts so far and eagerness to play its further part fully in the national development. It cannot be denied, however, that a large amount of suspicion exists and public approbation is not available to the business community to the extent that they should have. Our country has stood worst trials and emerged gloriously. The business community have struggled and sacrificed in their own sphere for the betterment of the country. They should now as before direct their energies in the national work for fulfilment of long-term industrial prosperity, unswerving by temporary gains which may be tempting and easy and also, I may say, undeterred by conflicting ideological pronouncements and earn the support of the public to keep their rightful place in the economic and industrial set-up of the country.

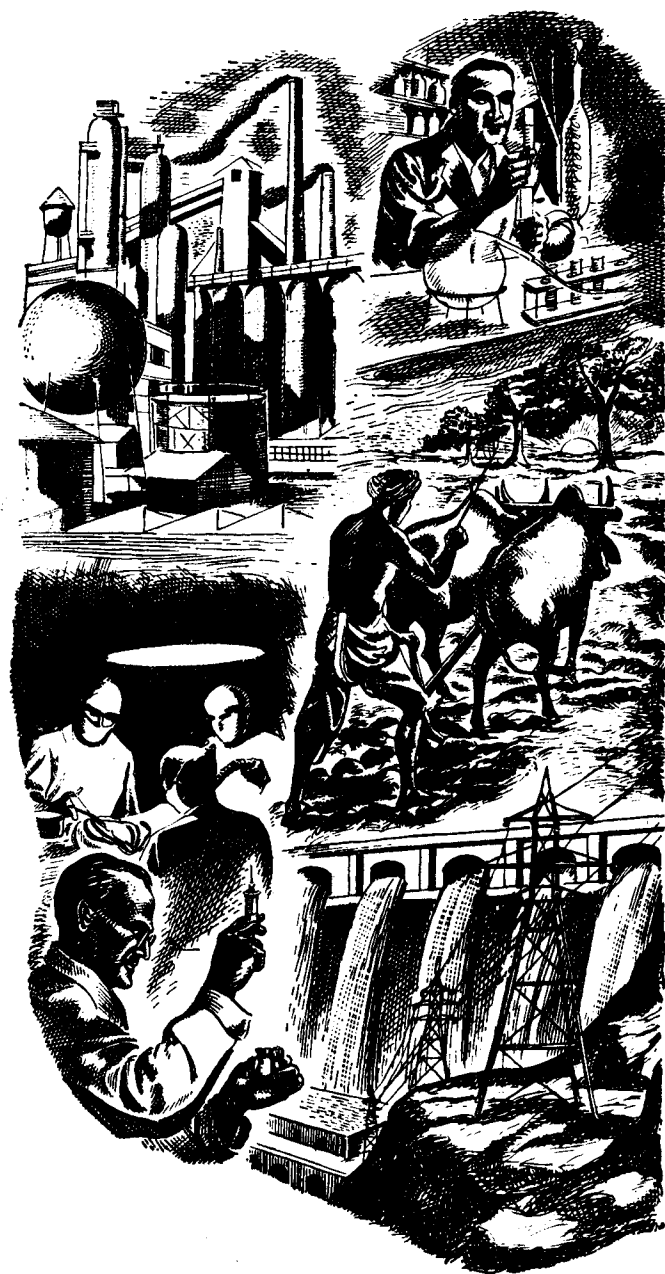
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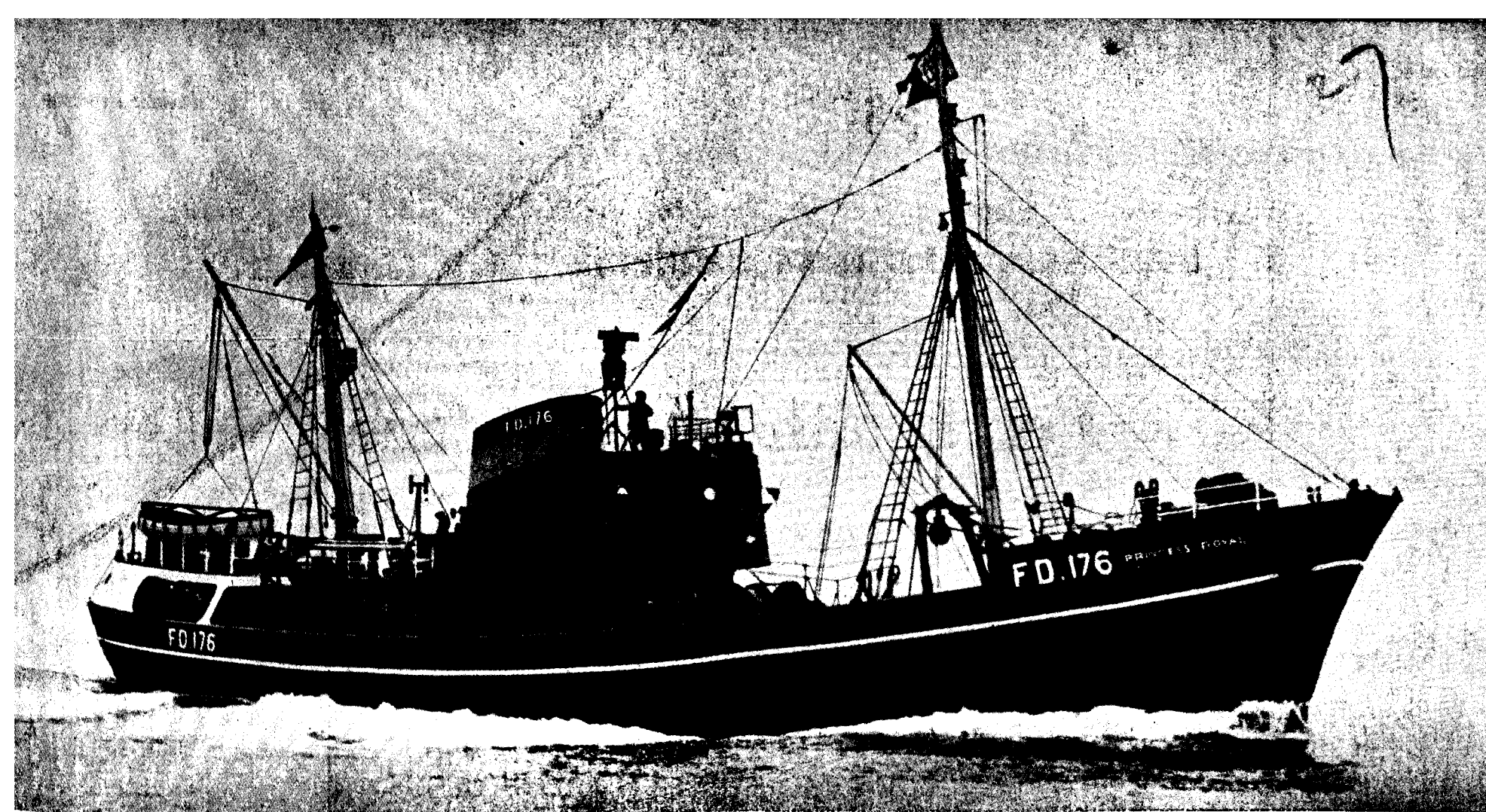
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DR TRAWLER "PRINCESS ROYAL"

By Courtesy Boston Deep Sea Fishing Co. Fleetwood.

A PLAN FOR INDIAN FISHING INDUSTRY

By U. SHANKER RAO

SCHEMES have been drawn for the development of many new industries in India's Second Five Year Plan. The commercial success of Japanese fishing in Bombay has now provided us with a clear picture of the industrial potentialities of deep sea fishing. It is essential that a plan should be drawn to establish the fishing industry on an organized basis in India.

The Estimates Committee appointed by the Government of India had examined this question—whether deep sea fishing was economical and practicable in India—and though it had not come to any definite conclusions yet the evidence submitted did not show any hopes for the future of the industry. Past results had all failed to work fishing on a commercial scale. The work of the "Taiyo Maru" (Captain T. Emata), however, became a turning point and brought a new outlook as to the future prospects. For the first time fish was seen unloaded from the trawler by hundreds of boxes and one talked in terms of tons of fish instead of pounds as was known hitherto in India.

In the post war years modern trawlers and fishing vessels have attained a bewildering array of ship types. Indeed modern trawlers are big ships in miniature and world fishing has now become world feeding. Great Britain as a prime designer and builder of trawlers and fishing vessels occupies the pride of place closely followed by Japan, USA and other Continental shipyards. The finest illustrations of world ship-types in trawlers and fishing vessels was provided when Queen Elizabeth, herself the Master of Britain's magnificent fishing fleet reviewed during her Coronation representa-

tive types ranging from the small inshore craft to the large distant water trawlers.

Classification of Fisheries

The division of the sea into areas and the types of vessels employed are conventional and not laid down by any authority. However, for operational purposes it has been found desirable to classify certain areas of the seas as Inshore, Near or Middle Water, and Distant Water Fisheries. The first includes prosecution by small boats all along the coasts and of local extent mostly ranging from 18 to 35 feet in length and powered by semi-diesel and diesel engines, with a crew of 1 to 3 men. The second category is worked by larger vessels capable of staying at sea upto a fortnight. These fisheries include the North Sea, English Channel, Irish Sea, Orkneys, Shetland and Faroe Islands. The third group includes the great arctic and Newfoundland fleet of large powerful trawlers that habitually travel to Iceland, Greenland, Bear Island, Barents Sea and Murman Coast and to the Grand Banks. In such areas trawlers go in search of cod, halibut, hake, flounder. The cod is by far the most important commercial species fished for by these vessels. Distant water trawlers stay out at sea for periods of three weeks and land the fish in well iced condition, quite often as frozen fish. There is a general tendency today for more processing at sea and fishing operations are conducted by factory ships and catcher boats or by self-contained factory ships like the new trawler "Fairtry".

A close competitor in design, construction, and specialization in ship types is Japan. Since the Surrender Japan has re-built her trawler

and fishing fleet in a remarkable manner and in 1953 it totalled 480,000 vessels of all descriptions amounting to 1,230,000 gross tons. Japan possess some of the largest trawlers in the world like the 1,000 ton "Surugu Maru".

Basic Classification of Trawlers

In general the range of fishing and the type of ships engaged in any fishing operations are basically classified according to their length. This measurement, taken between perpendiculars (B.P.) affords a sort of a standard on which the major scantlings, horse power of engines, fish hold capacity, draft (port facilities), range

of operations, number of crew, and finally the economic aspects are governed. In Britain, the White Fish Authority (headed by a naval admiral), which has been set up to improve conditions in the fishing industry, works out schemes on the basis of such lengths and the following statement illustrates the manner in which state loans and subsidies are given to trawlers. A separate body known as the Herring Industries Board looks after the interests of inshore fisheries. The sea round the British Island have been divided into certain zones and fishing regions for administrative purposes and the areas are put in charge of Exnaval and merchant service officers.

Summary of Scales for Fishing Vessels over 70 feet not exceeding 140 feet. Separate Scheme for Inshore Vessels.

Class of vessels and voyage	per day at sea	Maximum Payment for any one voyage	Gross proceeds (inclusive of subsidy) not to exceed	
			per day at sea	for any one voyage
	£	£	£	£
Motor Selnors				
Other Motor Vessels				
Over 70 ft. but under 80 ft.:				
Faroe voyages	10	150	45	810
Other voyages	10	100	45	450
80 ft. but under 90 ft.:				
Faroe voyages	10	150	60	1,080
Other voyages	10	100	60	660
90 ft. but under 100 ft.:				
Faroe voyages	12	180	70	1,260
Other voyages	12	120	70	770
100 ft. but under 120 ft.:				
Faroe voyages	13 (12)	195 (180)	78 (75)	1,404 (1,350)
Other voyages	13 (12)	156 (144)	78 (75)	916 (900)
120 ft. but not exceeding 140 ft.	13 (12)	195 (180)	95 (80)	1,710 (1,440)
Steam Vessels				
Over 70 ft. but under 90 ft.:				
Faroe voyages	12	180	56 (55)	1,008 (990)
Other voyages	12	420	56 (55)	616 (605)
90 ft. but under 100 ft.:				
Faroe voyages	12	180	61 (60)	1,098 (1,080)
Other voyages	12	120	61 (60)	671 (660)
100 ft. but under 110 ft.:				
Faroe voyages	13 (12)	195 (180)	66 (65)	1,188 (1,170)
Other voyages	13 (12)	156 (144)	66 (65)	792 (780)
110 ft. but under 120 ft.:				
Faroe voyages	13 (12)	195 (180)	78 (75)	1,404 (1,350)
Other voyages	13 (12)	156 (144)	78 (75)	1,170 (1,125)
120 ft. but under 130 ft.	14 (13)	210 (180)	90 (85)	1,620 (1,530)
130 ft. but not exceeding 140 ft.	14 (12)	120 (180)	100 (95)	1,800 (1,710)

Courtesy The White Fish Authority 1954.

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Japanese Fishing India

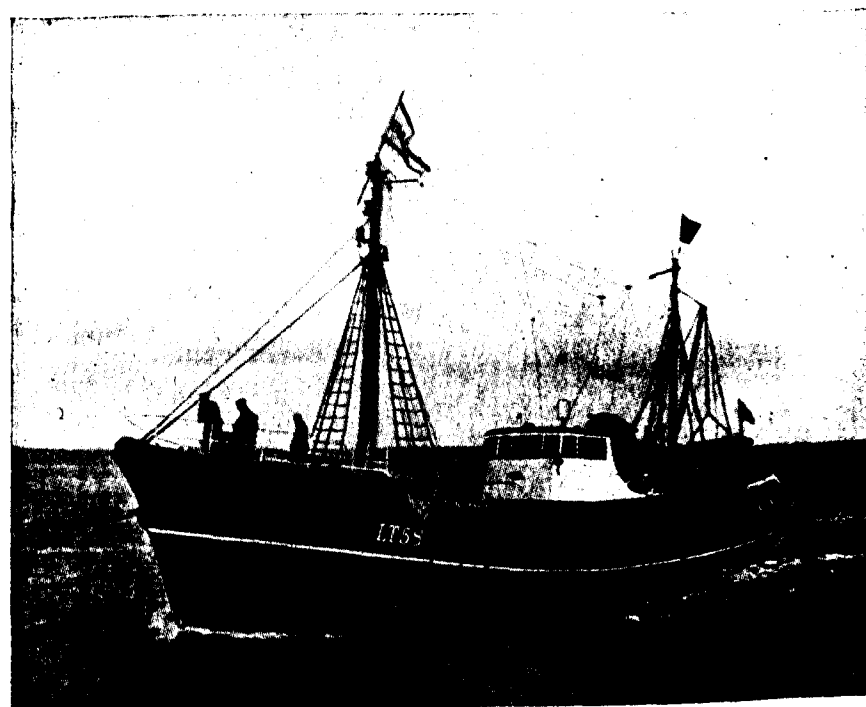
Of all the deep sea fishing operations conducted so far in Indian waters since 1900 the Japanese fishery technicians were the most successful. The work of the "Taiyo Maru" demonstrated how commercial fishing could be established and run on a large scale joint-stock basis. The Taiyo Fishing Company originally founded in Japan some 70 years ago was counted among the 5 leading fishing companies of Japan. Soon after the termination of hostilities the company was re-organized and

today it has a fleet of 440 ships (including the 17,000 ton whale factory ship "Nissin Maru") totalling 105,410 gross tons. The trawler "Taiyo Maru" was based in Bombay and worked for 2 years from 27th November 1953. A number of fishing grounds were surveyed and the catches included Dara, Ghol, Koth, Karkara, Pom-frets, Vam, and other miscellaneous species. The following statement published by courtesy of the Taiyo Fishing Company (Bombay) shows details of trawling operations and the sale proceeds of fish for a period of 2 years from 1951 to 1953.

STATEMENT OF "TAIYO MARU NO. 17" 1ST YEAR (UPTO 25TH VOYAGE). From 27th November, 1951 to 25th November, 1952.

Voyage No.	Departure	Arrival	Navigation days	Operation days	Main fishing grounds	No. of hauls	Total catch (1 c/s = 50 lbs.)	Total catch ton (1 ton = 45 c/s)	No. of c/s haul (aver.)	Net sale proceeds (Rs.)	Rate/ton (aver.) (Rs.)	Rate/c/s (aver.) (Rs.)	Rate/lbs. (aver.) (As.)
1(51)	27-11-51	5-12-51	9	7	A	37	2567	57	69	17,648	309	6	2
2	9-12-51	19-12-51	11	9	A	51	2621	58	51	19,802	341	7	2
3	22-12-51	30-12-51	9	7	N	35	1099	24	31	12,700	532	11	4
4	1-1-52	10-1-52	10	7	M	37	2160	48	58	21,617	679	15	5
5	15-1-52	30-1-52	16	13	K-M	80	4057	90	50	41,886	465	10	3
6	1-2-52	10-2-52	10	8	M	43	2512	55	58	27,275	495	11	4
7	18-2	28-2	11	9	M	48	1829	40	38	14,592	365	8	2
8	3-3	13-3	11	9	11	56	1677	37	29	16,320	441	9	3
9	15-3	30-3	16	14	M-K	86	2696	59	31	26,122	442	9	3
10	2-4	13-4	12	10	M	54	2897	64	53	25,020	390	8	2
11	15-4	26-4	12	9	N	51	8200	71	62	19,248	271	5	2
12	29-4	10-5	12	9	N	53	2821	63	53	25,305	408	8	2
13	13-5	26-5	14	9	Cochin	42	756	17	18	4,190	245	5	2
14	27-5	11-6	15	14	A/2	77	2223	49	30	19,947	407	9	3
15	15-6	28-6	14	11	E/I	56	2223	49	43	29,870	609	13	4
16	30-6	10-7	11	8	N	32	2584	57	80	33,479	587	13	4
17	13-7	25-7	13	11	I/10	49	2001	45	40	23,960	538	11	3
18	30-7	8-8	10	9	38	44	837	18	18	9,027	531	11	3
19	10-8	19-8	10	9	10/11	50	2554	57	51	30,650	548	12	4
20	21-8	30-8	10	8	10	44	2788	61	63	26,491	434	9	3
21	1-9	13-9*	12	11	3-10	66	1641	37	23	17,352	445	11	3
Cochin													
22	23-9	4-10	12	5	10/11	28	816	17	27	4,160	208	5	2
23	8-10	23-10	15	10	10/12	62	2283	51	34	13,249	246	6	2
24	25-10	11-11	16	13	18	94	2394	53	25	16,366	282	7	3
25	13-11	25-11	13	9	N A	68	1542	34	23	10,221	283	7	3
Average	12	9.5	days	days		45	2189	48	41	20,263	422	9	3
Total	305	238	days	days		1343	54728	1211		5,06,577			

*15-9/21-9 docking at P. Dks.



MOTOR TRAWLER "BOSTON PEGASUS"
(Courtesy Boston Deep-sea Fishing Co.)

THE STATEMENT OF "TAIYO MARU NO. 17" 2nd YEAR 26th VOYAGE TO 43rd VOYAGE.

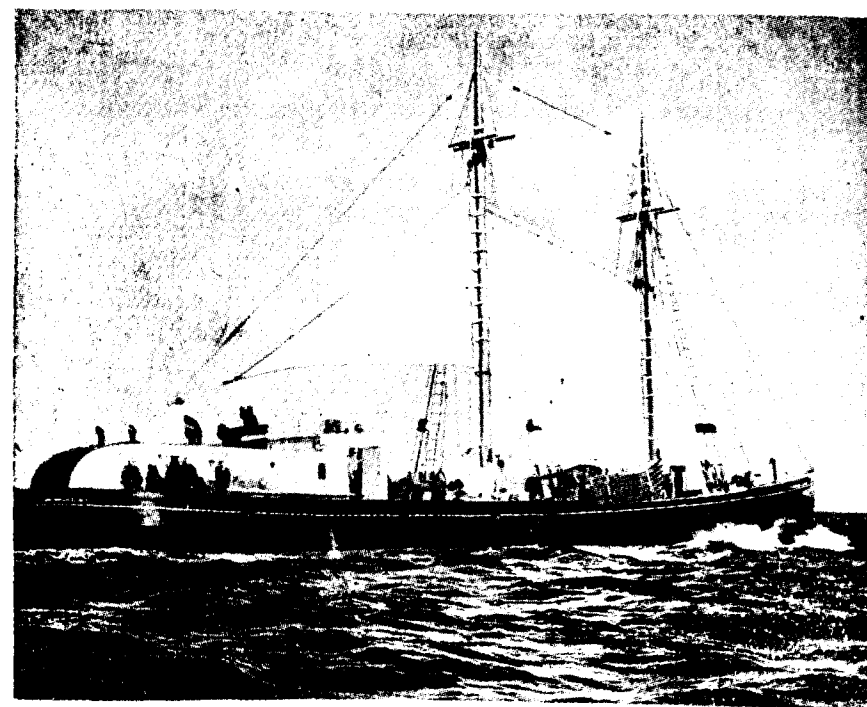
From 28th November, 1952 to 25th November, 1953.

Voyage No.	Departure	Arrival	Navigation days	Operation days	Main fishing grounds	No. of hauls	Total catch (1 c/s = 50 lbs.)	Total catch ton (1 ton = 45 c/s)	No. of c/s haul (aver.)	Net sale proceeds (Rs.)	Rate/ton (aver.) (Rs.)	Rate/c/s (aver.) (Rs.)	Rate/lbs. (aver.) (As.)
26(52)	28-11-52	12-12-52	14	11	M	69	2708	62	39	34,551	557	12	4
27	19-12-52	30-12-52	11	9	M-K	56	2698	61	44	41,282	676	14	5
28(53)	2-1-53	14-1-53	12	9	M-K	58	3625	80	62	61,422	777	15	5
29	15-1-53	30-1-53	14	11	M-K	77	3175	72	41	40,693	565	12	4
30	1-2-53	17-2-53	16	14	M-32	90	2378	53	25	26,954	508	11	3
31	19-2-53	5-3-53	13	13	M-K	80	2233	49	28	24,140	493	11	4
32	7-3	24-3	16	13	M-K	88	2304	52	27	25,828	496	11	4
33	28-3	14-4	17	15	M-K	90	2204	51	24	24,793	486	11	4
34	16-4	4-5	17	15	M-A	88	2684	58	30	23,470	405	10	3
35	7-5	22-5	14	11	K-E	72	1693	39	23	17,178	440	10	3
36	26-5	10-6	15	13	E-11	80	2319	53	29	26,294	496	11	3
37	13-6	28-6	15	14	10-11	67	1639	37	24	22,024	541	12	4
38	7-9	16-9	9	7	3-11	43	1823	41	42	13,659	333	7	2
39	17-9	28-9	11	9	11	54	1728	39	31	9,631	252	6	2
40	29-9	13-10	14	13	11-12	74	1873	43	25	11,123	260	6	2
41	15-10	29-10	14	13	11-18	72	1407	34	20	7,565	223	5	1
42	30-10	12-11	13	11	K-M	54	2007	53	44	16,538	300	7	2
43	14-11	25-11	12	10	K-M	46	2207	62	60	22,040	350	8	3
Average	14	12	days	days		69	1761	52	34	24,966	453	10	3
Total	249	211	days	days		1258	31698	939		4,49,385			

Types Suitable For Indian Conditions

From the results of trawling operations conducted in Indian waters and from the experience of many of the master fishermen who went out to sea on Indian trawlers since 1949 it seems clear that the best catches were obtained in depths of 22 to 32 fathoms, sand and mud bottom. The time taken for one round trip, ranging from 10 to 14 days (often delayed to poor organization ashore) and distance for round voyage approximately 640 miles (base to fishing grounds, actual trawling operations excluded) Good trawling grounds have been found in the Gulf of Cutch (off Veraval, Dwarka, and Diu), on the Wadge Bank off Cape Comorin, and off the Orissa Coast (off the Prachi and Devi Rivers). The principal bases have been

Bombay and Calcutta. Cochin for the west coast was the last one in the order of catches. The types of vessels needed for commercial operations in India conforms in general to the Near or Middle Water Class of Britain. It should, however, be noted that when once a country enters the field of deep sea fishing financed and operated on large joint-stock basis, they go outside the range of "Inshore Area Classification". The influence of local conditions vanish as modern trawling is like operating any big industry such as the Sindri fertilizer factory, the Chittaranjan locomotives, and the many schemes that have been included in India's first and second Five Year Plans. Thus trawler types become standardised and vessels can be built where there is surplus shipyard capacity and operated in any part of the



MOTHER SHIP FOR MULTIPLE FISHING: NOTE THE NEST OF DORYS ON DECK.

world by any nation. Countries like Argentina, Panama, Peru, Mexico, Iceland, and Israel who have developed and built up "artificial" merchant navies in the post war years place orders for new construction mostly in Britain or Japan.

Need For Modern Trawlers:

In the long run it is technically more economic and efficient in commercial operations to build new vessels for trawling in India than to buy second-hand (or last-hand?) ships and later have them converted to suit local requirements. Moreover, modern trawlers are an asset, and in the post war years many improvements in design, construction, and crews accommodation have altered the benefits of which are lost to India. There are, however, certain special features, in designing trawlers for India, that need consideration. They are.

1. Need for tropical accommodation for crew. Instead of ice and snow one has to contend with rain and monsoon conditions. Moderate to rough sea and swell during normal monsoon.
2. Accommodation for a larger number of crew.
3. Higher horse power needed for engines as trawling grounds are located generally within the influence of tidal waters and off estuaries.
4. Spare accommodation for research work (In the initial stages it would be economic

to combine the need for special research vessels though one or two vessels may be constructed to suit certain specific requirements by Hooghly River and Sundarbans).

5. Auxiliary deck machinery to be preferably steam operated.

Types Suitable For Bombay, Tuticorin, Calcutta.

Bearing these factors in mind two types of trawlers are recommended for commercial operations based either in Bombay or Calcutta. **Common features to both types are:**—Steel vessels, Classed 100 A1 at Lloyd's Elliptical stern for Bombay and cruiser stern for Calcutta with special arrangements for stern moorings aft. (This is only a provisional arrangement as when the trawler is in operation it would facilitate discharge of fish if vessel could be given a special place in docks. The subject of fish dock facilities need attention and in port and harbour expansion plans, it is suggested that provision be made for berthing of fishing vessels and give a quick turn round) Shark liver boiler, Refrigerated fish hold, Ice Unit for making ice on board. Both types of trawlers to have provision made during construction for conversion to naval requirements. Navigation Equipment to include, W/T, D/F, Echo Sounder, and Radar. Small laboratory aft, on the bridge to be rigged for fishery research work.

Type I. Nomenclature: May be denoted as the **Pomfret Class** of Trawler.

General Specifications: Gross Tons: 318, Net Tons: 111, Length B. P. 125 feet, L.O.A.: 137 feet, Breadth 25.6 feet, Depth 11.8 feet. **Main Engines:** 6 Cylinder 4 stroke, heavy duty oil engine—Direct Reversing—developing 650 b.h.p. @ r. p. m., continuous rating. Maximum speed 12 knots. Fish Room Capacity: 7,000 cubic feet. Crew Accommodation 20.

Type II. Nomenclature: May be denoted as the **Hilsa Class** of trawlers.

General Specifications: Gross Tons: 142, Net: 58, Length B. P. 103 feet, L.O.A.: Breadth: 21 feet, Depth: 10 feet. **Main Engines:** 6 Cylinder 4 stroke, heavy duty oil engine, 370 b.h.p. Maximum speed 10 knots Fish Room Capacity: 4,500 cubic feet. Crew Accommodation: 12.

Type for Long Line Fishing (Sharks) and Fish (Mother Ship)

The seas around South India are suited to long line fishing and for sharks. This vessel has been designed to serve as a Mother Ship, has a nest of 6 Dorys, a special well deck aft for handling sharks, and has been rigged for Multiple Trolling (also known as whiffing) and Hand Line fishing. This type can be based and operated from Madras, Tuticorin, and Cochin for working off the East coast, Palk Straits, Gulf of Manar, and on the Wadge Bank (Cape Comorin). The scantlings have been designed for a shallow draft (loaded 10 feet) as this vessel can go into Tuticorin and discharge her fish along side the quay or navigate through the

Pamban Pass instead of going from the Palk Straits, round Ceylon to the Gulf of Manar. Vessel has provisions to stay out at sea for 2 weeks. Unlike the "Mother Ship" method followed in India of towing a number of canoes or catamarans and proceeding to the grounds, this type carries Dorys and stays out fishing.

General Specifications:—Gross Tons: 200 tons Net: 60, Length B.P. 120 ft L.O.A.: 128 ft. Breadth: 23 feet, Depth: 13 feet. Draft Loaded: 10 feet. **Main Engines:** 6 Cylinder 4 stroke oil engine developing 225 b.h.p. Maximum speed 10 knots. Fish Room Capacity: 5,000 cubic feet. Insulated fish holds. Crew Accommodation: 20 men (12 for 6 Dorys). Nest of 6 Dorys on the after deck. Each Dory of 16 feet by 5 feet. One Motor Life Boat, 3 ton Deck winch to work Dorys and handle sharks. Navigation Gear to include W/T, D/F, and Echo Sounder. Shark Liver Boiler. Bait storage Tank. Small laboratory on the after part of the Bridge for fishery research work. Fish holds arranged to take fish and shark separately. Long Lines for sharks separately. Long Lines for sharks worked by a Line Hauler and treated in the pound on the after deck on the principle of a whale factory ship. (Shark fishing off the Madras and West Coasts has similar potentialities as miniature whaling). Multiple Whiffing is provided for and 'spinners' run from two quarter booms. Search Light.

Long Lining By Motor Boats

Motor boats suitable for long line fishing and for sharks would

have to be not less than 45 feet and preferably of 65 feet in length. To work on a regular, commercial basis, boats should have a hook capacity of at least 2,000 books and should be able to stay out at sea for periods of 3 to 4 days, before returning to its base. In designing this type of motor boat certain features of the whale factory ship have to be embodied as once sharks are hooked they would have to be handled in a "well" where cleaning can be done easily, the shark headed and gutted, and the livers removed, to be put into a small boiler for making raw oil, or stored in a cool chamber for delivery ashore. Bearing these features in mind, the following type is recommended:—

General specifications: Steel built. Nomenclature: **Kola Class** Gross Tons: 48, Net: 24. Length 65 feet, Beam 18 feet, Depth 9.3 feet. Draft: 6 feet. **Main Engines:** 200 b.h.p. 6 Cylinder diesel. Speed 10 knots Hold Insulated and capacity 9 tons. Crew: 8 men. Wireless and Echo Sounder. Well Aft for processing shark. Mast with 1 ton winch and derrick. Line Hauler for working Long Lines. Ref. Plant to keep ice. Bait chamber. Mechanical Dinghy Search Light. Look Out post on mast for spotting. Can be based in Mangalore, Calicut and Cochin.

Strategic Value of Modern Trawlers and Motor Boats

The two Wars have demonstrated in no small measure the immense

strategic value of trawlers and fishing vessels. Even sailing vessels can be armed and used for naval service and records show that such practice was a common feature along the African and Arabian coasts. Vessels of the famous Mahratta Navy were primarily the lateen rigged armed types. Experience has shown the entire suitability of small fishing vessels to withstand service conditions. Almost overnight trawlers can be converted for local naval defence, mine sweeping and general escort work. However, the primary object of a mine-sweeper is to be concerned with Anti-submarine and Anti-aircraft work. Surface engagement is secondary. In a single port of large size such as Bombay, Madras, or Calcutta, the need for small craft on harbour and supply duties is quite large and when account is taken of all the other ports in India, formation of "boat pools" and other duties in the inland waterways and estuaries, motor boats needed are great in number.

Naval Armament for Trawlers

The Indian Government have drawn a 10 Year Plan for Naval Expansion. It is suggested that a fleet of trawlers and motor boats of standardised design and as per specifications and types worked may be included in naval expansion plans with special provision for naval armament and ready conversion for naval service. To carry this out satisfactorily and provide for an emergency it would

be necessary to strengthen certain sections of the hull and bed plates which would have to take the weight and bear the vibration of guns. During designing and new construction the following arrangements may be made for arming the vessels—**Provision on Trawlers for Naval Armament:** The "Pomfret" and "Hilsa" Class. Dual purpose 12 Pounder Gun in the Forecastle, One Bofor in each wing of the Bridge; One Bofor mounting aft (Three Bofors in all for Anti-aircraft work). Provision for Depth Charges, Smoke Screen Apparatus, Mine Sweeping Gear (Wire/Magnetic and Acoustic), Asdic, Armament Storage Arrangement, Winch aft for mine sweeping gear. (None of this gear may be fitted but only provision to be made on board for such equipment to be readily fitted so as to avoid time spent in shipyard before hostilities and which would also release capacity for attention to larger surface craft.)

The primary object of this provision is to utilize part of the Navy Estimates and thus use the naval budget for a dual purpose—naval defence in a national emergency and food production in peace time. In USA, Britain, and many other Continental countries it has become an established practice, more on grounds of economy and national requirements, to provide for naval conversion during new design and construction, especially for large passenger vessels which can be used as troop carriers and armed

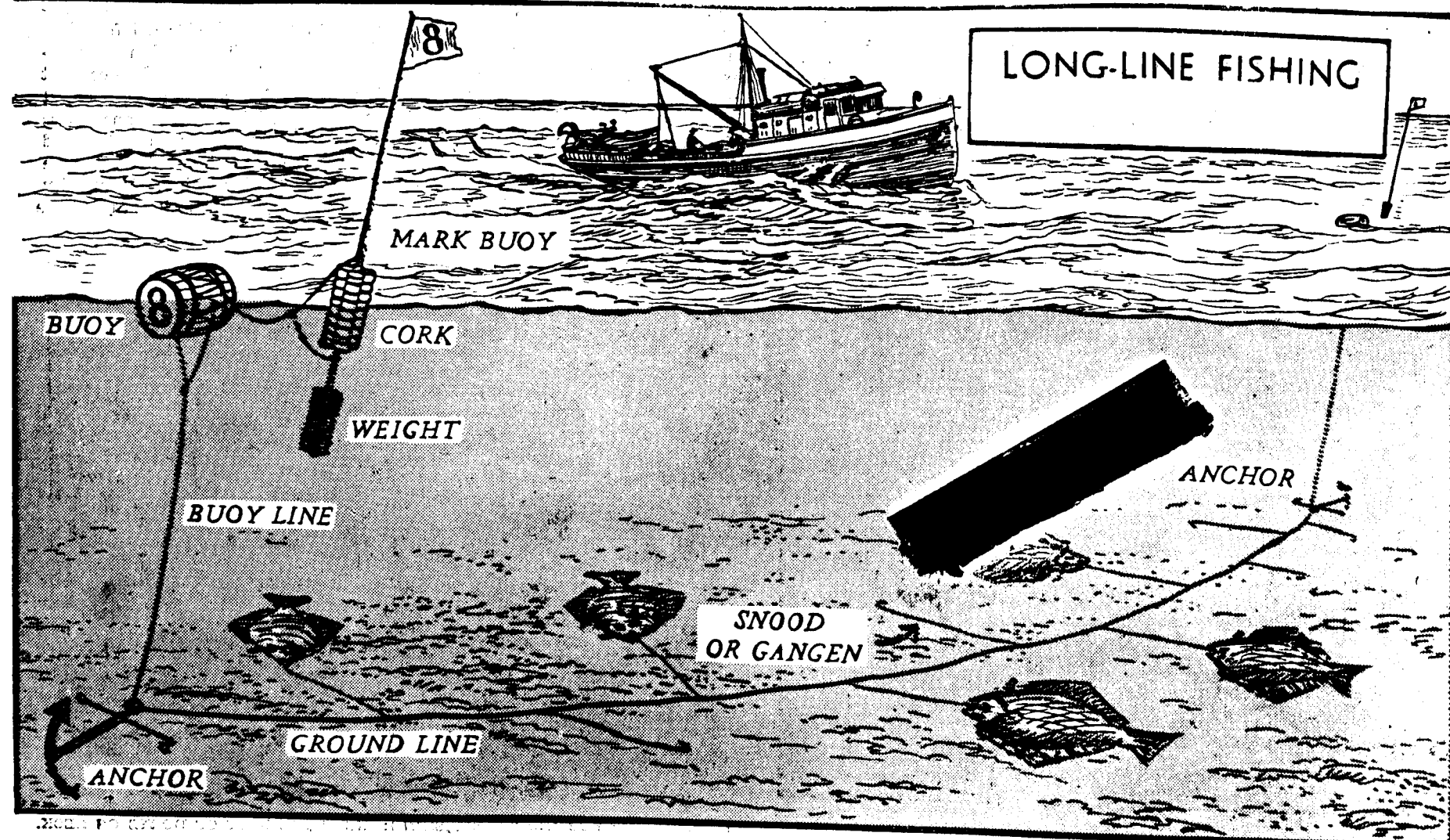
auxiliaries. State subsidies must also involve certain obligations and sacrifices on the part of the commercial community.

Scope for Naval Reserve

The provision for naval armament also entails training of the personnel and both these combined measures would help to establish an effective naval reserve force as an auxiliary to our regular navy.

Economic Aspects of Modern Trawling

Modern trawling is a highly lucrative business and often more profitable than coastal shipping. In the post war years many new enterprises have combined fishing, whaling, and shipping (tanker fleet) together and carry out large scale fishing in parts of the world and in seas away from their home ports and on international basis. Like coastal reservation to help a country's national interests many nations have extended their territorial claims to include the continental shelf as part of their national territory and exercise their sovereign rights for allowing other nations to fish or carry on whaling operations. The "shelf" problem has increased in importance since the discovery of petroleum and valuable minerals inside the sea. Thus Peru, Chile, Ecuador, Iceland, Australia, and Korea have arbitrarily extended their territorial limits which have ranged from 12 to 200 miles of additional terri-



LONG-LINE FISHING

Courtesy: "Canadian Fishermen"

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tory.) Though the three mile limit is the standard basis for claims on territorial waters yet the enormous profits that can be made by modern trawlers have tempted many nations to extend their Sea of Frontiers by as much as 12 to 200 miles and draw arbitrary lines for national control on grounds of conservation. This subject is now being taken up by the UNO.

An idea of the fish that is generally landed by modern trawlers can be had when it is noted that the trawler "Loch Doon" recently brought at Hull in October 1954 a catch of 26,000 stones of fish valued at £11,100/-. This included over 800 stones of halibut. The skipper's receipt were worth £3,000/- above those of other trawlers arriving the same day. Other landing at Grimsby in 1954 came from the trawler "Vindora" when she put 2,050 kits of first class Iceland fish on the market. It was sold for £7,800/-. The "Vindora's" catch from the Iceland grounds included 1,200 kits of haddock and took her only 15 days from dock to dock. The trawler "Hargood" made £7,100/- for a 27 day White Sea trip while on a previous trip the same vessel had made £10,000. In Indian waters the Japanese trawler "Taiyo Maru" working from Bombay had landed in the course of one year (25 voyages) 1953 a total of 1,211 tons of fish—48 tons per voyage, with net sales proceeds of fish for Rs 5,06,577/-. For the 2nd year (17 voyages) it caught 939 tons an average of 52 tons per voyage, with net sales amounting to Rs 4,49,385/- an average of 3 annas a pound in the whole sale market. British landing of wet fish in 1953 had amounted to 13,194,815 cwts. valued at £30,322,349.

Need for Fishing Corporation: State Aid on Basis of Shipping Loans

The fishing industry in India provides valuable scope for investment by foreign capital. The results of the Japanese trawler working off Bombay on a commercial basis have established beyond doubt the ultimate success of deep

sea fishing companies in India. To work on an organized basis, cater for a sound export market, develop the many by products such as fish meal and maintain regular supplies at home (many places in the interior are unable to get fresh fish and there is a potential market within India itself) it is essential that a joint Indo-foreign fishing corporation be established with a capital of Rs 2/- crores and a fleet of 10 trawlers and 6 Motor Boats. New vessels on Indian account may be constructed in foreign yards as per specifications suggested until such time as the Vizag Shipyard has surplus capacity. In addition vessels can also be constructed in the Naval dockyard, Bombay. A fleet of 4 trawlers, 2 of the Pomfret Class and 2 of the Hilsa Class and 6 Motor Boats for Long Line fishing and sharks may be laid out as an immediate measure to develop and establish deep sea fishing in India on sound commercial lines.

The establishment of a fishing corporation would help to channelize much of the financial aid that is now being frittered away in carrying out experimental measures, which have little industrial value. Moreover this would also offer (trawler fleet of exact specifications) a more definite basis for financing from the IMF and the IFC State aid is essential particularly for the construction of modern trawlers as such units are an expensive factor and the finance cannot be raised by the private sector alone. For example as part of a drive to re-build the British fishing fleet, loans granted in August 1953, amounted to £540,233/- and other subsidies totalled £1,159,163/- laying down a target for the construction of 500 new trawlers at the end of 10 years. In addition to this the WFA makes loans up to 60% of the new cost of trawler and 50% of the cost of an inshore vessel. This, in actual working, results in the owners having to finance at the outset only 15% in the initial cost—the balance being made up by other subsidies.

The Indian Government have earmarked Rs 29.7 Crores (consi-

dered inadequate in shipping circles) to finance new tonnage and develop Indian shipping besides payment of parity prices for Vizag-built ships. In addition a number of tax concessions and other relief measures to finance shipping is under the active consideration of the Government. It is suggested that state aid for the fishing industry may be given and worked out on a similar basis as for shipping.

Need for Publicity in India

The fishing industry in India needs publicity. Very few people know of its commercial potentialities, where the grounds exist and what possibilities lie in its industrial future. There is need to work out a publicity plan and create general and technical interest among school boys, personnel of the Indian Navy, merchant services, and by popular appeal to women's organizations. Paradoxical as it may seem even in Britain with her large and flourishing fishing industry there is a well chalked out publicity campaign to attract the eye of every one and make people fish conscious. The WFA issue "cigarette" cards to advertise fish attractively printed in colour and entitled, "The Fish We Eat" and prepared under the supervision of the British Museum (Natural History). Other measures include "adoption" of trawlers by schools as part of a scheme of the British Ship Adoption Society. With a view to encourage deep sea fishing it is suggested that a course in trawling, fishery resources, transport and marketing, may be introduced in the curriculum prescribed for naval and marine training establishments such as the INS. "Circar" "Venduruthy" Dufferin, and in the other training centres. In India, at the moment, there is no institution where training in deep sea fishing can be obtained. There are many schemes for mechanization and both the State and private enterprise are anxious to work the industry on a commercial basis. Modern fishing needs a good knowledge of navigation and seamanship and the use of electronic aids such as the radar, echo sounder, and refrigeration need good theoretical backgrounds. Though the industry is in an infant stage yet opportunities for training and a working knowledge of deep sea fishing would be of additional value to those who pass out from various naval and nautical institutions.

Conclusions

We have so far considered a plan to stabilize deep sea fishing in India. There is, however, another aspect to the problems of increased supplies. The becky and the hilsa, the chingree and the surmal, the pomfret and the bumaloe are all important species captured by indigenous methods by small craft. Our inshore fisheries in Sundarbans (Calcutta) and along the coastal areas hold vast treasure. Even as conditions are at present they bring in about Rs 10 Crores every year to the national revenues. But

their problems are different to those of deep sea or middle water fishing. For example, to tackle Calcutta's chronic shortage of fish, in addition to trawlers, the development of Sundarbans and the estuarine areas holds the key. Here cheap and adequate transport, ample supplies of ice and rations, warm clothing, and other amenities for our fishermen (80% are East Bengal Refugees) require attention. Modern methods of fishing, a fleet of trawlers and motor boats, will help us to save foreign exchange, provide employment, re-habilitate displaced fishermen from East Bengal and Ceylon, stimulate agricultural production, increase the resources of the State and appreciably meet our defence requirements. But it is time that we worked in terms of tons of fish instead of in pounds, for indeed Indian fishing is Indian feeding.

MOTOR TRAWLER "PRINCESS ROYAL"

Gross Tonnage, 318. Built in U. K. July, 1952. Cost £110,000. Vessels of this type are an asset to the nation as they are convertible for coastal defence, anti-submarine, and aircraft work. 2 trawlers, nomenclature Pomfret Class, and as per specifications, may be laid down, with provision for naval armament, as an initial measure to form the nucleus of a trawler fleet for an Indian fishing corporation. British subsidies and loans help owners and only 15% of the first cost have to be met from the private sector. Plans for state aid for Indian fishing need to be worked on the basis of shipping loans at large scale joint-stock fishing combines are like coastal shipping companies. (Courtesy: The Boston Deep-sea Fishing Co. Fleetwood).

MOTOR TRAWLER "BOSTON PEGASUS"
Gross Tonnage: 141.91. Built in U.K. May, 1951. Cost £80,000. 2 trawlers nomenclature HILSA CLASS (as per specifications) may be laid down. Vessels of this type can be built in the Vizag Shipyard or at the Bombay Naval Yard. During the trials of this vessel the headmistress and some school girls from the Hucksall County Secondary School were taken out to sea to witness deep sea fishing operations. The vessel has been "adopted" by the school under the British Ship Adoption Society's Scheme. (Courtesy: Boston Deep-sea Fishing Co.)

MOTHER SHIP FOR MULTIPLE FISHING

The drawing shows a motor boat of 61 feet (as per specifications) engaged in long line fishing or shark fishing and shows how the lines are rigged and set. This type of vessel can be worked from Madras, Tuticorin, or other fishing centres. The actual length of line, number of hooks, and depth of water would be very much greater than what is shown above. The setting is made over the vessel's stern as she proceeds over the fishing ground, but the hauling back is done over the side by a line hauler. Vessels for shark fishing have to be designed after whale "factory ships" as the industry of the Madras coast has similar potentialities as whaling on a miniature scale. Courtesy: W. S. Hines Esq., Nova Scotia.

LONG LINE FISHING BY MOTOR BOAT.

Gross Tons: 225 tons with a 250 b.h.p. engines. The sails are an auxiliary and only serve for "steadying" purposes as during lining the vessel has to be "hove to". Note the nest of Dorys forrad. This type of vessels is suitable for working on the basis of a Mother Ship and would help in the re-habilitation of Indian fishermen from Ceylon. Courtesy: W. S. Hines Esq., Nova Scotia.

INDIA'S FOREIGN TRADE

ONE of the most outstanding changes in the pattern of India's foreign trade during the last three years is the steady fall in food imports. The imports of food, drink etc., after showing an upward trend up to and including 1952 shows a remarkable decrease in 1953. The import value has fallen from Rs 282 crores in 1952 to Rs 176 crores in 1953. The amount thus saved is of the order of about Rs 86 crores. For raw materials and unmanufactured articles India now depends less on other countries, their value being Rs 179 crores in 1953 compared to Rs 253 crores in the previous year.

There is a fall in the import of raw cotton, as also cotton yarns and manufactures. This indicates a substantial measure of recuperation from the effects of partition. We imported 116,205 tons of raw cotton in 1953-54 while the previous year's figure was 138,397 tons. Jute tells a similar story. The import value of raw jute and manufactures have fallen from Rs. 2.1 million in 1951-52 to Rs. 0.7 million in 1953-54. Oil's, vegetable, mineral and animal show a tendency to move up with each year.

As is to be expected, the class of commodities the country is mostly in need of, are articles wholly or mainly manufactured. The value of 1953 imports under this group is to the tune of Rs. 276 crores. However these imports have registered a decline; chief among the items are chemicals, drugs and medicines, machinery, iron and steel and vehicles. With regard to iron and steel, India bought Rs. 20 crores worth in 1951-52 while in 1953-54 imports amounted to Rs 22 crores. India is becoming less dependent for her requirements in non-ferrous metals, paper and rubber manufactures. These are trends which point to the success in industrialisation.

The position is not so satisfactory regarding exports. Tea is the only item among these articles that need not cause alarm. There is a disturbing measure of fall in tobacco, spices and sugar.

Export value of tobacco for 1953-54 is about Rs. 2.5 crores less than that of the previous year. Likewise spices show a decrease of nearly Rs. 4 crores, and the amount for sugar fell from Rs 4 crores in 1952-53 to Rs 11 million the following year.

The same sad story repeats with respect to coal, forest products like gums, resins and lac, oils, raw and crude rubber, and oilseeds; Fruits and vegetables maintain a more or less constant level, while in foodstuffs like grain, pulse and flour, India is coming into her own, judging from the abrupt increase in their export value to Rs. 5 lakhs in 1953-54, when it was next to nothing the previous year.

Export of articles wholly or mainly manufactured shows a steady decline, as a whole, from Rs. 400 crores in 1951-52 to Rs. 253 crores in 1953-54. Among the few items which show an increase are elec-

trical goods, rubber manufactures and vehicles other than locomotives.

Electrical goods fetched Rs. 3.4 millions in 1953-54, while in the previous year it was Rs. 2.5 million. Rubber manufactures worth Rs. 1.4 crores were exported in 1952-53 and this figure is Rs. 1.7 crores in 1953-54. Export value of vehicles other, than locomotives, showed an increase of Rs. 4 million over that of the previous year.

An interesting sidelight—and satisfactory at that—is that about Rs. 5 million is earned by India's living animals in foreign markets and this trade is on the upgrade.

In the year 1953 the total export value is Rs. 553.3 crores and import value totals to Rs 635.58 crores, showing a deficit of Rs. 71.7 crores. The previous year the deficit was Rs. 58.4 crores. Major items contributing to this are the considerable fall in exports of raw materials and manufactured goods, in spite of the decline in food imports.

The U.K. continues to be the principal exporter of goods to India.

The Commonwealth countries, between themselves sent supplies worth nearly Rs. 260 crores in 1953-54. The US comes next, the imports therefrom are worth Rs. 79 crores last year, though it was as high as Rs 293 crores in 1951-52. Foodstuffs must account chiefly for this difference. U.K. heads the list of countries, we export to; the Commonwealth countries together account for Rs. 267 crores in 1953-54, comparable to the Rs. 260 crores worth they sent to India. Exports to the U.S. made for about 90 crores last year, but this is about Rs. 40 crores less than the figure of 1951-52. Trade with East European countries has tended to fall in 1952-53. The UK is the greatest supplier of printed matter, chemicals, cutlery, instruments and apparatus, leather, spirits and machinery. Important among US supplies are drugs and medicines, and tobacco, not to mention wheat and other grains she has in excess.

There have been certain significant developments which have a direct impact on our foreign trade. The setting up of large factories like Sindri and Chittaranjan reduced the dependence on imports for fertilizers, locomotives etc. For example of the 467 new railway carriages put on track in 1953-54 almost all were Indian made. Large grants and loans to almost all the State Governments have served to step up the handloom industry and handloom cloth is finding a secure place in our exports. Standard specifications for many articles ensure the quality of Indian goods. The Government's decision to enforce the quality of jute manufactures and not to allow new mills is significant especially as jute imports by countries like the U.K. are moving up.

In the matter of food production, the world has shown during 1953-1954 a rate faster than that of the population growth. India's individual achievement is quite spectacular. Anyway, means have to be found for reducing surpluses without unbalancing the existing trade in agricultural commodities. It is noteworthy, that despite the increase of production, the total value in world trade in agricultural commodities has not appreciably changed. The fall in trade in cereals in 1953, has been offset by the improvement in export of articles like coffee, vegetable oils, fruit, sugar and tobacco.

That India has to step up to a large measure and very soon, her foreign trade, cannot be over-emphasised. Better political relations have to pave the way for trade relations with Pakistan. The increasing association of India with the S. E. Asian countries, where a tremendous process of economic development is in the offing, offers vast and new opportunities, in the sphere of foreign trade.

Another considerable market is to be found in the Middle East, from where we already buy oil. Trade has shown a phenomenal expansion in that part of the world recently. The near monopoly which Britain was enjoying in the past is fast disappearing. The US, Russia and Japan have all entered the field. India, however, ranks third or fourth in the volume of trade with Middle East countries. Indian textiles, cement, jute goods, paper elec-

trical goods, chemicals, footwear and a host of other articles can find a ready market there. A large volume of domestic productive capacity remains idle in some of these items. Some difficulties exist in the way of expanding trade with Communist Countries. India has no political inhibitions in trading with countries behind the Iron curtain, including the USSR. She has developing trade relations with China and East Germany, though she is not having formal diplomatic relations with the latter. Absence of established usage and trade practices, between the free world and the rest is a serious impediment. Lack of direct contact between the trading communities in the two areas perpetuates a lack of confidence in the quality of the goods.

India's foreign trade last year reflects the process of economic readjustment. While external demands have declined, a decline in imports has also occurred. Relaxing import restrictions, liberalising quotas and simplifying the licensing procedures, apart from the Government's decision not to enter export trade, have generally contributed to trade expansion. It has been a good trading year on the whole and must act as a springboard to catch up with the targets set by the Five Year Plan.

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material, as the following comparative diagram of India's average longevity figures will show.



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SUMMARY.				
In Crores of Rupees.				
Imports.	1953	1952	1951	1950
Class I:				
Food, drink, tobacco	175.65	202.04	214.22	93.84
Class II:				
Raw materials and produce and articles mainly unmanufactured	179.16	253.03	224.68	178.21
Class III:				
Articles wholly or mainly manufactured	276.37	339.71	325.11	230.84
Class IV & V	4.30	5.35	3.62	2.51
Grand Total	635.48	860.14	787.83	505.40
Exports	553.77	701.75	741.43	511.01
Trade Deficit	-71.71	-58.39	-26.40	+5.61

TABLES SHOWING IMPORTS AND EXPORTS OF FOREIGN MERCHANDISE.

IMPORTS VALUE.			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Grain, Pulse and Flour	228,11,52,139	153,10,31,579	63,64,90,853
Fruit and Vegetable	9,98,30,785	9,30,92,838	9,89,13,091
Sugar	84,99,757	10,519	1,57,40,189
Tobacco	1,99,16,320	1,79,99,026	79,46,28
Liquor	1,67,53,355	1,62,27,062	1,53,80,525
Provisions and Oilman's Stores	10,81,46,979	5,70,51,398	9,41,80,085
Others	8,61,22,073	4,10,32,216	5,87,68,155
Total Class I	262,04,21,408	175,64,50,638	92,73,59,186
Oils—Vegetable, Mineral and Animal	79,14,23,380	81,91,37,414	92,31,23,521
Cotton—Raw and Waste	136,46,17,079	76,67,14,775	52,70,79,249
Silk—Raw and Cocoons	1,56,21,358	67,37,442	59,25,554
Others	35,86,61,670	19,91,50,326	23,93,62,478
Total Class II	253,03,23,487	179,16,39,857	169,54,90,802
Chemicals, Drugs and Medicines	35,86,50,662	24,87,95,349	25,78,40,470
Cutlery and Hardware, etc.	19,69,53,030	14,26,76,120	13,01,01,481
Dyes and Colours	19,22,04,118	10,42,04,336	18,86,63,833
Electrical Goods and Apparatus	10,35,86,058	13,81,42,194	13,63,97,522
Glassware and Earthenware	2,88,60,669	1,71,97,032	1,70,89,883
Machinery of all kinds	104,05,79,999	87,88,86,687	85,84,45,723
Iron and Steel	21,96,73,891	23,71,22,565	23,56,61,621
Nonferrous Metals	20,65,16,672	19,36,96,668	14,50,55,160
Paper, Pasteboard and Stationery	14,88,06,944	12,79,49,342	12,74,06,406
Rubber Manufactures	52,11,424	53,35,041	47,63,479
Vehicles (excluding locomotives, etc.)	33,20,91,425	30,49,25,244	23,69,61,423
Cotton Yarns and Manufactures	6,55,17,608	4,98,63,535	3,16,39,528
Silk Yarns and Manufactures	33,08,063	8,03,702	12,91,554
Woolen Yarns and Manufactures	8,23,06,495	6,71,63,003	9,89,40,682
Others	41,28,08,785	24,68,55,362	27,59,40,874
Total Class III	339,71,31,843	276,37,34,602	276,02,72,649
Total Class IV & VI	5,35,30,827	4,30,53,158	3,97,93,542
GRAND TOTAL	860,14,07,565	635,48,78,455	542,29,16,179

IMPORTS (Quantity).			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Living Animals	820	1,721	21,938
Books, etc.	30,618	35,727	34,127
Engineering and Building Materials (excl. iron, steel and wood)	37,114	183,359	95,911
Chemicals, etc. (cwts.)	4,100,354	39,32,465	30,33,679
Dyes (from Coal tar) (lbs.)	15,340,321	7,211,278	15,684,350
Electric Lamps and Parts, bulbs, etc. (no)	34,264,059	33,621,777	15,684,350
Cine Films (in feet)	208,710,725	260,588,350	218,303,597
Wireless Apparatus	29,121	19,286	13,042
Wireless Valves	801,582	567,506	437,506
Oil Engines	72,435	17,699	1,182
Sewing Machines	29,398	20,484	14,395
Typewriters	20,575	17,792	11,336
Aluminium (not ore) (cwts.)	185,685	120,777	109,096
Copper (not ore) (cwts.)	115,977	411,818	170,641
Iron and Steel (tons)	154,194	156,152	210,567
Lead (not ore) (cwts.)	307,716	403,712	544,170
Zinc (not ore, cwts.)	71,254	40,232	61,65
Tin (not ore) (cwts.)	284,474	111,862	184,463
Paints and Colours (cwts.)	1,827,956	2,129,234	2,539,660
Paper, Pasteboard (cwts.)	1,792,638	2,797,640	2,172,801
Cotton Yarn (lbs.)	7,877,662	4,551,278	5,192,541
Cotton Piecegoods (yds.)	1,431,962	1,360,718	787,010
Thread (yds.)	2,506,052	1,045,236	2,145,441
Yarn and Knitting Wool (lbs.)	283,127	197,564	90,362
Cycles	9,963	5,160	581
Motor Cars	4,712	3,637	4,189
Motor Omnibuses	132,580	123,348	159,608
Fruits: dried, salted, etc. (tons)	4,793,432	2,917,369	1,429,971
Grain, Pulse and Flour (tons)	1,711,002	1,591,751	1,643,501
Liquors (gals.)	856,258	1,138,608	1,055,016
Tea (lbs.)	5,208,239	5,569,192	2,455,786
Tobacco (lbs.)	122,265	123,878	134,779
Gums and Resins (cwts.)	27,460	17,420	26,167
Hides and Skins (cwts.)	144,122	64,221	133,814
Manures (tons)	254,519,497	267,709,735	299,137,017
Mineral Oils (gals.)	368,559,530	317,597,676	361,681,020
Fuel Oil (gals.)	48,643,907	61,076,476	37,321,072
Lubricating Oil (gals.)	256,355,363	248,261,676	269,674,233
Petroleum, etc.	11,364,207	7,573,616	1,454,560
Rubber (lbs.)	216,612	118,205	118,205
Cotton (tons)	3,415,383	2,406,274	4,567,758
Wool (lbs.)			

EXPORTS (Value)			
Class I			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Fruits and Vegetables	13,43,16,302	16,55,02,477	16,77,16,496
Grain, Pulse and Flour	15,425	8,240	5,90,890
Tobacco	16,93,47,456	13,85,24,387	11,25,80,779
Tea	93,44,27,592	80,19,85,688	101,56,53,650
Spices	27,89,08,337	20,84,05,736	16,63,94,240
Sugar	57,35,933	4,39,58,473	11,31,616
Liquors	5,51,304	5,63,464	4,90,830
Provisions and Oilman's Stores	1,92,32,949	1,62,69,504	1,52,87,245
Others	3,99,76,857	5,78,03,981	6,15,92,045
Total Class I	158,25,11,474	143,30,22,950	151,13,37,491

Class II			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Coal	7,80,90,111	7,59,45,699	4,13,52,739
Other Non-Metallic Minings	14,18,85,888	9,91,36,092	9,57,85,075
Gums, Resin and Lac	16,23,63,977	8,26,29,715	7,47,43,153
Hides and Skins	8,51,97,179	5,69,31,745	6,08,24,433
Metallic Ores, Scrap Iron or Steel for Re-manufacture	18,55,28,385	37,94,09,028	35,56,92,624
Oils, Vegetable, Mineral and Animal	22,76,21,669	25,13,62,559	6,13,80,752
Paper-making Materials	1,17,27,340	29,95,454	43,54,843
Rubber, raw or crude	9,45,646	4,28,256	2,79,422
Seeds	7,85,80,603	4,71,82,702	2,28,08,996
Cotton, raw and waste	21,02,10,507	28,96,36,416	19,26,24,959
Silk	37,00,968	17,08,430	31,92,840
Wool	4,89,69,593	8,41,02,214	5,87,05,650
Others	16,09,77,789	9,04,87,748	9,28,78,761
Total Class II	139,68,29,586	146,27,14,056	106,86,24,345

Class III			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Chemicals, Drugs, Medicine	5,27,42,736	4,12,50,847	4,35,36,233
Cutlery, Hardware, etc.	2,12,87,828	2,29,94,960	2,48,46,543
Dyes & Colours	1,54,03,967	97,65,862	67,21,241
Electrical goods and Apparatus	20,13,187	25,53,825	33,92,560
Glassware and Earthenware	23,36,549	26,96,149	23,81,651
Hides, Skins (tanned or dressed) and Leather	25,69,11,435	20,35,09,798	24,84,41,945
Machinery	55,37,079	76,75,480	69,65,028
Iron and Steel	86,14,940	1,46,30,747	98,26,251
Other Metals	1,39,93,092	2,66,53,655	1,77,36,666
Paper, Pasteboard and Stationery	1,12,04,442	82,38,589	82,11,042
Rubber Manufactures	1,06,26,334	1,42,24,870	1,73,62,590
Vehicles (excl. locomotives)	9,99,651	16,58,307	20,58,077
Cotton, Yarns and Manufactures	58,09,92,229	69,59,43,468	71,62,66,313
Jute	269,73,26,124	128,92,40,525	113,88,49,054
Silk	26,41,294	20,65,012	22,90,319
Woolen	6,48,98,981	3,72,88,406	4,35,07,63
Other Yarns	3,78,08,615	3,16,64,037	3,89,18,731
Others	21,54,94,598	19,43,19,853	19,97,33,743
Total Class III	400,08,52,851	260,07,74,190	253,25,45,291

Class IV			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Living Animals—Class IV	49,71,446	50,45,434	48,08,641
Postal Articles	3,23,14,947	3,61,89,172	3,95,51,497
Grand Total	701,74,80,304	553,77,45,802	515,68,67,356

EXPORTS (Quantity)			
	1951-52.	1952-53.	1953-54.
	Rs.	Rs.	Rs.
Class I			
1951-52.	1952-53.	1953-54.	
Rs.	Rs.	Rs.	
Coffee (cwts.)	16,083	44,353	55,862
Fruits and Vegetables (cwts.)	924,879	663,665	466,466
Spices (cwts.)	13,870	19,737	17,739
Tea (lbs.)	425,871,998	423,069,312	466,887,769
Tobacco (lbs.)	107,462,919	81,193,659	68,000,126
Class II			
1951-52.	1952-53.	1953-54.	
Rs.	Rs.	Rs.	
Coal and Coke (tons)	2,426,780	2,129,728	1,193,451
Gums and Resins (cwts.)	107,142	91,316	116,469
Hides and Skins, etc. (cwts.)	457,312	467,370	530,140
Lac (cwts.)	712,744	686,211	536,877
Manures (tons)	74,902	7,170	15,788
Lead (cwts.)	3,337	2,758	9,377
Manganese Ore (tons)	1,124,956	1,439,678	1,567,997
Other Metals, Ores and Minerals (tons)	1,588,408	3,047,348	3,350,729
Oils (vegetable, essential and non-essential) (gals.)	21,446,146	34,326,786	7,887,647
Raw Rubber (lbs.)	334,611	208,042	144,284
Raw Cotton (tons)	22,977	70,877	34,946
Raw Wool (lbs.)	18,294,510	37,966,018	20,691,417
Class III			
1951-52.	1952-53.	1953-54.	
Rs.	Rs.	Rs.	
Leather & manufactures thereof (cwts.)	106,191	182,619	171,843
Iron and Steel (tons)	51,852	495,747	267,235
Cotton, Twist and Yarn (lbs.)	6,173,807	17,869,056	22,221,954
Manufactures (yds.)	105,638,683	233,187,288	232,590,927
Jute Manufactures (tons)	758,371	673,052	742,959
Wool Manufactures (lbs.)	11,590,915	7,127,741	8,996,955
Class IV			
1951-52.	1952-53.	1953-54.	
Rs.	Rs.	Rs.	
Animals (living)	429,639	553,494	493,251

India's National Income Estimates

THE National Income Committee, which was set up in August 1949, published its first report in 1951, presenting estimates of national income for 1948-49. The final report of the Committee, which covers not only the income for 1948-49 but also that for 1949-50 and 1950-51 as well, has been recently made available in full. The Committee has examined a wealth of material in a thoroughgoing fashion and, while drawing very valuable conclusions from this material, made important recommendations regarding improvement in data collection.

The Committee started with a basic concept of production, which can be described as provision of goods and services, and the national product is the totality of production free from a duplication. The Committee examined the three ways in which this can be obtained. The first is, to sum up the value of the gross output (sales plus self-consumption, plus increase in stocks) of all producers, and to deduct from this the total purchases of these producers from other producers, that is, the value of intermediate products, and the depreciation of equipment used up in process of production. A net figure of this kind obtained for each producer separately would represent the total value added by him to the value of the intermediate products with which he started and is hence his contribution to the total value of unduplicated production. If this is looked at from another angle, this value added represents the wages, profits and other forms of income that accrue in the productive activity, and hence the sum total can be obtained by summing the various incomes paid and accrued. A third alternative is to segregate all final products available for consumption or for investment and to add the corresponding values leading again

to the sum total. The first of these approaches may be described as the product approach and the second the income approach. The Committee arrived at its estimates mainly by the income and the product approaches.

The national income for the Indian Union for 1948-49 as estimated by the Committee is Rs. 8,650 crores instead of Rs. 8,710 crores given in the Committee's first report. The income for 1950-51 is Rs. 9,530 crores and that for 1949-50 Rs. 9,010 crores. The per capita income at current prices worked out at Rs. 265.2 in 1950-51, Rs. 253.9 in 1949-50 and Rs. 246.9 in 1948-49. It appears that during the three years, in terms of money, a steady rise in income was noticeable in agriculture, but a relative stagnation was to be seen in industries and other sectors. However, when appropriate adjustments are made for price changes, as has been done by the Committee in an appendix, it becomes clear that this tendency for increase in the field of agriculture and stagnation in the field of industries was more apparent than real.

The Committee has given interesting data regarding the income generated in the Government sector and of the share of the Government in national expenditure, side by side with comparable aggregates of national income and national expenditure. It has presented a concise account of the Government draft on private income by way of direct and indirect taxes and other miscellaneous receipts, and it has related these magnitudes with an estimate of private income. It has also given a summary statement of the gross capital formation in the Government account and its finance. The figures given by the Committee are shown in table IV:

The following are the more important figures emerging out of the national income study:

	1950-51	1949-50	1948-49
Population (millions)	359.51	354.82	350.38
National Income (Rs. crores)	9,530	9,010	8,650
Per Capita Income (Rs.)	265.2	253.9	246.9
Net Domestic Product at factor cost Rs. crores	9,550	9,030	8,670
Net national product at market prices (Rs. crores)	10,030	9,460	9,060
Net output of Government enterprises (Rs. crores)	290	270	240
Net output of Government administration (Rs. crores)	430	410	400
Net output of private sector (Rs. crores)	8,830	8,350	8,030

SHARE OF GOVERNMENT IN DOMESTIC PRODUCT AND EXPENDITURE.

(Figures in Rs. abja @)
1950-51 1949-50 1948-49

Items.	(1)	(2)	(3)	(4)
Government share in generation of net domestic product:				
1. Net output of Government enterprises ..	2.9	2.7	2.4	
2. Net output of Government administration ..	4.3	4.1	4.0	
3. Net output of the private sector ..	88.3	83.5	80.3	
4. Net domestic product ..	95.5	90.3	86.7	
Government share in national expenditure:				
5. Government current expenditure on commodities and services (government administration) ..	5.6	5.4	6.4	
6. Government administrative capital expenditure ..	1.0	1.2	1.0	
7. Government enterprises capital expenditure ..	1.6	1.5	1.1	
8. Net national expenditure at market price ..	100.3	94.6	90.6	
Government draft on private income:				
9. Direct taxes ..	2.3	2.2	2.4	
10. Indirect taxes ..	4.3	3.9	3.6	
11. Miscellaneous fees, etc. ..	1.1	1.0	0.9	
12. Private income ..	95.7	90.5	87.0	
Government capital formation and finance:				
13. Surplus on current account and maintenance provision ..	1.9	1.6	0.1	
14. Government borrowing at home ..	0.5	0.1	2.0	
15. Government borrowing abroad ..	0.1	0.2	(—) 2.2	
16. Extra budgetary receipts and adjustments for cash balance ..	0.2	0.8	1.5	
17. Gross capital formation on Government account ..	2.7	2.7	2.1	

@ abja = 100 crores = Rs. 1,000 million.

Towards Improving National Income Data:

The National Income Committee has made a number of valuable suggestions for improvement of data. In the field of agriculture it has recommended that the reporting agency should be introduced in all

the non-reporting areas. Present area reporting should be arranged in such a way that they cover a fifth of the villages every year. This will enable them to have complete coverage of the entire area in the course of every five years. As regards wages and em-

ployment statistics, the Committee has recommended that the Labour Bureau should be made responsible for the entire body of the work and that the calculation of such statistics should be extended to some of the special fields in which they were not being collected at present. The Committee has suggested that the Central Government should take measures for bringing about uniformity in the reporting of statistics relating to sales tax. Regarding certain aspects of agriculture, animal husbandry, trade, transport, small enterprises, etc., the Committee recommends small scale structural studies should be undertaken mainly by research institutions and economic bodies. In the case of small enterprises, such studies should be initiated by the Central Government and State Bureaus and all-India private organisations for encouragement and protection of such industries should fully co-operate. The National Income Units should prepare periodic reports on implementation of the various recommendations.

Another important suggestion made by the Committee is that the National Income Unit should prepare an annual paper of national income analogous to the White Paper in the United Kingdom. The Committee has suggested that the National Income Unit of the Ministry of Finance should be put on a permanent basis. It is, however, of the opinion that a good deal of

the work of national income analysis and research could profitably be undertaken by research institutions and universities, and that suitable grants should be provided by the Government for research in the field of national income. It may be surmised that the several research studies inaugurated by the Planning Commission, under the aegis of a number of universities and public bodies in India, which has been announced in the press sometime ago, is a fruit of the recommendations of the National Income Committee.

The Committee has suggested in detail the sources of information from which it drew its material but, on account of the none too comprehensive nature of official statistics, the Committee expects there would be a margin of error in its conclusions. In an appendix it has given the sector margins of error which vary between 20 per cent for agriculture, animal husbandry and ancillary activities and 33.1/3 per cent for commerce and transport. The margins of error that have been given sector-wise have been compiled by the Committee on the assumption of complete independence of the errors of the sector estimates, leading to an overall percentage of about 10 per cent for the aggregate domestic product. It has been recognised that a positive correlation between sector errors, if any, may increase the margin of error of the aggregate.

DECONTROL and PRICES

In July 1954, the controls on food were removed all over India. The experience of these months should be sufficient to arrive at a tentative estimate of the impact of decontrol on the general economy. It will be recalled that foodgrain prices, not excluding the price of rice, were tending to penetrate and go below ration prices for some months, a circumstance which naturally precipitated the decision in favour of complete decontrol. This downward trend does not seem to have stopped with decontrol. Looking back on Government policy, it is difficult to escape the conclusion that decontrol of food could have been decided on, months earlier. With the first inkling of a better harvest in 1952, Mr. C. Rajagopalachari took courage to decontrol rice in a State which had a sizeable deficit in the commodity. The step was amply rewarded. In due course, other States began to fall in line; the Union Food Minister's faith in decontrol was reinforced by three successive good harvests, each overstepping the other, the latest being a record for India. Central policy, however, was marked by a rather unjustified hesitancy. The announcement lifting controls on an all India basis, came only after market prices had come to the same level as or fallen below official prices.

To say this is not to withhold credit from the few individuals

who deserved it, for stimulating and assisting the gradual fall in prices which it was the professed aim of the government, business interests and the masses to achieve. Increases in output are certainly the main cause for the price declines. But these increases themselves were largely the result of the official bias in favour of decontrol. The measures taken towards decontrol were proceeding more or less apace with the improvements in production.

A policy which has hitherto been pursued with more than the needed caution and which stands fully vindicated by results, need not halt before the final destination. There are only a few patches of controls remaining in the economic landscape, as for instance those on cement, iron and steel. Controls on these commodities could also go the way others have done. World production of steel has risen from 208 million tons in 1952 to 230 million tons in 1953. Since the Korean war, there has occurred a near approximation between supply and demand. Keener competition in the export markets and the downward trend in prices have provided a setting appropriate for decontrol. The same situation has arisen for cement. The Vice-President of the Grains and Oil Seeds Merchants Association, Bombay, is of opinion that all controls 'with the solitary exception of birth control' should be immediately removed. We agree. The exception he

has mentioned does not exist. Government have not made themselves responsible for birth control!

The fall in commodity prices which has attended decontrol seems to have disturbed the agricultural and the business community. The Federation of Indian Chambers of Commerce and Industry has issued a frantic s.o.s. to the Government, pleading for steps designed to arrest the fall in agricultural prices. As the decontrol and price falls have proceeded together in a way that cause and effect could not be disentangled, it is possible that decontrol is also coming to be looked upon as a villain. There is something like a nemesis implied in this situation. Both sections, the peasants on the one side and the businessmen on the other, were keen to see the end of controls when controls operated in a manner prejudicial to their interests. Now that the behaviour of prices has turned out to be exactly the opposite of what happened two years ago, it has become the lot of these interests to bemoan the process, which in a different situation was visualised as a boon. The Planning Commission itself had once thought that controls were indispensable for a planned economy, though with due foresight the Commission took care to qualify its views.

This lukewarmness with regard to decontrol or atleast with regard to price declines, arises out of a general indecision as to what an appropriate and stable price level should be. Evidently apart from the vague indication of an ideal price level by a few experts here and

there, there has been no general awareness of the need to have some clear ideas about it. Of course, it has to be conceded that in the present state of the world, national price levels could not be determined except in relation to international price trends, particularly in countries where foreign trade is crucial to economic health and viability. But at the same time it is no use raising complaints against every situation. High prices were abominable for the planners. The requirements of export trade militated against them. The International Monetary Fund, which looked at prices predominantly from the angle of currency stability, had been pleading incessantly to tame them down. In India during the past two years prices have been moving in a manner which had carried the country nearer to the objectives which the Government and the Planning Commission had in view, disinflation, stimulation of exports and decontrol.

Over a period of one year, calculating from the middle of July 1954, the wholesale index for all commodities has gone down from 407.5 points to 382.3 points. This represents just a little over 6 per cent. Even at the lower level, the average wholesale index can by no means be regarded as low. It is nearly 300 per cent more than what it was in 1939. But the problem could not be dismissed so cheaply. Just as in the process of inflationary rises, the different groups of commodities and individual items therein moved at varying paces, a general downward trend also is bound to

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disclose marked irregularities and unevenness between one commodity and another, no less than between one group and another. Nor is the trend uniform in all commodities.

Two facts emerge prominently from the above figures. Price declines in the agricultural sector have been far sharper than the declines in the manufacturing sector. The general relation between price levels in the two sectors has been reversed. The Food index which, for many years till the end of 1953, stood higher than the index for Manufactures and Semimanufactures has now come down below the latter indices. The index for Manufactures, on the contrary, has slowly risen, the Industrial Raw Material index moving in sympathy with the index for Food articles but at a higher pace, followed, at a long distance by the index for Semimanufactures.

These two facts sum up the problem as it presents to industry. As agricultural prices were higher than the prices of manufactures, demand for the latter stood higher, even if it did not reach adequate levels. Industries which even now complain of unutilised capacity are bound to get uneasy over a trend which represents a clear fall in the purchasing power of a section from

which the bulk of the domestic demand for their products flows.

What is to be done about it? Price support for agricultural commodities has been suggested, though no one seems to have examined the full implications of the suggestion, particularly the ability of the State to undertake the responsibility, the extent to which it could be carried and the possible repercussions on fiscal policy. As often happens, individual spokesmen of the Central Government have expressed their opinions, without prior consultations with each other. Late in June, the late Mr. Kildwai disclosed that Rajasthan, the Punjab and Uttar Pradesh have decided to offer price support to food grains, if the prices fell below a certain level. Subsequently, the Union Agriculture Minister disclosed the Union Government's intention to run to the rescue of State Governments, similarly afflicted. But at the Srinagar Agricultural Ministers' Conference, Mr. P. R. Deshmukh expressed doubts as to whether the Government would be able to maintain price supports on a large scale, for any considerable length of time. After this premature exposure of opinions, intentions and doubts, the question is allowed to rest.

With the agricultural price index still near about 400 and the cost

of living index standing close, it looks rather ridiculous to talk as though a slump is at the door. If at this time, the country were to be called upon to think in terms of steps for averting a slump, the only analogy that is relevant is that of Don Quixote. There is no slump anywhere, near or far. And if the Government were to put more money in the National Plan, without sufficient control over its whereabouts, prices may again soar. Even the present price levels are relatively high, a fact which would be realised in full, when the international market weakens further, as it is bound to, to some extent, in the absence of unforeseen political developments.

Nor is the situation comparable to any which obtained in the inter-war years. Everywhere the State has come to exercise greater control over major economic trends. The last decade and a half has taught innumerable lessons in the field of State regulation of the general economy, testing and adjusting the fiscal and monetary instruments available for the purpose. At least as far as prices are concerned, a competent modern State can say, like Canute, 'thus far and no further', and unlike that ancient monarch, compel obedience. For the time being, there is hardly any need to summon such powers into action.

This is indicated in the figures given below:

INDEX NUMBER OF WHOLESALE PRICES.		(Base: Year ended August, 1939=100).			
		WEEK ENDED			
Group and sub-group		22-1-55.	15-1-55.	25-12-54.	23-1-54.
Food Articles	..	308.7	313.6	319.3	386.3
Cereals	..	342	353	364	445
Pulses	..	241	240	231	424
Others	..	273	271	272	294
Industrial Raw					
Materials	..	430.9	437.1	432.4	484.3
Fibres	..	474	470	464	464
Oilseeds	..	361	275	385	560
Minerals	..	411	451*	412	442
Others	..	481	473	444	409
Semi-Manufactures					
Leather	..	314.6	345.3	346.5	362.9
Mineral Oils	221	221	221	221	221
Vegetable Oils	411	412	406	551	
Cotton Yarn	451	453	492	442	
Metals	..	240	241	240	236
Oil Cakes	..	301	301	356	422
Others	..	334	332	329	305
Manufactures	376.8	376.1*	374.2	364.7	
Textiles	..	421	420†	417	402
Jute	..	463	457	438	421
Cotton	..	411*	411*	412*	398*
Rayon & Silk	472*	472*	455*	428*	
Woolen	..	310	310	310	313
Metal					
Products	..	340	340	340—	337
Others	..	284	284	284	283
Miscellaneous	567.1	566.9	574.2	711.4	
All Commodities	..	363.4	363.9*	367.1	401.0
		*=Estimated.	†=Revised.		

RURAL REGENERATION

THE General Report on the Rural Credit Survey, undertaken by a special committee, on behalf of the Reserve Bank, is entitled to a place among the worthiest socioeconomic documents on India. With an unconventional, refreshing and comprehensive approach, the Committee has gone to the very roots of a problem of which hitherto no more than the superficial layers were explored and analysed. The conclusions of the Report would undermine the belief that the Government, the Reserve Bank and the Co-operatives together have laid foundations of an economic structure capable of redeeming the peasant from all his afflictions. The age-long traditional pattern of rural credit, and to a large extent, of life in general, survives. Only the fringes have been touched by new agencies and new efforts. The organisation of rural credit has to be completely overhauled, and an altogether fresh start has to be made. Ninety two per cent of the credit needs of the agriculturists are still being met by money lenders, agricultural or professional commission agents, or the borrowers' relatives. After fifty years of development, the co-operative societies are contributing no more than 3.1 per cent, while the Government are only slightly higher up in the scale, with 3.3 per cent. When enlightened British administrators sought to provide relief to the peasant, co-operation appealed to them as the most effective means of organising it. The National Government imbibed the same affection towards co-operation. The Constitution envisages the permeation of the co-operative principle over the entire social fabric. Past record, however, is utterly disappointing. The Committee writes:—

"Co-operative credit is more developed than co-operative marketing, but, even so, much the larger part of the cultivating population is still outside its ambit. There are large parts of the country which co-operation has not hitherto covered. Even in those areas to which it has extended, there are large sections of the agricultural population which still remain outside its membership; and even in respect of those who are members of co-operative credit societies, the large bulk of the credit requirements is met from sources other than co-operative. The magnitude of this threefold inadequacy is such as to warrant from the quantitative as distinguished from the qualitative, aspect only one judgement, namely, "failure" on the fifty-year record of the co-operative credit agency in this country. The data of the survey confirm that no other description of the record would be appropriate".

Here we get a virtual obituary for the co-operative movement as it has hitherto worked. The record in

respect of Government finance is no less unflattering. Taccavi loans have been inadequate in amount, inconvenient in point of timing, ill-co-ordinated, inefficiently supervised and, as in co-operative lending, having a pronounced bias for the big cultivator. The commercial banks are even less conspicuous in the general picture of rural credit.

They contribute less than one per cent to the total volume. It will be recalled that, on the recommendations of the Rural Banking Enquiry Committee, the Reserve Bank has been encouraging the establishment of new branches of the Imperial Bank and other commercial banks in neglected centres, along with the provision of easy deposit and remittance facilities. But these efforts are negligible, by the side of gigantic requirements to be met.

Having found that none of the existing sources with their present organisation and methods could be depended on for an adequate role in the future, the Committee has struck an entirely new note. Despite its bleak record, co-operation is accepted as the principal basis for future organisation. This faith in a system which has earned unqualified condemnation might at first appear strange. The Committee argues that there is nothing inherently impractical or uncongenial in the co-operative principle as such. The blame rests on the structure, which is divorced from realities, which takes its inspiration from urban economy and urban outlook, which imbibes suicidal priorities. Why rural co-operation has failed to fulfil expectations has lent a fascinating theme for the Committee. The thesis is summed up in a new epigram: there is rural credit, but no rural-minded credit. The initiative, the leadership and the outlook of the co-operative societies are all subtly, but nonetheless effectively, urban, which, according to the Committee, has permanently disabled them to function as real helpmates to the small and medium landholders. If the inspiration and the outlook were to change, co-operation will succeed. For the present, there is scarcely any hope of providing a genuinely rural initiative; the population is either illiterate, or unorganised, or clannish or lacking in the necessary traditions. Inevitably the State must step in. The Committee has no doubt that "the initial help, if it is to be of the magnitude and of a type which will enable the co-operative organisation to withstand the pressure of opposition of vested interests, can come only from the State." This help is not to be confined to guidance, administrative supervision or mere financial aid. What is aimed at is a State partnership with co-operatives in credit, processing, warehousing, marketing and all the other associated activities, including the promotion of subsidiary

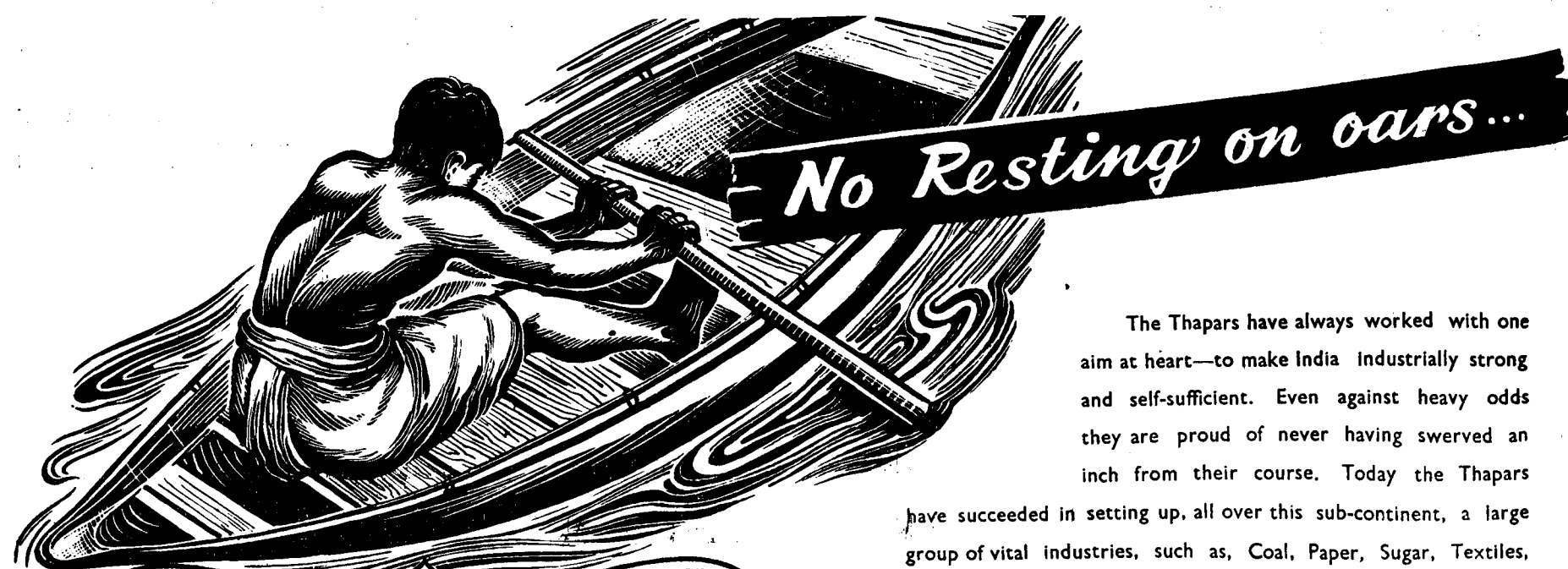
industries. The State would come in, not all alone, but in association with a defined sector of commercial banking.

Alongside the publication of the Report, the Indian Finance Minister announced the decision to accept in principle the recommendation of the Committee to the effect that the Imperial Bank of India be expanded by amalgamating ten other State-associated banks and by Government and Reserve Bank of India subscribing for additional shares so as to give them 51 per cent voting power. In loose terms, this proposal has been described as nationalisation. It is important to note that the proposal as outlined by the Committee involves no nationalisation. Nationalisation in the accepted sense of the word implies one hundred per cent State ownership. The present proposal does not require any shareholders of the Imperial Bank to part with or sell their shares.

So far as the shareholders of the ten amalgamating banks are concerned, they will be definitely better off, as, in place of their present holdings, some of which are selling at prices below their intrinsic values, they will be offered Imperial Bank shares on a basis of equitable valuation; and the detailed proposal, must be carefully read, so as to get a just and proper assessment of the scheme suggested by the Committee.

tee and accepted in principle by Government. All relevant issues have been examined with great care; and the scheme of the integrated State-sponsored, State-partnered State Bank of India must be hailed as a significant landmark in the progress of Indian banking. The argument in favour of the Imperial Bank's expansion and integration to such effect that it emerges as the State Bank of India is presented by the Committee in the following terms:

"Not only, therefore, does a final country-wide step of integration such as would be involved in the possible amalgamation of the Imperial Bank and the State-associated banks seem wholly consistent with the past evolution of the biggest of them; but also, as a little reflection will show, such a step might be said to be quite inevitable; inevitable, that is, if we would make up our minds to pay as earnest attention to this matter of banking integration for the benefit of the whole of India—and for rural India in particular—as was accorded to the political and financial integration of the country which has been so effectively, and even spectacularly, brought about by the combined wisdom and determination of our leaders."



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The process contemplated is that the ten State-associated banks should first be amalgamated with the Imperial Bank; that the Government and the Reserve Bank should take additional shares so as to give them a majority; that the Imperial Bank, so expanded, be rechristened State Bank of India. that, with suitable facilities of various kinds, the State Bank of India should branch out on a planned programme. The accretion of strength and advantage to the Imperial Bank is substantial. As regards size, branches and resources, the integration will achieve the following results.

(1) Whereas the Imperial Bank has now 205 branches and sub-branches, the State Bank of India, to start with, will have 513.

(2) Where the Imperial Bank has now 217 pay offices, the State Bank of India will have 255.

(3) Where the paid-up capital and reserves of the Imperial Bank are now Rs. 11.9750 crores, those of the State Bank of India will

be Rs. 22.1517 crores. (This does not take into account the capital to be contributed by Government and Reserve Bank).

(4) Where the deposits of the Imperial Bank are now Rs. 207.21 crores, the State Bank of India, at the start, will have Rs. 305.83 crores.

The new money by way of capital, which will accrue from the shares proposed to be taken by Government and Reserve Bank, is Rs. 7 crores. The total of paid-up capital and reserves of the State Bank of India will be near Rs. 30 crores—a capital base adequate for the greatly increased responsibility which the State Bank of India is called upon to take.

The shareholders of the Imperial Bank of India as well as of the ten amalgamating banks must, surely, welcome the prospect of their being members of the State Bank of India which will become a strong, integrated, State-sponsored, State-partnered commercial banking institution with an effective machinery

of branches spread over the whole country, which by further expansion (including further, but minor, amalgamation where necessary) can be put in a position to take over cash work from non-banking treasuries and sub-treasuries, provide vastly extended remittance facilities for co-operative and other banks, thus stimulating the further establishment of such banks, and, generally, in their loan operations, in so far as they have a bearing on rural credit follow a policy which, while not deviating from the canons of sound business, will be in effective consonance with national policies as expressed through the Central Government and the Reserve Bank.

A number of new national institutions are envisaged, through which and under whose protective guidance the State-co-operative-partnership has to function. These are a National Agricultural Credit (Long-term operations) Fund, a National Agricultural Credit (Stabilization) Fund, both functioning under the Reserve Bank; a National Agricul-

tural Credit (Relief and Guarantee) Fund, under the Ministry of Food and Agriculture; a National Co-operative Development Fund, a National Warehousing Development Fund, both under a National Co-operative Development and Warehousing Board, an Integration and Development Fund, under the proposed State Bank of India; and a State Agricultural Credit (Relief and Guarantee) Fund and a State Co-operative Development Fund under each State Government.

Obviously the State would be very much in the picture. Any excessive interference of the State with the work of co-operative is, according to orthodox tenets, a denial of the fundamentals of co-operation. Presumably, the Committee is not unaware of this snag. In the temple proposed to be erected for co-operatives, the deity to be installed is the Government. From this awkward brand of eclecticism, the Committee hopes to escape with the suggestion that the State's dominance will be temporary and in due course, the co-operatives will become wholly faithful to their name.

How far and how soon this hope is going to be fulfilled is unpredictable. Till now, whatever progress the co-operative movement has achieved in India is due mostly to the initiative and guidance of the Government. Honest friends of the movement have felt that a sacrifice of basic principles would not be too much of a price, if the Government came in with a stronger hand to direct the affairs of the societies. The movement has languished, because, while public initiative has been lacking, Government control has been half-hearted and apologetic. No tears need be shed, for a change which is calculated to ensure better and speedier results. A more vigorous association of the Government alone will impart to the movement the life and energy necessary to be sufficiently useful in its allotted role. But nothing is lost by calling a spade a spade. The label of partnership between the State and co-operatives cannot conceal the fact that everything will have to be done by the State. As the rural population, by all admissions, is far from eligible for a positive role, and a transformation will take a pretty long time, the State will have to be virtually in full charge of the show.

The prospect need not at all be viewed with concern. Because, for one thing, it is only completing a process which has already made some headway. The Reserve Bank's direction and control of rural credit, directly or indirectly, is on the increase, and it is undoubtedly for good. For another, the proposed structure will not be a novelty. Several leading countries including Great Britain and the U.S.A. have allotted a vital and positive role for the State in the supply of farm credit. In the peculiar circumstances of India credit cannot be isolated from other aspects of agricultural production. The State's task, therefore, has to be conceived on a wider scale.

Finance for the Private Sector

THE Report of the Committee which the Reserve Bank of India appointed with Mr. A. D. Shroff as Chairman, to enquire into the question of finance for the private sector, is a document which will be read with great care by all students of our national economic problems, but with no inkling of the reactions it will cause in the minds of the Government. For, the Report, even like the origin of the Committee, marks a notable divergence from the vogue and trends now prevalent in this country. There is little of the exuberant adoration of the principles of the welfare state or devotion to their relevant sections of the Constitution, for which, in these days, one has to be prepared in the report of every committee of enquiry, whatever the subject under reference. On the other hand, the Shroff Committee have commented freely on the forces and circumstances which have determined the present climate which is adverse to investment. And, while they are by no means guilty of throwing cold water on the social democratic ideals of the Government and the people, they have claimed and exercised more freedom than other committees appear to have cared for to criticise some of the present policies and to suggest changes by which the prevalent climate could be made favourable to investment. It is perhaps a vague anxiety for the exercise of this freedom that lay behind the departure from the usual course, which the appointment of a committee by the Reserve Bank undoubtedly marks. While the greater part of the ground covered by the Committee is undoubtedly a part of the domain of our central banking institution, it would be impossible to do justice to the issue unless certain aspects, which relate to the Government's economic policy, are also adequately dealt with. Besides, the question of finance for the private sector has to be dealt with not only as part of the banking problem, which the Reserve Bank has on its hand, but as part of our requirements for the success of the Five Year Plan. It is not to be supposed that a few changes in the institutional framework or the technical working of our banks and banking system will suffice as a satisfactory solution of the problem of finance for the private sector. Apart from the question of whether funds will flow into investment on the scale required, we have also the problems arising from the inadequacy of savings for the scale of development that has now been planned. The question that has been referred to the Shroff Committee extends far beyond what the Reserve Bank as the central banking authority feels called upon to explore on its own initiative. For the problem has to be considered on three different planes, firstly, whether savings

are adequate and, following from this, whether current policy is helpful to the augmentation of the volume of savings or whether it is calculated to reduce the quantum of savings in the country as a whole, and for the purposes of the proper functioning of the private sector. Secondly, it is necessary to examine whether the conditions are such that savings can be expected to flow into investment, if savings were effected on the requisite scale. This question has reference primarily to the incentive to investment and then to the institutional machinery necessary for the working of the entrepreneurial system in the initial stages of a new enterprise. It is only as a third step that the relation between the banking system and the satisfaction of the financial needs of private enterprise can be usefully considered.

The Shroff Committee must be congratulated on their keenness to examine the problem on all these planes before coming to the sphere in which it can make concrete recommendations with a reasonable hope of their being considered and put into effect by the authorities concerned. There can be no mistaking the fact that any suggestion that a public committee of enquiry may have to make as to the best way of increasing the volume of savings or of ensuring their flow into investment is far from certain to receive sympathetic consideration in the hands of the Government. And, it would be tempting to the Committee to overlook the part of the problem on this ground and even to show but a tepid enthusiasm for the rest, because its suggestions in this regard would be woefully inadequate.

The shortcomings of Government policy in regard to the private sector as a whole and private industry in particular can, it is clear, no longer be slurred over. The expediency, if nothing more, of preserving a mixed economy is no longer questioned even in the extreme left. Nor is there much doubt about the inadequacy of merely State-managed or State-sponsored projects, from the point of view of securing the expansion of economy, which is both necessary and feasible. In these circumstances, it would be dangerous to continue in the old attitude of looking askance at private enterprise and ignoring the conditions necessary for its proper functioning. The Shroff Committee has done well to sum up, with a judicious balance which cannot be expected in the memoranda of Chambers of Commerce, the sins of omission and commission of which Government can, from this point of view, be deemed to be guilty. It is this part of the findings of the Shroff Committee to which it is difficult to guess the reactions on

the Government side. But considering the scope of the Committee's terms of reference, which bring the whole of the private sector and not alone a few industries within the Committee's purview, it is to be hoped that Government will give far more careful consideration to their conclusion than they can so far claim to have given to the representations of the commercial bodies. For, as we already pointed out, adequacy of finance for the private sector depends as much on the scale of savings in the country and the favourableness of the climate for investment as the resources of banks and the quality of their service. Few will dispute the fact that in India, the conditions have become more unfavourable than before the attainment of independence. The revision of the distributive system, so as to increase the income of the classes with a greater propensity to consumer expenditure, the impairment of the incentive to new investment by measures which destroy confidence in realisation of reasonable returns, an administrative machinery and procedure which hampers the execution of practical programmes—all these combine to reduce to a minimum the chances of the private sector doing its part in the success of the plan and the progress of the national economy.

Doubtless, the changes indicated by this criticism impinge on political policies over which the Government cannot readily assume a free hand. But the tasks can be shirked only up to a point. The new principles of distribution cannot be held to be sacrosanct, even when they involve increases in costs which will give the national economy a dangerous set-back. Nor can the Government be indifferent to the scale on which savings are effected or to the need to make up for the loss consequent on the disabilities of the classes which have formerly contributed to new investments. At any rate, the Government cannot afford to fetter private enterprise merely because they would like to be above all suspicion of befriending the richer classes or continue an administrative machinery and procedure which were conceived in the days of negative controls. What the Government will actually be able to do, it is futile to speculate on at present. But, without a revision of the ideas relating to these basic conditions, no amount of skill and ingenuity in improving the banking system and the modes of its functioning can be expected to secure the desired aims.

This fact does not, of course, absolve the Committee of the responsibility of suggesting concrete measures by which, the financing of the private sector, generally and industry in particular will be more

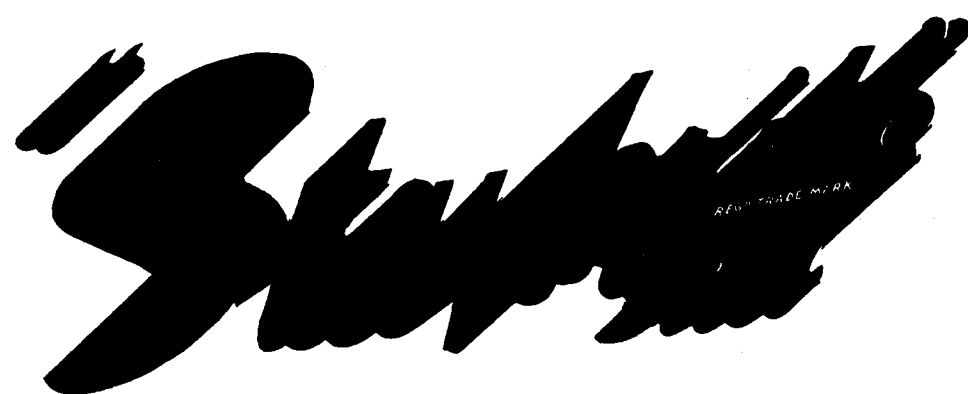
reliably ensured. In tackling this task, the Committee appear to have mapped out the whole field before them and effected certain broad divisions of it, which are unduly reflected in the groups into which their recommendations, too, can be divided. It may be expected that "though the Committee's terms of reference do not specify any particular segment of the private sector, we have for several reasons concentrated on the financial problems of the private industrial sector". The Committee have, in fact, ignored agricultural finance because of its having been covered by another special enquiry and also the financing of the private lending sector and "have been concerned mainly with the means necessary and remittance facilities in India have been specially enquired into by a Sub-committee constituted by the Shroff Committee and the results of its labours are seen in the final recommendations. While the needs of small scale industry have also been considered, the Committee have as already observed, given the greatest attention to the needs of large-scale industry, as they can be met by organised financial institutions. The Committee have made special mention of the fact that the cotton textile industry is not in a position to carry out its rationalisation, despite its command of the necessary resources, because of their lack of freedom to dispense with surplus labour.

In considering the measures necessary for the financing of large-scale industry, the Committee have reviewed the steps already taken by the Reserve Bank towards this end, such as the introduction of the Bill Market Scheme in January 1952 and the extension of the facilities thereunder, the grant of larger financial accommodation to State Co-operative banks, the contribution to the capital of the Industrial Finance Corporation, the adoption of special measures of financing as in the case of cotton in Bombay, and tea in West Bengal and the provision of remittance facilities. The Committee recommend that facilities under the Bill Market Scheme should be made available to all scheduled banks with deposits of Rs. 1 crore or over. Further, the individual minimum amount for bills should be reduced from Rs. 1 lakh to Rs. 50,000 and for parcels of bills from Rs. 25 lakhs to Rs. 10 lakhs. It is also of the view that on the analogy of the Bill Market Scheme it may be possible to explore ways and means of increasing the resources of banks for the provision of medium-term finance by the Reserve Bank through similar facilities under proper safeguards. The Committee have recommended that the Remittance Facilities Scheme of the Reserve



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Bank should be enlarged so as to provide free remittance facilities to banks from their head offices to their branches and vice versa.

Despite its recognition of the limit to which banks can give direct loans to industries the Committee recommend that even with the present resources available to banks they should endeavour to increase their investments in the shares and debentures of first class industrial concerns, make larger advances to approved parties against such securities and subscribe to a greater extent to the shares and bonds of special institutions like the Industrial Finance Corporation of India and the State Finance Corporations. Valuable help towards this end can be found in the formation of a consortium or a syndicate by banks in co-operation with insurance companies under the leadership of the Imperial Bank of India, with the object of underwriting or investing in new issues of industrial shares and debentures. The Banks would readily help this new development, if, as the Committee recommend, these securities should be treated by the Reserve Bank as on a par with Government securities for advances under Section 17(4)(a) of the Reserve Bank of

India Act. on such terms regarding margin, etc., as the Reserve Bank may deem appropriate.

In considering the problem referred to them, the Committee have also given thought to the ways by which the development of Indian banking can be helped forward. The question gains more than usual importance from the setback given to branch banking by the increase in operating costs.

The Committee recommend that for augmenting the finance available to industries—large scale, medium-scale and small scale—particularly through organised financial institutions. Two questions, namely operating costs of banks the Reserve Bank should, in consultation with the Government of India work out a detailed scheme of financial assistance to licensed scheduled banks opening branches in accordance with an expansion programme submitted by them and approved by the Reserve Bank. The Committee have also made some suggestions about linking the indigenous moneylenders with the organised credit market.

The changes mentioned above in the working of the banking system are also to be reinforced by a new institutional framework built round

about the Industrial Finance Corporation. The Committee favour a revision of the Insurance Act, so as to enable insurance companies to invest in industry. As regards the Industrial Finance Corporation, it has been suggested that the Corporation should: (a) endeavour to give debenture-loans; (b) explore the possibility of converting the whole or part of a loan given by it into equity capital on mutually agreeable terms; and (c) examine the scope for lending jointly with commercial banks or guaranteeing industrial advances by banks and insurance companies.

Small scale industries, it is believed, will be helped by the formation of a State Finance Corporation and a suitable revision of the State Aid to Industries Act. A Special Development Corporation for Small Industries is thought to be necessary. And so are new institutions for mobilising financial resources such as issue houses, investment trusts, unit trusts, etc. The Committee welcome the move to establish, with support from the Government of India and the International Bank for Reconstruction and Development as also the proposal to start a State-owned and State-managed Industrial Development Corporation for pro-

motion of new industrial units in the country.

The need for provision of technical and managerial assistance to industries which the Committee feels to be a serious matter, is to be met by a central organisation for provision of technical and managerial advice and assistance which should be set up. It is not a Government institution but one in which Government, special finance institutions and private industries are all jointly concerned.

The Shroff Committee's Report is a courageous and carefully thought out attempt to solve the problems of finance for the private sector, both in its wider aspects of government policy and in its minute details. While the suggestions about the treatment of private enterprise will require a re-conditioning of public opinion and party policy, the more concrete recommendations lend themselves to adoption by stages. The larger and in one sense more crucial issue regarding the gap between the savings that are possible at the present stage and the capital that is needed can only be expected to be solved as the level of production and income is taken to higher aegis of the Five Year Plan

JUTE ENQUIRY COMMISSION

MORE than any other industry, the one that was most affected by the partition of India was the World of Jute; and repercussions of various sorts have been felt by both the raw jute as well as the jute goods trade and business in India. The monopolistic position held by Indian jute goods ceased to be, with the loss of the main jute-growing areas to Pakistan; and the policies and attitudes of that country fostered and aided the growing strength of other world producers of jute goods. At the same time, India's jute mills found themselves in the sorry position of having to make do with the inferior qualities of jute that were grown in India, and of stinting themselves of supplies of the better varieties. A country that once was the world's sole supplier of raw jute overnight became a nation very much dependent on another for the raw materials with which she could keep an important manufacturing industry going. It was a strange about-face which emerged, with Indian mills stooping to use varieties of raw jute which once had been an almost exclusive item of exports. Partition, then, was an hour of decision for Calcutta's jute mills; but the problem of securing supplies of raw jute was not in the forefront then, because at that time there were few obstacles in the flow of raw jute from the newly constituted State of East Pakistan to Calcutta. Thus, somewhat anti-climactically, the hour for decision was postponed; but, once the fact of partition was there, it was only a question of time before decisions put off had finally to be considered and taken.

If climax for the Indian world of jute was lacking at the time of partition, September 1949 provided the deferred denouement. In line with the decisions taken by Commonwealth nations, India devalued her currency; but Pakistan alone of the nations in the Commonwealth did not follow suit. The maintenance of her currency at the status quo by Pakistan might be said to mark the beginning of the really grave problems of the Indian jute and jute goods industry; and the years since then have been an almost continuous period of crisis. First, it was the crisis of finding the raw jute with which our jute mills might be worked. There followed, then, in quick succession the flourish of black-marketing, the growing hoard of illicit dollars, evasions of income taxes and contravention of exchange controls. A further complicating factor was the outbreak of aggression in Korea, with its attendant world movement for rearmament and the inflationary spirals it set into motion. The industry could know no normalcy, because prudence dictated that the Government should try to absorb the difference between Calcutta's controlled prices and the free market rates abroad by resort to export duties.

The rearmament boom was inevitably followed by a commodity collapse, as demand for many raw materials slackened off. By the middle of 1952, the crisis that faced the Indian jute industry was the reverse of the one that it had to cope with in the previous two years—a crisis that arose because of depressed prices and declining demand. Demoralisation of the Calcutta jute goods market was completed with and by a burst of speculative orgies, which pushed up levels of prices for a brief week before they collapsed in the week following. The first few months of 1953 were marked by a perceptible diminution of consumer interest in Indian jute goods; and it was in such a background that the Government decided to have an investigation made into every facet of the Indian World of Jute. For this purpose, Jute Enquiry Commission was constituted under the Chairmanship of Mr K. R. P. Aiyangar which, after collecting evidence for a period of some months, made public their Report last year.

It may be said, without further ado, that a conscientious and painstaking job of work has been done. No effort has been spared towards obtaining evidence or collection of data or gathering of information or compilation of statistics. The very comprehensiveness of the inquiry part of their work has enabled the Commission to reach conclusions and suggest recommendations that are irrefutable in their logic and inevitable from the point of view of implementation. Although, in one or two respects the attitude of this journal would be at variance from the views of the Commission, it is a fact to be remarked, that the major recommendations made had been earlier suggested in the columns of Indian Finance in more or less the same form. The points on which the Commission and Indian Finance see eye to eye may first be dealt with.

The primary problem in jute may be said to be the production of raw jute in India. It has been an heroic effort which has made possible an increase in indigenous production from a level of 1.3 million bales to 4.7 million bales in 1952-53.

It is now a matter of history, that Indian production has almost succeeded in reaching a level of self-sufficiency. But the drive towards growing more jute received a sad rebuff, by a year of depressed raw jute prices, resulting in a much poorer crop in 1953-54. That India should continue her efforts at producing jute sufficient for our needs, there can be no two opinions on. It is, however, unnecessary to lay too great a stress on achieving what might be termed quantity production. The Commission have stated that relative rather than absolute self-sufficiency in raw jute should be our aim. We consider that the Indo-Pakistan trade pact of last year has given us a breath-

ing time, as it were; that time can be utilised towards improving calibres of raw jute grown in India. It should be possible, in a reasonably short number of years, to reduce our dependence on Pakistan for raw jute to such an extent that, if needs be, and at a pinch, we could do without it. This would suggest that there be a steady improvement in the varieties of indigenous production. The Commission's pointed remarks in this direction have, in our view, a correct stress about them.

At the same time, the problem of raw jute from the point of view of the cultivator has to be considered. It serves little use, to dwell on, their past sufferings. But, for the future, measures need to be taken which will guarantee that the lot of the cultivator is an improved one. The devices by which the cultivator is denied his just dues have been enumerated in the Report, and all concerned would do well to give of their best at removing them. One measure by which the fortunes of the cultivator may certainly be changed for the better would consist in the provision of extensive warehousing facilities and the formation of co-operatives. It must be borne in mind that the jute mills industry's prospects rest to a large extent on the favour that the cultivator gives to raw jute. If his is a raw deal, jute mills will get steadily declining quantities of raw jute from him.

The point has been made, in the Report, that Indian jute goods cannot be undersold by the Continent, in spite of the existing rates of export duties. What is being overlooked is the fact that Pakistan would be in a position to do so. The threat of competition offered by Pakistan should not be underrated. There must, therefore, be no room for any feeling of complacency; on the other hand, efforts must not be relaxed towards making Indian jute goods cheaper yet. This has been recognised by the Commission, who have shown a commendable attitude on the subject of modernisation and rationalisation. In regard to the former, they have suggested that both labour and management should display enlightened attitudes, with the one desisting from demands for wage increases and with the other adopting a policy of dividend-restraint. They consider that, for the long-term interests of the Indian jute industry, rationalisation must be effected and chosen as a lesser evil, although it would give rise to unemployment. It is the view of this journal that the twin measures of modernisation can help to provide the industry with brighter prospects. But we would add that there is a third measure open to Government, which would not only aid the process of modernisation, but would also go a long way towards creating a bright future for India's jute goods.

It is on this point, in the matter of export duties, that we are not in agreement with the Commission. The most important necessity, for jute goods to have a future, is the goodwill of the consumer countries. Indian policies in the recent past, perhaps by force of circumstance, have done anything but foster goodwill. It is known that the consumer countries were resenting the high level of export duties; and that resentment has not disappeared, as export duties continue to exist. The complete elimination of export duties would be favourable to India and the jute goods industry in every way. In the first place, Indian goods would be cheaper and, to that extent, the competitive power of Indian goods would be increased; at the same time, it would be possible to regain markets that have been lost to substitute packing materials. In the second place, attempts at making India the sole supplier of standard varieties of jute goods would then be successful; with Continental prices further undercut, those mills would be forced either to manufacture goods at a loss or turn to the production of special varieties of jute goods. In the third place, the loss in revenue on account of the elimination of export duties would be offset both by increased exchange earnings as well as the higher tax collections made possible on the increased profits. In the fourth place, as much as half of the duty reduction is usually covered by an increase in the local prices of jute goods; and this would represent an increased margin of could go to finance modernisation and rehabilitation programmes of manufacturing units. And finally, most important of all, we would win the goodwill of foreign consumers; this intangible asset is one which will insure the prospects of Indian jute goods to a degree that is not assessable.

The creation of a well regulated futures market, the establishment of a Jute Board and the appointment of a Jute Commissioner—all these are recommendations of the Commission which it would serve no useful purpose here to examine at length. But the conclusions to be drawn from an analysis of the Report of the Jute Enquiry Commission are clear-cut and unambiguous. The recommendations made are sound, and it is vital that they receive the immediate and careful consideration of the industry as well as the Government. It is once more an hour of decision for the jute industry; and the next few weeks and months will disclose whether the future is to be one bright for the jute industry, or one that is bleak and uncertain. For survival, the industry must make sure of its fitness; and, for the industry's fitness, effort and energy, thought and action, are necessary both from the industry and from the Government.

—JAIPURIA ENTERPRISES—

Textile Mills :

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SHREE ANAND SUGAR MILLS LTD.,
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Vanaspati :

BERAR SWADESHI VANASPATI,
Shegaon (Berar).

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Collieries at:
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Ramnagar Rly. Station, Pandaveswar,
E. Rly.

JAIPURIA KAJORA COLLIERIES LTD.,
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(1) Bakelite Factory;
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Land Development :

C. P. PROPERTIES LTD.,
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Burlap, Bags & All Jute Products
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Shellac

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Produce
Metals
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Equipments
Machinery & Hardware
Chemicals
General Merchandise

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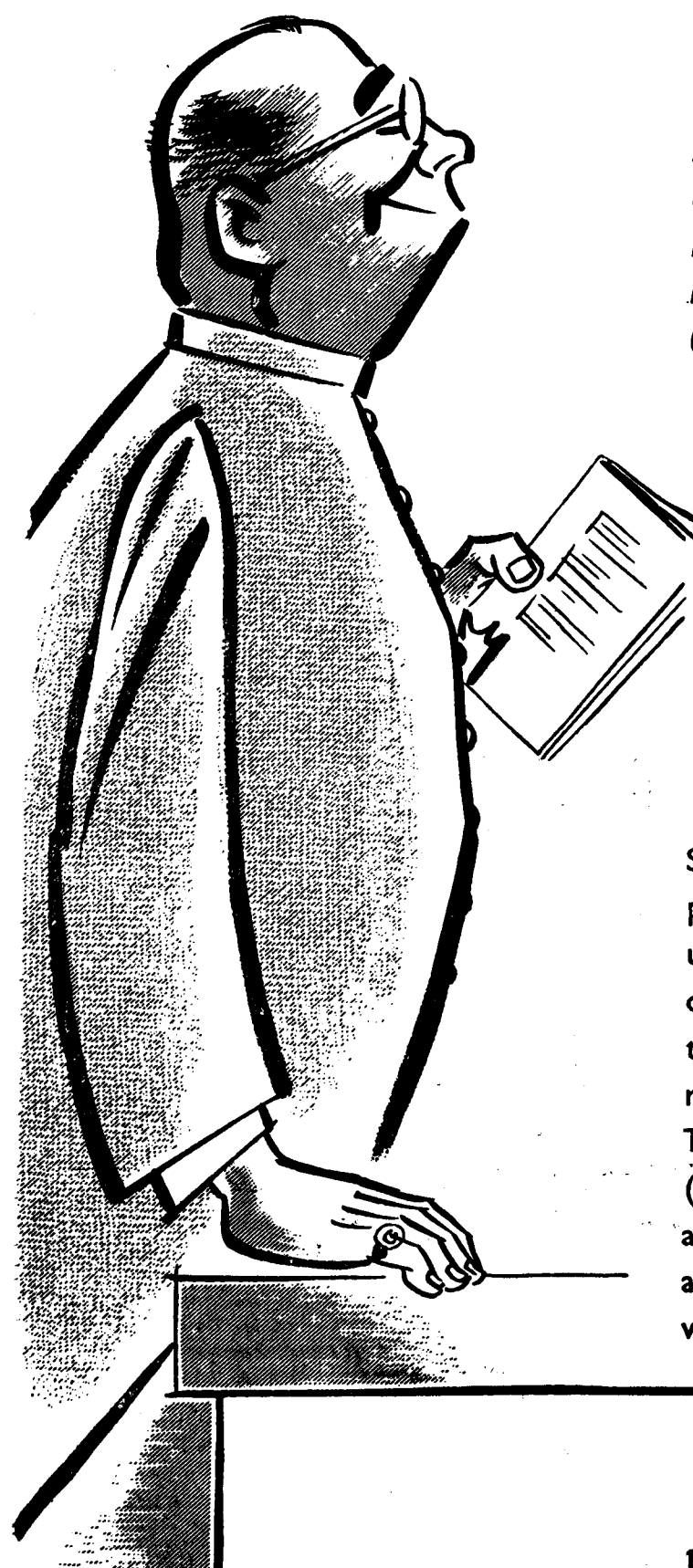
BOMBAY
357, Kalbadevi Road,
BOMBAY-2.

KANPUR
Generalganj,
KANPUR.

NEW DELHI
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NEW DELHI.

RANGOON
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RANGOON.

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IN INDIA'S LIFE AND
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FOR a fair appraisal and correct appreciation of the 1955-56 Budget, it is necessary to apply criteria relevant to the circumstances which are of special significance in the present state of India's economy, and in the present stage of India's progress towards the objectives laid down in the Constitution. The Taxation Enquiry Commission, entrusted with the task of studying the tax structure from these points of view and of making recommendations designed to lead to the materialisation of these objects, submitted their report in time to mould and shape the outline and character of the Budget. So, the study of the Budget involves two connected issues: Do the recommendations of the Matthal Commission fulfil the imperatives of national policies? If the answer is yes, does Sir Chintaman Deshmukh effectively utilise the Budget for the implementation of those recommendations which admit of immediate adoption?

Thus, the 1955-56 Budget, the Matthal Commission's Report, and the essentials of national economic and social policies are organically bound together; and it is, therefore, particularly dangerous to undertake an assessment of the 1955-56 Budget as though it is a self-sufficient study in itself or as though it can satisfy sectional demands of various kinds.

It is of paramount importance to realise that the Matthal Commission were required to make a thorough and comprehensive enquiry into the structure, composition and level of India's tax system not only with a view to its rationalisation, but also with a view to "its better use as an instrument for implementing the economic objectives of free India". The emphasis on the latter feature was clearly brought out in the terms of reference to the Commission. The tax system was to be examined in relation to four main aspects: (a) its incidence and its suitability for reducing inequalities of income; (b) its suitability with reference to the development programme of the country and the resources required for it; (c) the effects of taxation of income on capital formation, maintenance and development of productive enterprise; and (d) the use of taxation in dealing with inflationary and deflationary situations. The task thus set to Dr Matthal and his colleagues involved the reconciling of opposing factors, the resolving of contradictory requirements. The tax system must be one for equitable distribution; it has also to be one of incentives for saving and investment—it has to find resources for considerable outlay on development projects; and it has also to provide for the curbing of any inflationary forces that may thereby be released. In evolving an integrated system that must achieve not only different but even opposing ends, it is unavoidable that it evokes criticism from various quarters; and that criticism is many-

sided, may perhaps be regarded as a significant sign that conflicting considerations have been correctly balanced.

The Matthal Commission have, fairly and firmly, faced the poser: How is a balance to be struck between the objectives of achieving economic equality through the tax mechanism, and of maintaining unimpaired the flow of investment and savings which make for the continued progress of productive enterprise? In relation to general economic and social policy, the emphasis is equally on greater production and better distribution. It is true that, in the opinion of some, increase in production is a more important objective in the short run than improvement in distribution. The Matthal Commission, however, do not take the complacent view. They realise the urgency of the problem posed by unequal distribution and express their views in bold terms: "The problems of equality can no longer be left to the automatic functioning of economic and social forces. Conventional ideas regarding the standard of life that befits higher occupations and expectations of reward or profit necessary to maintain effort and thrift must also undergo an appropriate change. The attainment of a wider measure of equality in incomes, wealth and opportunities must form an integral part of economic development and social advance currently. It is clear that there is an appreciable degree of avoidable inequality in incomes, earned as well as unearned, and in wealth. These inequalities are characteristics of under developed economies and substantial progress towards equality could only be achieved by the gradual elimination by set purpose of certain fundamental sources of inequality."

It is true that, at present, no reliable measure of the degree of inequality of income or wealth in the country is available. But, it is undeniable that a wide range of inequality does exist. It had been accentuated by inflation. At the same time there has been a fall in real incomes of considerable sections of the population. Despite the considerable increase in income-tax, some increase in inequality in parts of the economy and in certain income ranges has occurred, partly because of the exclusion of agricultural income and partly because of evasion among important segments of tax-payers. The possible means for the reduction of inequalities is more effective tax enforcement, additional taxes on luxury consumption and a widening of the taxation of wealth and property.

While action in these directions is imperative and will no doubt add to revenue to a sizeable extent, there is no escape from casting a wider net if the needed addition to public resources in the context of a series of development plans were

to be secured. The Matthal Commission do not hesitate to advance their considered view that 'some contribution must come from the masses of the population through taxes which have a wide base'.

The same conclusion is reached when, in the interest of a tax system suitable for development programmes, we realise the need for restraining consumption and the importance of stimulating investment and savings. What is required is a properly diversified scheme of taxation, one having an adequacy of both depth and range. "Additional taxation of a wide range of luxury or semi-luxury products at fairly substantial rates, accompanied by broad taxation of articles of mass consumption at comparatively low rates, is, therefore, indicated... On the whole, the kind of tax system which would be best adapted to meet the requirements of the Indian economy, having regard to the development programme and the resources required for it, appears to be one which would increase the resources for investment available to the public sector with as small a diminution as practicable of investment in the private sector, and which, therefore, is accompanied by the largest practicable restraint on consumption by all classes. Restraint on the consumption of higher income groups must, of course, be greater than in respect of low income groups."

Mere taxation of articles of luxury will not produce sufficient revenue. So, the Commission argue that for commodity taxation to produce substantial receipts with appreciable restraint in consumption, it will be necessary to extend excise and sales taxation to the consumption of lower income groups and of goods commonly classed as necessities. There is not sufficient logic in the exemption of certain essential goods from taxation. As an alternative to inflation, which might involve an even larger cut in the current consumption standards of the weaker sections of the community, a systematic scheme of taxation of the essentials would be preferable."

The Commission are aware that the suggestion to tax commodities popularly believed to be necessities raises the question of taxable capacity. Taxable capacity is, they urge, a relative concept. Firstly, Indian tax revenues are about 7 or 8 per cent of the national income and this proportion is lower than in many other countries including some in South East Asia. Secondly, the limit of taxable capacity may be said to be relative to the purposes for which the proceeds of additional taxes are expended. Efficiency in administration and economy in public expenditure will diminish people's unwillingness to suffer an increase in tax burdens. "It would not be in correct to state", the Commission observe, "that taxable capacity shrinks with impecunious and unpopular policies and ineffective

governance, and expands with beneficent and competent administration". Thirdly, the increasing bias towards social and development services is helping to raise the limits of taxable capacity.

The main directions along which additional resources for development in the public sector may be secured are thus listed by the Commission:

1. An increase in income-tax, partially offset by some reduction in the Corporation Tax, with additional reliefs for savings and investment.
2. Increases in excise taxes.
3. Increases in non-tax revenue through adoption of suitable pricing policies.
4. Moderate land revenue surcharge.
5. Increase in rates and extension of territorial coverage of the agricultural incometax.
6. More extensive adoption of property taxation and taxes on transfer of property by local bodies.
7. Widening of the coverage and, in due course, increase in rates of sales tax.
8. Improvement of receipts from principal State undertakings like irrigation and electricity undertakings.

While, for additional revenue as well as for curbing consumption, tax coverage is to be more extensive and also more intensive, incentive to save and invest is to be provided by increasing from one-sixth to one-fifth the abatement on account of insurance premium and contribution to Provident fund.

Incentives for industrial development are to be provided through the Development Rebate and a scheme of 'tax holiday'.

While the Commission's recommendations are thus wide-ranging and far-reaching, the number of recommendations implemented in the 1955-56 Budget is quite considerable; and Sir Chintaman has given the assurance that the remaining proposals will be examined by Government and amending bills placed before the Parliament as early as possible.

The policy of gradually replacing quantitative restriction of imports by higher import duties is being extended to articles made of paper, advertising circulars, and cutlery not plated with gold or silver. The policy of a gradual remission or reduction of duties on essential raw materials is also being extended. The export duty on cloth is being reduced.

It is in the field of Union Excise duties that the tax proposals are most significant. Agreeing with the Taxation Enquiry Commission, (that there is a case for a substantial enhancement of the excise duty), the excise duty on sugar is being raised. Cotton excise duty is being rationalised, readjusted and raised.



Merchants Agents and Managing Agents EXPORTERS

Gunnies Oilseeds, Kapok, Hides and Skins and other
Indian Produce.

IMPORTERS

Cyanogas, Celotex, Wire Ropes, Timber, "Eclipse"
Products, Paints, Cobra Polishes.

INSURANCE

Fire, Loss of Profits, Marine, Motor Car, Burglary,
Aviation, Workmen's Compensation, Personal Accident,
All Risks, Fidelity Bonds, and all Classes of General
Insurance.

SANDOZ

Dyestuffs, Pharmaceuticals, Textile Chemicals and
Agro-Chemicals.

SHIPPING

Isbrandtsen Line - Round The World Service.

WINES & SPIRITS

Johnnie Walker Whisky, Gordon's Gin, Parry's London Gin,
Exshaw Brandy, Allsopps Lager, etc. etc.

Managing Agents and Agents: TEA

Estates in Northern India and Pakistan with an annual
crop of 25,000,999 lbs.

COAL

Collieries with an output of 1,599,999 tons per annum.

FERTILISERS

Manufacturers, Importers, Exporters and Suppliers of all
types of Organic and Inorganic Fertilisers, with Factories
at Calcutta and Madras.

Suppliers of Spraying Equipment of every description.

FLOUR MILLS

Millers of Flour and Atta.

TIN PLATES

The Tinplate Company of India Ltd.

GLUE

Manufacturers of Glue with Factories in Calcutta
and Madras.

SHAW WALLACE

AND COMPANY LIMITED

HEAD OFFICE: CALCUTTA
BRANCHES: BOMBAY & MADRAS

Associated Companies:
SHAW WALLACE & HEDGES LTD.,
COLOMBO

Associated Companies:
SHAW WALLACE PAKISTAN LTD.

Some readjustments are to be effected as regards the excise duty on matches and on cigarettes.

On the new excise duties, Sir Chintaman says: The Taxation Enquiry Commission have recommended the imposition of a large number of new excise duties. I feel myself that an expansion of revenue from excise is, in the context of our requirements and also in the pattern of industrial development in the country, inescapable and that we shall increasingly have to look to the products of organised industries in the country which have grown up under the shadow of protection, both for bringing in additional revenues and replacing the loss of customs resulting from the replacement of imported manufactured goods by indigenous production. I propose to make a beginning with a number of these new excises in the coming year, the collection of which is unlikely to involve any major administrative problem. These excises would be on the production of factories and the rate of duty will be 10 per cent. ad valorem. The commodities proposed are Woolen Fabrics, Sewing Machines, Electric Fans, Electric lighting bulbs, Electric dry and storage batteries, Paper (excluding Newsprint) and Paperboard, and Paints and Varnishes. The total estimated revenue from all these excises will be Rs 4 crores. In order to maintain the existing margin between import and excise duties, a countervailing import duty at the same rate as excise duty will be levied on the imports of these commodities, where necessary."

As regards personal taxation, the broad pattern of adjustments suggested by the Commission has been accepted by Government; and effect is being given to a number of these suggestions with modifications where desirable. We wish to draw attention to the higher tax in the income range from Rs 7,500 to Rs 15,000. This will be an unbearable burden on a section of tax-payers who have suffered most in the economic changes of the last few years. It will not be correct to regard the Rs 7,500 to Rs 15,000 income group as the upper middle class. They constitute what we may call the medium middle-class; and they have borne the full brunt of the higher prices, without any corresponding increase in emoluments. The higher tax proposed in their case must be withdrawn; and the Exchequer could, surely, forego a mere Rs 2 crores in a budget of nearly Rs 500 crores.

In all other respects, Sir Chintaman deserves congratulations on a Budget which is attuned to the spirit of the times, which is a fulfilment of the Government's declared objectives, which provides for higher production and better distribution, and which is worthy of the final year of the First Plan and significant on the eve of the Second Plan. No doubt, it hurts the individual; for, there can be no planning without tears, there can be no development for the future without sacrifice in the present. The greatest merit of the Budget is that it stimulates industrial expansion in a big way. The Development Rebate is a concession to industry which confers a great deal

more than the recommendation of the Matthai Commission. This concession was recommended by the Commission only for selected industries. Sir Chintaman has extended it to the whole range of industry. This amounts to a tax-free gift of 25 per cent on new plant and machinery. The investors, who, on their personal income, may have to pay slightly more, should find themselves more than fully compensated by the assured price-advances in their shares which such a generous present from the Finance Minister is bound to induce.

In his general review of the economy, Sir Chintaman termed 1954 as the end, in a sense, of the post-war period of transition. The war time stresses and strains had been done away with by the substantial increase in food production, the improvement in the supply position in other directions and the disappearance of inflationary conditions. With the process of decontrol, which commenced in 1952, more or less completed in 1954, the free interplay of market demand and supply forces was resumed. Unless an act of God wreaks natural calamity in India, or the international situation takes a bad turn for the worse, Sir Chintaman averred that the rate of planned economic development would be the determining factor in the economic situation.

As far as the fiscal figures are concerned, the revised estimates for 1954-55 place revenue deficit at only Rs 5 crores against the original of Rs 15.36 crores. This is as a result of the reduction in expenditure from the budgeted Rs 467.09 crores to Rs 456.08 crores in the revised estimates.

On the basis of existing taxation, the revenue for 1955-56 is estimated at Rs 468.76 crores, while expenditure is placed at Rs 498.93 crores, leaving a deficit of Rs 30.17 crores.

The net effect of the budget proposals in an increase in central revenue by Rs 21.7 crores; and, consequently, the uncovered deficit is reduced to Rs 8.47 crores. The changes in customs duties will involve a loss of Rs 50 lakhs to the exchequer, while the changes in match excise will necessitate a loss of another Rs 50 lakhs. The new and increased excise duties, on the other hand, will yield Rs 18 crores. Changes in income-tax will bring Rs 8.7 crores, the Centre retaining Rs 4.5 crores of this amount.

Turning to the capital budget, we find that the provision for 1954-55 of Rs 145.75 crores has now been revised upwards to Rs 178.54 crores. The budget year's capital expenditure is estimated at Rs 223.3 crores, which includes Rs 29 crores for Government Trading Schemes. The Railways get the much larger provision of Rs 66 crores against Rs 33 crores in 1954-55.

Sir Chintaman has given some details or explanations about the increased provision for the Railways. According to the Five-year Plan the Railways were expected to find Rs 320 crores from their own resources towards the total outlay of Rs 400 crores during the plan period. Although the Railways were unable to fulfil the resources that had been originally expected of them, it now appears that the total outlay during

the quinquennium will slightly exceed the allotment in the original plan. In this light, the provision for Railways has been almost doubled.

Other items of capital expenditure include Rs 31 crores under the head of compensation to displaced persons and a provision of Rs 5 crores for investment in Hindustan Steel over and above another Rs 5 crores to be loaned to this Government venture in steel. Provision for Civil Works is Rs 8 crores higher at Rs 32 crores, notwithstanding the exclusion of the adjustment in respect of compensation to displaced persons. The capital outlay on defence, for 1955-56, is put at Rs 22.38 crores, or an increase over the current year by over Rs 9 crores. It is, however, to be noted that this rise is partly due to the carry-forward from the current year, and partly to the normal expansion programme.

In addition to this capital outlay, the estimates for loans to states show an increase from the original provision of Rs 249 crores to Rs 306 crores for 1954-55. In the budget year, Rs 355 crores are allocated for loans to State Governments.

It is to be noted that the overall deficit to be met by expansion of Treasury Bills, in 1954-55, will be Rs 19 crores lower than budgeted. It is expected that the expansion of Treasury Bills in the current year will amount to Rs 220 crores.

The total of subscriptions to the 3½ per cent. National Plan Loan, 1964 was Rs 158 crores, out of which Rs 25½ crores were lent to the State Governments. Also, it is anticipated that, in the current year, the annual target, set some years ago, on the collections from small savings will be attained; indeed, it is expected that the target of Rs 45 crores will be exceeded. The improvement in loan receipts and small savings

was, however, partly offset by increases in capital expenditure and in loans by the Central Government and, lastly, by a drop of Rs 23 crores in foreign aid expected during the year.

The high level of capital expenditure will make it necessary, after taking into account the budget proposals for 1955-56, for expansion of Treasury Bills by Rs 318 crores to cover the overall deficit. The ways and means position for 1955-56 may be summarised in the following manner:

The monetary needs of Government will run to Rs 5½ crores for meeting the revenue deficit, Rs 578 crores for financing capital outlay and loan requirements of the States and Rs 69 crores for repayment of maturing debt.

Against this, the new loan in 1955-56 is expected to bring in Rs 125 crores, while small savings might contribute Rs 52 crores. The quantum of foreign aid anticipated is Rs 74 crores, while other miscellaneous debt and remittance transactions could fetch Rs 86 crores.

In the result, the uncovered deficit to be met by Treasury Bills would be Rs 318 crores.

But budgetary deficits of the order estimated for the current as well as the next year do not cause much anxiety to Sir Chintaman. As he puts it, these have to be viewed in the context of India's developmental needs and the various economic indicators like production, prices, employment and foreign exchange. Having regard to the steady rise in the production potential of the economy, and to the present price and employment situation, Sir Chintaman voiced his confidence that, "while no effort should be spared in maximising our resources, budgetary deficits of this order carry no threat of serious inflationary pressures."

REVENUE.

	Budget, 1954-55.	Revised, 1954-55.	Budget, 1955-56.
Customs	1,75,00	1,80,00	1,65,00
Union Excise Duties	1,03,30	1,03,65	1,23,45
Corporation Tax	38,35	38,41	39,77
Taxes on Income other than Corporation Tax	70,67	70,63	72,48
Estate Duty	25	8	21
Opium	1,65	2,26	2,00
Interest	2,78	3,61	2,91
Civil Administration	10,48	10,81	10,54
Currency and Mint	20,42	20,76	23,18
Civil Works	1,63	1,80	1,90
Other Sources of Revenue	7,92	9,84	19,21
Posts and Telegraphs—Net contribution to general revenues	1,50	1,40	70
Railways—Net contribution to general revenues	7,37	7,08	6,15
Extraordinary Items	10,21	75	1,28
TOTAL REVENUE	4,51,73	4,51,08	4,68,76
			+21,70*

EXPENDITURE.

Direct Demands on Revenue	32,19	30,46	33,15
Irrigation	16	14	13
Debt Services	40,00	39,40	39,20
Civil Administration	86,08	83,93	1,11,76
Currency and Mint	2,63	3,49	3,36
Civil Works and Miscellaneous Public Improvements	15,54	15,06	16,33
Pensions	8,45	8,77	9,13
Miscellaneous—			
Expenditure on Displaced persons	10,23	11,12	10,37
Other Expenditure	9,74	10,97	23,72
Grant to States, etc.	32,48	32,95	35,93
Extraordinary Items	23,97	22,67	13,19
Defence Services (Net)	2,05,62	1,98,02	2,02,68
TOTAL EXPENDITURE	4,67,09	4,56,08	4,98,93
Surplus (+)			
Deficit (—)	—15,36	—5,00	—8,47

*Effect of Budget Proposals.

THE STATE BUDGETS

THE Union Finance Minister stated in Parliament that relevant portions of the Taxation Enquiry Commission's Report were circulated to the States Governments sufficiently in time for their new budgets. But there is hardly any impact of the Commission's recommendations on the States Budgets hitherto announced. The Commission have found it imperative that the States should augment their revenues very considerably. Even without this reminder, most of the States Governments should have felt obliged that way, for the reason of the short-falls in expenditure under the Plan. Out of the sixteen States which have announced their budgets, only two Madras and Mysore, have cared to levy new taxes. Perhaps, the recommendation of the Taxation Commission is being viewed more as the basis of a long term policy than as an immediate demand to be satisfied. If this were to be the case it is not altogether defensible because, for one thing, the dependence on Central grants and loans will not be reduced; for another the sense of financial autonomy will continue to remain impaired. It needs a fairly greater uniformity in the classification of budgetary heads among the States before one could form comparative estimates of how the different States fare in respect

of capital expenditure. As it is there is an irritating intermingling of items of expenditure which come within the Plan and which do not. Deficits have become more or less a general rule. Among the sixteen States who have announced their Budgets, only one, Bombay, has estimated for a surplus; all the

rest anticipate deficits ranging from Rs 1.6 crores in Madras to Rs 17 crores in Bengal. On the whole, the general pattern of States Budgets does not cohere sufficiently well with the requirements of the national tasks, in which the States necessarily have to bear substantial share of the burdens.

	Rev. Receipts	Expenditure	Surplus or Deficit
	(In lakhs of Rupees)		
West Bengal	4,576	6,288	-1,712
Bihar	3,700	6,288	-1,500
U. P.	8,456	9,006	-550
Bombay	8,011	7,988	+ 22
Madhya Pradesh	3,280	3,562	-282
Orissa	1,669	1,857	-188
Madras	4,792	4,358	+434
East Punjab	2,890	2,967	-77
Pepsu	824	1,028	-204
Mysore	2,296	2,706	-410
Hyderabad	3,062	3,283	-221
Travancore-Cochin	1,718	2,156	-438
Saurashtra	1,290	1,404	-114
Rajasthan	2,230	2,469	-239
Himachal Pradesh	325	349	-24

In West Bengal Budget there is a further deterioration in the relation between annual income and expenditure in Revenue Account. In the revised estimates for 1954-55, the adverse gap is Rs 13.29 crores. For the new budget year, the shortfall is as much as Rs 17.12 crores. The de-

ficit is thus tending to grow. The growth in State revenues is more than offset by the increases in expenditure which in the peculiar circumstances obtaining locally, seem to be mostly unavoidable. Central assistance during last year was substantially more than was counted upon at the time of the

Budget. Though, for the time being, additional succour from the Centre has improved the position in respect of cash balances, it cannot be overlooked that the State's total debt is steadily mounting. From Rs 104.6 crores at the end of 1954-55 it will shoot up to Rs 140.9 crores at the end of 1955-56. For the new year it is proposed to raise a loan of Rs 4 crores which would bring the State's public debt to Rs 11.35 crores. To the chronic and mounting deficits, at least the State Government have no solution on hand. There is very little further scope for exploitation of land resources. Already there are about 7 lakhs families of landless farm labourers who represent 21 per cent of the rural population. Though West Bengal's birth rate is the lowest in the whole of India, the State has the largest measure of unemployment. The Chief Minister calculate that only an investment of Rs 1400 crores during the Second Five year Plan could provide jobs for the unemployed. On the very face of it this is an impractical figure, which means that remedies have to be sought by no means other than mere economic development within the State.

The Bihar Budget conspicuously bears the impact of last year's floods. Between revenue receipts around Rs 37 crores and ex-

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penditure about Rs 52 crores, there is a deficit of Rs 15 crores. Bihar never had a deficit of this measure. The Finance Minister estimates that the damage caused by the floods should amount to Rs 170 crores. Against this financial distress, the deficit is not alarming. The net deficit on the entire budget including the Capital and the Loan items is only of the order of Rs 9.65 crores. As nearly Rs 21.5 crores is recoverable from agriculturists to whom the money is to be doled out in loans, the Government are justified in taking a complacent view of the budgetary position. There is no proposal for new taxation, though Dr S. Sinha has suggested the possibility of imposing a betterment levy. Other fiscal changes may also be undertaken in the light of the Taxation Enquiry Commission's recommendations. Both on the Revenue and Capital account, expenditure shows a trend for increase. In the budget year, agriculture land revenue, civil works, medical and public health and irrigation receive substantially higher allotments. The increased administrative charges is explained mainly by the abolition of Zamin-daries, the establishment of community project and national extension schemes and the decentralisation of Governmental functions through the Gram Panchayats. The State's Five Year Plan targets now stand at Rs 66 crores and 19 lakhs against the original estimate of Rs 57 crores and 27 lakhs. It is clear that but for the natural calamities which overtook the State last year, its finances would have been in a much sounder position. Even as it is revenue expenditure in relation to population is considerably smaller compared with other industrial States.

The Budgets of the three States of Punjab, PEPSU and Ajmer representing an area with special problems, stand in three separate categories. Punjab, with a nominal deficit of Rs 77 lakhs, has no new taxes for the next fiscal year. PEPSU however, has a phenomenal deficit of over Rs 2 crores, which is all the more striking in relation to its total revenue of Rs 8 crores; this perforce has necessitated the imposition of new taxes. The State of Ajmer may be said to be in the happy position of achieving an exact equilibrium in her total revenue and expenditure, indeed an elegant sufficiency of funds which just equals her outlay on development and other purposes with the least additional impact on the tax-payer. Though the Finance Ministers of these States have reason to feel happy over the general state of the economies, the claim for their competent financial management would no doubt have to be buttressed by life achievements in the ensuing year.

More than PEPSU or Ajmer, Punjab has particular reason to feel proud of her encouraging budgetary trends. The increase in revenue in the new budget estimates works out to Rs 2.34 crores

over the revised estimates for 1954-55, mainly due to a greater yield from indirect taxation. As the Finance Minister stated in his budget speech "Punjab is richer by Rs 35 crores a year on account of the increased production in foodgrains and cotton alone." The disbursements on capital account demonstrate the great value attached to power and irrigation expansion for the economy of the State. There has been, over the years past, a remarkable increase in the tempo of expenditure. An analysis of expenditure on the revenue plus capital accounts of the years 1950-51 and 1955-56 shows that the total developmental expenditure has gone up from nearly Rs 23 crores to Rs 52 crores. An allotment is also made to the tune of Rs 25 lakhs for raising the salaries of the low paid Government employers. Expenditure under the head 'debt' services amounts to Rs 112 lakhs, under education about Rs 45 lakhs and under industries Rs 29 lakhs.

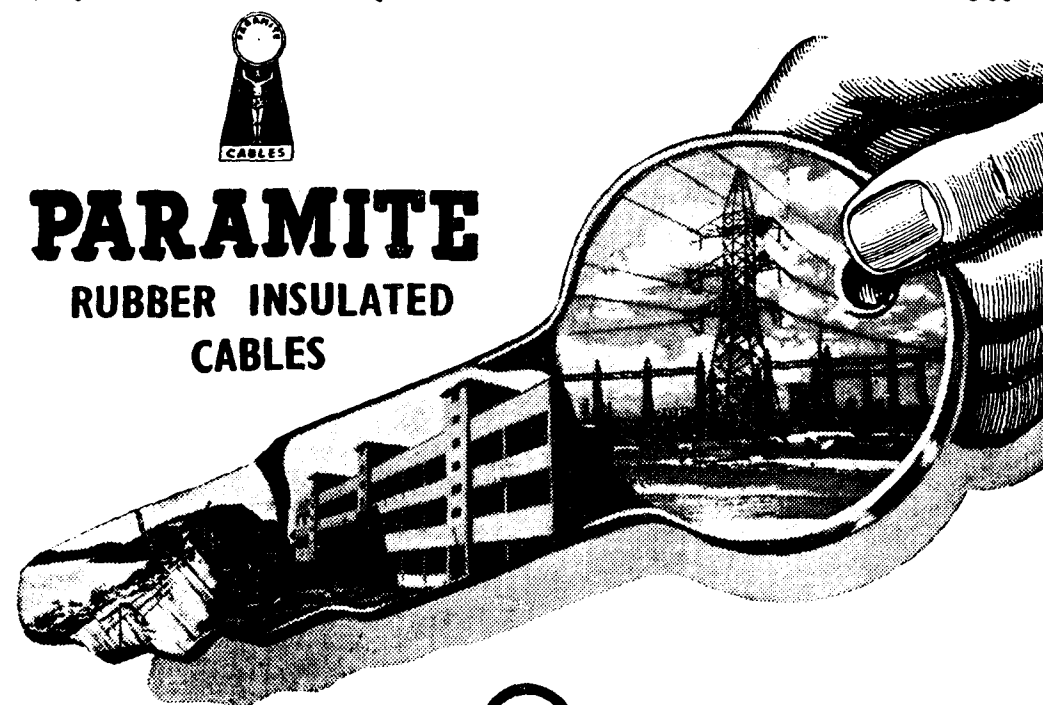
In the case of PEPSU, a new tax revenue is envisaged to the extent

of about Rs 13 lakhs by way of taxes on passengers and goods carried by motor transport and the higher sales tax on luxury goods. The latter tax measure may be said to conform to what the Taxation Enquiry Commission have suggested as the need for a progression in indirect taxation.

Only five other States have chosen to levy new taxes; these States are Madras, Mysore, Hyderabad, T.-C. and Sourashtra. Madras has proposed an agricultural income tax in plantations and the revision of court fees. Besides there will also be a surcharge of two annas in the rupee on land revenue. In Mysore, there will be an agricultural income tax on plantation and "certain commercial, lucrative crops on a sliding scale with suitable exemption limits". In Hyderabad the proposals are as follows:—1. Sendhi, liquor (country as well as foreign), ganja and opium which are dutiable under the Hyderabad Abkari Act are at present exempt from Sales Tax. It is proposed to withdraw these ex-

emptions, except in the case of Sendhi. 2. The Hyderabad Stamps Act and the Hyderabad Court Fees Act allow several exemptions and concessions which are not available in other States. It is proposed to amend these Acts suitably, in order to bring their provisions on a par with the position obtaining elsewhere. 3. The rates of motor vehicles taxation were raised by 20 per cent this year. It is proposed to further raise these rates by 20 per cent next year, over the existing rates. 4. A development cess at the rate of one anna in the rupee is proposed to be imposed on amounts payable by the excise and forest contractors to Government. 5. The Agricultural income tax exemption limit would be reduced from Rs 10,000 to Rs 6,000. The Travancore-Cochin State is also imposing a betterment levy on lands benefited by irrigation works. Sourashtra has stepped up the sales tax on vegetable oils, tobacco and tea, besides, newly levying sales tax on groundnut oil and sesame oil.

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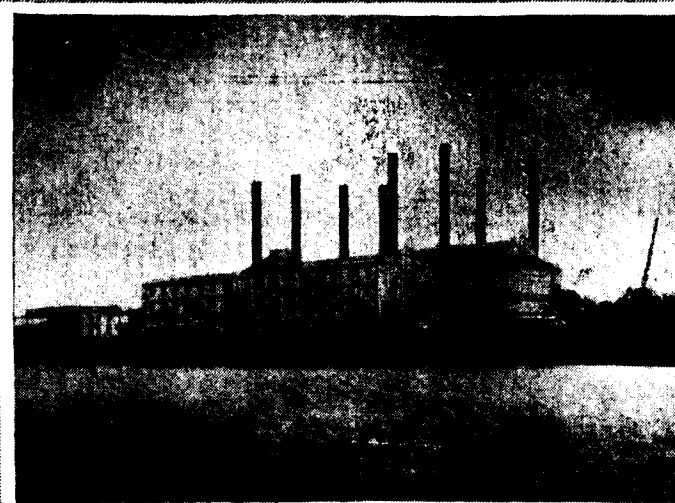
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The Railway Budget

INDIAN Railways which, after having a fairly long spell of flush earnings since the advent of the Second World War, were tending again to shed surpluses, have now staged a retreat to more prosperous conditions. Even in the comparatively lean post-war years of 1950-51 and 1951-52, the Railways were able to put by substantial surpluses. In the latter year, the surplus was about Rs 28 crores. But in 1952-53 the net savings fell considerably and 1953-54 it was just nominal at Rs 2.56 crores. During the year the Railway traffic touched the post-war bottom. Since then it has again started looking up. From the latest Budget figures announced the current year, 1954-55 is expected to close with a surplus of Rs 6.57 crores; and in the next, 1955-56, the surplus will climb a little higher to Rs 7.14 crores. These results are anticipated after allowing for an extra Rs 5 crores to the Depreciation Fund, as stipulated in the revised Convention announced two months ago. In other words, under the old Convention which provided for only Rs 30 crores for transfer to the Depreciation Fund as against Rs 35 crores in the revised Convention, the net surplus would have been over Rs 12 crores, which brings it nearly to the same level as that of 1952-53. On the eve of big leaps in national economic development, the Railways are able to report growing prosperity and sound financial conditions. The over-all gross traffic receipts in the Revised Estimates for the current year are placed at Rs 282.80 crores, which is Rs 9.55 crores higher than the Budget Estimates. Passenger earnings are higher by a small margin, while goods earnings show an increase of as much as Rs 7.4 crores. The anticipations for 1955-56 are placed even higher. The gross traffic receipts are estimated at Rs 292.50 crores, which represent an increase of Rs 9.7 crores. Barring a small fraction which is expected to occur as the result of adjustments in fares and freight rates, this increase would flow through an expansion in traffic. That working expenses should show a more than corresponding increase is unavoidable, because the bulk of this increase is accounted for by higher emoluments to staff without which the smooth and uninterrupted working of the Railways would have been well nigh impossible. Though expenses are tending to outrun the revenues this phenomenon has to be accepted as the price for freedom for every aspect of national life.

The Railways' achievement in respect of the Five Year Plan are equally satisfactory. Though the scheduled expenditure of Rs 400 crores is, in relation to the over-all post-war needs of the Railways rather modest, it forms one-fifth of

the total expenditure under the Plan. The Railways were asked to find 80 per cent of this amount out of their own resources, the Union Government contributing the remaining 20 per cent. Over the first four years, the Railways have spent nearly Rs 291 crores and in the fifth year, an expenditure of Rs 127 crores is envisaged. This would mean that the investment target of the Plan is being exceeded, a creditable achievement in itself. The Minister has recalled how the establishment of new manufacturing units and the expansion of old ones both under the private and

public sectors have enabled the Railways to make rapid progress towards self-sufficiency in rolling stock and to lay the foundation for an expansion commensurate with the general economic and social needs. The hectic adjustments following complete nationalisation and partition are nearly all over; the Ministry is now able to prepare schemes of further development, on the basis of continuous and long-range policies and permanent national requirements. Removing congestion wherever it is acute, opening up new lines in neglected areas and in others acquiring new

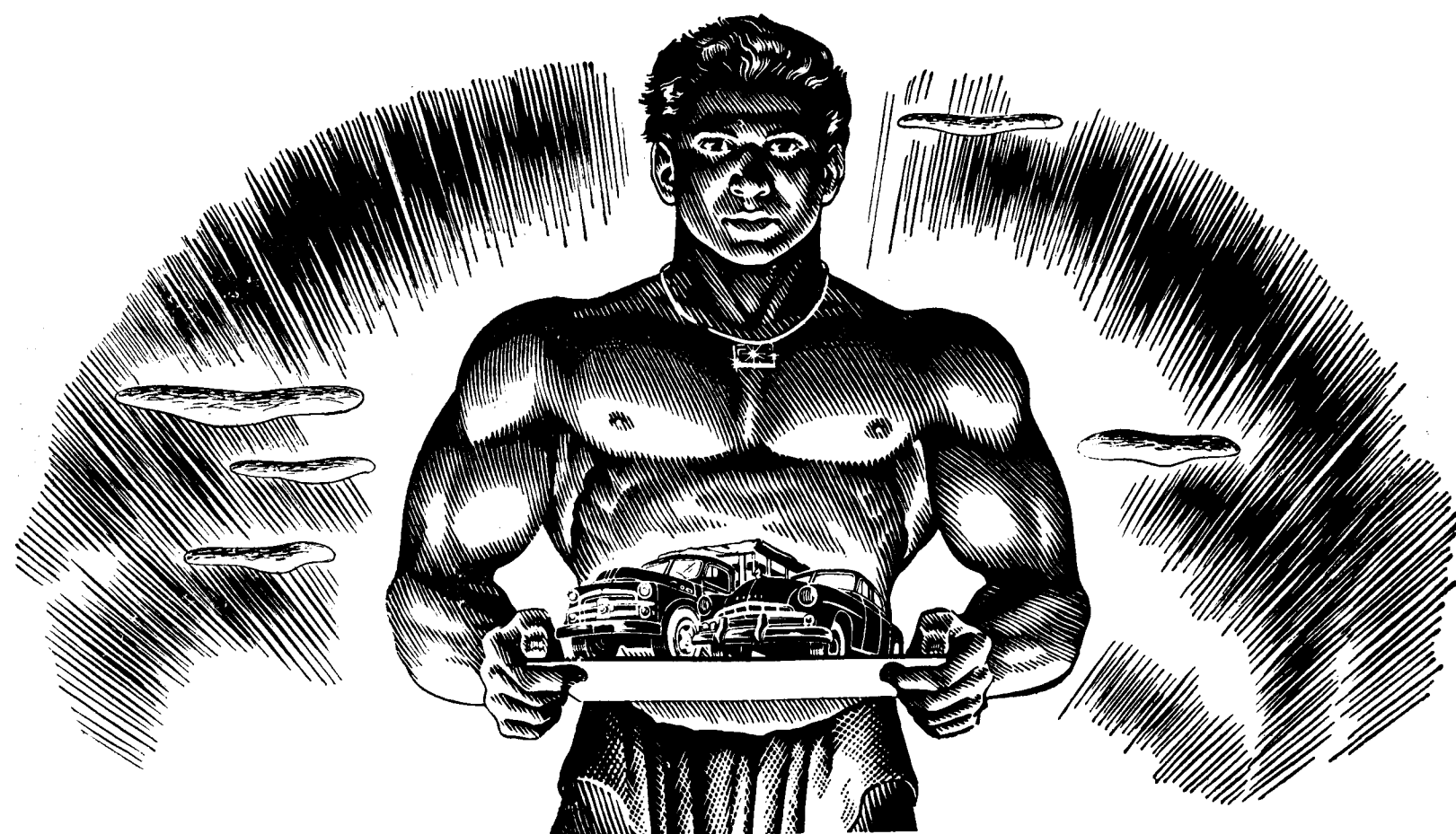
economic importance, the provision of passenger amenities with a special eye on the lower-class travellers, and of improving facilities for goods transport, removing the inequities in charges and general co-ordination with other forms of transport are all being achieved in an orderly and systematic manner; and as far as possible keeping a strict control on costs. Regrouping in the initial stages raised certain apprehensions. A special Bureau which has been examining its working for the last one year, has found that in some zones the work load has tended to become oppressively heavy, and that in spite of this, a fairly good standard of efficiency is being maintained all-round. Mr Lal Bahadur Shastri has assured that he would not hesitate to introduce changes in the organisational set-up whenever these were found necessary.

Public interest in the Budget will fasten most on the proposed adjustments in fares and freights. At the outset it would appear that in making these adjustments, the Ministry has put the cart before the horse. Because it is already considering the advisability of appointing a committee to go into the matter. If a committee were to be appointed it would undoubtedly have been more logical to await what the committee has to say before taking any decisions. As it is, some important decisions have already been taken and the committee is to come afterwards. In the revisions of both passenger fares and freight rates, the long-distance traveller and load have benefitted, to some extent at the cost of their short-distance counterparts. The upward revision of fares for the first 150 miles and the increased minimum rates for consignments weighing less than 20 maunds along with the surcharge, seem to be a needlessly heavy imposition on a section of the public who form the bulk of railway users. Long-distance travellers will, of course, be grateful for the reduction they enjoy, as also those who consign their goods for distances beyond 600 miles. But the benefits derived by this group are more than counter-balanced by the increased hardship on others. The bulk of railway passengers travel short distances and they have legitimate reason to complain that they the majority are penalised for a small favour shown to the minority. The Minister points to the instance of the movement of grains and pulses from Bhatinda in Pepsu to Tuticorin in South India, in defence of the exclusive rate reduction granted to long distance loads of food grains and fertilisers. He cannot overlook the fact that these commodities move in vastly greater bulk between short distances, where they are no less de-

STATEMENT OF RECEIPTS AND EXPENDITURE OF INDIAN GOVERNMENT RAILWAYS, 1955-56.

		(Figures in thousands of rupees)			
		Accounts, 1953-54	Budget Estimate, 1954-55	Revised Estimate, 1954-55	Budget Estimate, 1955-56
Traffic Earnings—					
(a) Coaching—					
(i) Passengers—					
Upper		11,69 80	11,40,20	10,70,00	11,00,00
Third		88,29,96	90,10,97	91,10,00	93,50,00
(ii) Other Coaching		80,01,07	17,50,20	19,00,00	18,00,00
(b) Goods		1,47,18,16	1,48,59,90	1,56,00,00	1,63,90,00
(c) Sundry Other Earnings		5,17,47	5,07,20	5,30,00	5,70,00
Total		2,70,36 46	2,72,68 47	2,82,10,00	2,92,10,00
Suspense		3,92 81	56,93	70,00	40,00
Gross Traffic Receipts*		2,74,29 27	2,73,25 40	2,82,80,00	2,92,50,00
Working Expenses—					
Ordinary Working Expenses—					
(i) Administration		27,87,66	28,20,13	29,44,85	30,80,73
(ii) Repairs and Maintenance		68,08,56	66,72,96	70,73,86	74,11,96
(iii) Operating Staff		43,39,81	44,02,01	45,19,73	48,14,96
(iv) Operating (Fuel)		23,98,14	22,17,07	23,75,98	23,62,22
(v) Operation other than Staff and Fuel		13,95,87	10,01,60	10,57,99	8,87,15
(vi) Miscellaneous expenses		18,64,34	19,93,72	18,12,96	16,37,88
(vii) Labour Welfare		4,03,30	4,20,54	4,23,76	4,81,68
Total		1,99,97,68	1,95,28 03	2,02,09,13	2,06,76,58
Suspense		1,49,53	—97,64	66,65	—18,16
Total Ordinary Working Expenses		2,01,47,21	2,94,30 39	2,02,75,78	2,06,58,42
Appropriation to Depreciation Reserve Fund		30,00,00	30,00,00	30,00,00	35,00,00
Payments to Worked Lines as shares of earnings		28,03	22,37	19,31	20,81
Total Working Expenses		2,31,75 24	2,24,52 76	2,32,95 09	2,41,70 23
Net Traffic Receipts		42,54,03	48,72,64	49,84,91	50,70,77
Miscellaneous Transactions—					
(a) Receipts—					
(i) Guarantee recoverable from Local Governments for unreimbursement lines		..	94	3,12	89
(ii) Other receipts from subsidised companies		3,76	3,19	1,80	2,54
(iii) Miscellaneous Railway Receipts		27,17	26,65	1,73	1,70
Total Receipts		30,93	30,68	6,65	5,13
(b) Expenditure—					
(i) Rebate		..	10	10	..
(ii) Subsidy		6,81	7,77	7,38	8,19
(iii) Land		7	7	7	7
(iv) Surveys		—52	10,41	12,02	17,29
(v) Miscellaneous Railway Expenditure		1,49 14	1,58,89	1,56,83	1,60 70
(vi) Open Line Works—Revenue		4,37,98	6,62,19	6,61,74	5,68 32
Total Expenditure		5,93,48	8,39,43	8,38,14	7,54 57
Net Miscellaneous		—5,62 55	—8,08,75	—8,31,49	7,49 44
Net Revenue Carried Over		36 91 48	40,63,89	41,53,42	43,21 33
Net Revenue Brought Forward		36 91 48	40 63 89	41,53,42	43,21,33
Dividend to General Revenues		34 35 77	35,49,85	34,96,32	36,07,16
Profit for the year		2,55,71	5,14,04	6,57,10	7,14,17
*Includes receipts of Worked Lines		86,82	74,88	63,36	65,73

The figures of actuals for 1953-54 are exclusive of freight charges which were eliminated from financial accounts of Railways from 1st April, 1952 to 31st March, 1954. From 1954-55 these charges are included under various Demands and have been treated as recoveries under Demand No. 7 in respect of freight on coal and under Demand No. 8 in respect of other freight charges.



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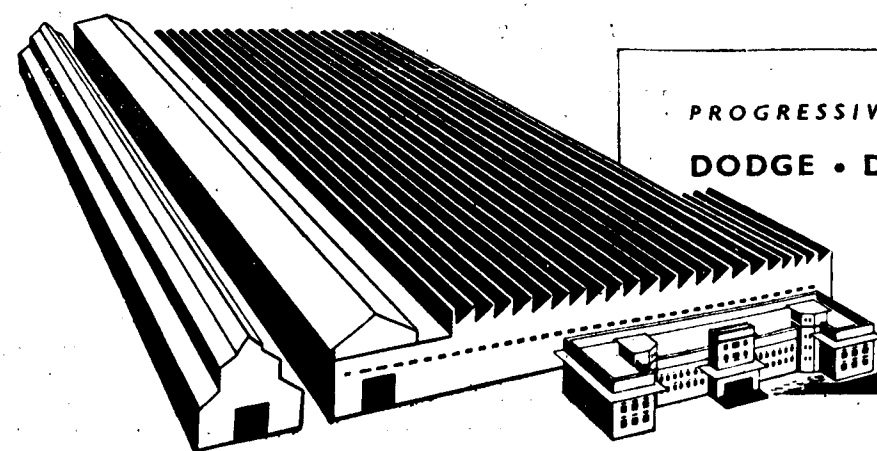
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serving of the same concessions! While long-distance passengers are obviously entitled to special amenities and concessions, these should not be at any one else's cost. In this connection, the Railways may do well to respect the Koranic injunction to the polygamously inclined, "distribute your affection and wealth equally among all", an injunction which the impulsive and harassed husband might find it rather difficult to carry out in full, but which a service like the Railways can. The prospect of suburban electrification or the introduction of more trains or diesel cars is scarcely compensation for the increase in fares.

The Railway Convention Committee after reviewing the future financial prospects of the Railway Undertaking and the pattern of relationship between the Railway and General Finance for the next five years as presented through the memoranda submitted by the Railway Board formulated the following recommendations in Part II of their Report.

APPENDIX

Summary of the principal recommendations of the Railway Convention Committee, 1954.

Recommendations.

It would be advantageous from all points of view to express the rate of dividend in terms of a percentage on the Capital-at-charge and the amount paid annually through a fixed rate of dividend inclusive of the element of interest.

The present rate of dividend should remain unaltered for another period of 5 years. However, the Committee feel that in the matter of calculation of the Capital-at-charge and arriving at the total of the dividend payable, some minor adjustments are called for.

The element of over-capitalisation should be precisely assessed by the Railway Board and on that portion of the loan capital, the Railways shall pay the dividend at the rate equivalent to the average borrowing rate charged by the Government of India to Commercial Departments from year to year.

The dividend on the Capital-at-charge of new lines should be computed at a lesser rate viz., the average borrowing rate charged to Commercial Departments and a moratorium should be granted in respect of the dividend payable on the Capital invested on the new lines during the period of construction and upto the end of the fifth year of their opening for traffic, the deferred amount being repaid from the sixth year onwards in addition to the current dividend out of the net income of the new lines.

The annual contribution to the Depreciation Reserve Fund which had been maintained at a level of Rs. 30 crores during the five year period ending the 31st March, 1955 should be raised to Rs. 35 crores during the next quinquennium.

The Committee recognise that the appropriation to the Development Fund and the solvency of the Fund are dependent on the availability and the size of the surplus, while the provision for depreciation should be based on the life of the assets, and their replacement on the actual conditions which cannot be deferred, if their earning potential is to be maintained. They, therefore, feel that the replacement of these assets should bear no relationship with the ultimate loss or gain of the Undertaking but should be met out of the Depreciation Reserve Fund.

The Committee are in favour of extending the scope of the Development

Fund so as to include amenities for all "users of Railway transport," such as improvement to goods sheds, loading and unloading platforms, waiting sheds for the trading public etc. which they consider as absolutely essential and recommend the continuance of the present practice of earmarking a minimum of Rs. 3 crores per annum on this account.

The Railway Board should look into the matter of assessment of rent realised for Railway quarters and ensure that a return of rent more commensurate with the capital cost is obtained on all residential buildings built for Class III staff.

The Committee are anxious that the primary amenity which the Railway must provide is that of safety of travel. They, therefore, desire that the expenditure on Safety Works should be given due priority in any allocations of funds from the Development Fund over the next few years.

The Committee agree with the Railway Board that the distinction of splitting up of expenditure on works between Development Fund and Revenue for the purpose of allocation is unnecessary. The allocation should be determined in the case of other works according to the total outlay expected on each work. The expenditure on unremunerative operating improvement works costing more than Rs. 3 lakhs each should be charged entirely to Development Fund.

The cost of construction of all new lines when decided to be constructed might be debited to Capital from the very beginning.

In the event of the Development Fund not being in a position to meet the programme of expenditure chargeable to that Fund from its own resources, money should be advanced from General Revenues to the Railways for utilisation on those Projects or Works which are of a developmental nature. Such advances should be treated as Temporary Loans to the Railways and will not be added to the Capital-at-charge on which

4 per cent dividend is payable annually. The Railways will pay interest on this loan to General Revenues at the average borrowing rate chargeable to Commercial Departments. It shall, however, be open to the Railways to repay this loan in instalments, if necessary, from accretions to the Development Fund in more prosperous years and thus liquidate the debt and the interest liability thereon.

In view of the fact that the annual loss on working of strategic lines is insignificant, the Committee consider that the suggestion made by the Railway Board whether the operating loss on strategic lines should not be deducted from the contribution calculated for payment to General Revenues on non-strategic lines should not be pressed for a decision now, but brought up before the next Convention Committee, if the loss on this account is sizeable.

The criterion for classifying a project as remunerative should be 5 per cent.

While the Committee agree that amortisation would eventually be of benefit to the Railways and the users of Railway transport alike, they agree with the Railway Board that the time is not yet ripe for amortisation; they would, however, suggest that this question may be taken up at the time of next revision of the Convention.

The Committee consider that in the present financial prospects, it will be idle either to prescribe any minimum limit for the balance in the Revenue Reserve Fund or to extend in scope so as to include amortisation of Capital and this should wait till better days come.

A Parliamentary Committee should review the rate of dividend towards the end of the next quinquennium and suggest for the years following it, any adjustment considered necessary, in the light of the situation obtaining then.

It would be enough if the Ministry of Railways submitted a review on the general working of the Railways during these five years to the next Convention Committee for their consideration.

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REVISION OF PREMIUM RATES BY LIFE ASSURANCE COMPANIES

By H. BALARAM RAO

I understand that the Executive Committee of the Life Insurance Council at their meeting held in Calcutta in June 1954 considered a further revision of the rates of Premiums charged by Life Insurance Companies operating in India. The general public have been made aware through Press Advertisements and Direct Mail Literature issued by the Companies that as a result of improvement in their Mortality Experience, a rise in the rates of interest earned on their funds and a general fall in Expenses, they, the Life Insurance Companies, were in a position to offer substantial reduction in the rates of premium on new Policies.

The New India Insurance Company Limited, one of India's leading Companies, was the first to give effect to these favourable trends by reducing the premium rates drastically. The Insuring public responded to this move and it is now public knowledge that the Company wrote bumper business within the very first week of its announcement of this cut in their rates.

The drastic reduction in the Premium rates and the volume of New Business written by the New India created a stir in the Insurance circles and within less than a week the Oriental Life Assurance Co., Ltd., another leading Company, followed suit. The rates of Premium quoted by the Oriental were in many cases even lower than those offered by the first Company, the New India.

The medium and small sized Companies grew alarmed at this situation created by the two leading Indian Companies. A wave of panic seized all the Companies, big, medium and small, and within about a fortnight, practically every Indian Company brought its premium rates in line with those charged by the big two.

At this stage it is necessary to bring the Controller of Insurance into the picture. Under the Insurance Act, he has certain duties to perform. Before revising these rates of premium, Insurance Companies, too, have certain formalities to observe. Section 38 lays down that:

If, when considering an application for registration under section 3 or at any other time, it appears to the Controller that the assured rates, advantages, terms and conditions offered or to be offered in connection with Life Insurance business are in any respect not workable or sound, he may require that a statement thereof shall be submitted to an actuary appointed by the insurer for the purpose and approved by the Controller and may by order in writing further require the insurer to make within such time as may be specified in the order

such modifications in the said rates advantages, terms or conditions, as the case may be, as the said actuary may report to be necessary to enable him to certify that the said rates, advantages, terms and conditions are workable and sound.

It will be seen that the rates proposed to be introduced by any Company have to be certified by the Company's Actuary as workable and sound. He has to communicate to the Controller of Insurance the bases he adopts in arriving at his rates. The Controller of Insurance is required to go through these bases and see if they are justified by the Company's experience and by the general trends of interest obtaining in the country. If he has reason to believe the rates submitted to him by any Company under a Certificate of workability and soundness by its own Actuary, are not justified by the standards mentioned above, he is required to submit these bases adopted by the particular Company's Actuary to an independent Actuary. The intention of the Legislature in incorporating a salutary provision of this nature in the Act is to vest the Controller with powers to see that no Company works on uneconomic rates and thus jeopardizes the basic security offered by the Policy Contracts.

We have to presume that before the various Companies—big, medium-sized and small—announced a reduction in their premium rates, they produced these Certificates from their Actuaries to the effect that the revised rates were workable and sound with particular reference to each Company's own experience and that the Controller of Insurance likewise satisfied himself as to the workability and soundness of these new rates. If this presumption is correct, there seems certainly no need for all this agitation sponsored by so many Companies—big and small. Seeing, however, the intensity and persistency of this agitation, it is not unfair to infer that either both these parties i.e. Controller of Insurance and the Company's Actuaries or one of them have not acted either in good faith or applied themselves seriously and sincerely to their respective tasks; in other words, one of these two, or both, have neglected their duties. If this inference is partly or wholly correct, the obvious course appears to be to remedy the defects and not to create more confusion as is being done now.

In all this controversy, one of the parties most interested in the whole business—the public—has been most unceremoniously relegated to the background. So far, no one has cared to assess the damage that is likely to be done to the cause of

Indian Insurance by such callous neglect of the views of the public. I shall try to put the case of the existing as well as the prospective policyholders now.

As I said in the earlier paragraphs, a drastic reduction in the Premium Rates was effected by the New India on 1st March 1954. On 6th March, the Oriental followed suit. By the end of the month, practically every Company fell in line. The public were told that in reducing their premiums, the Companies were only passing on to the consumer the saving effected by them, consequent on (a) an improvement in their mortality experience, (b) the increased yield they got on their investments and (c) the reduction in their operation expenses. Side by side, the Companies were also carrying on an agitation through their Trade Associations and Delegations to the Government protesting against the initiative taken by the New India in effecting such a drastic reduction in the rates, and pleading for the restoration of the old rates. A meeting of the Executive Committee of the Life Insurance Council met at Bombay and as a result of their discussions, they advised all the Companies to readjust their rates providing for normal remuneration

to the agents and restoring the minimum sum assured to the old levels. Companies were given time till 30th April to make these adjustments in their published rates. The Executive Committee also took another Decision and appointed a small Sub Committee of four Actuaries to report how far any revision in the rates charged as on 1-1-1954 by the Companies operating in India was necessary and called for.

The Sub Committee in reporting to the Executive Committee has recommended that a 'Floor Rate' be adopted by all Companies. It will be seen that while upto now in India and every part of the world where the institution of life assurance is in operation as a private enterprise, each Company has its own rates of premium depending on its own rates of premium depending on its own experience, an entirely new principle of tariff rate is now sought to be introduced. This new 'Floor Rate' recognises the need for giving the least efficient of the Companies a chance to survive the present competition in the trade. While, therefore, in the case of a small Company, the 'Floor Rate' recommended may be just adequate, in the case of a big Company, it will allow an adequate margin for extravagance. One important point

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that has been overlooked by the Committee of 'technical' experts is that competition is not always solely based on the price of an article. If that were so both in the past and even to-day, some of the Companies, big and small, charging low premiums should have the monopoly of the business written in India. To quote an example for a long time, the premiums charged by a Company like the Empire of India were substantially lower than those charged by, say, a Company like the Oriental operating from the same City. The financial strength of both these Companies was beyond question. The security they offered to the Policyholders was unassailable—yet the Oriental always wrote a much bigger volume of business than the Empire of India. Coming near home, there is a Company of over 25 years' standing operating from Madras whose premium rates are very low and about 10 years ago a new Company was started in Madras whose premium rates were substantially higher than those charged by the Company mentioned above. Yet this new Company, writing a business in the same competitive market, was able not only to hold its own but write practically the same volume of business as the older Company did. As I said, competition is not restricted to rates only; it is just one factor—the success of a Company depends more on the strength of its organization on its service to policyholders, and the confidence it creates in the public mind about the ability to meet the obligations (this is judged by the standing of the Board of Directors, its investment policy etc.).

It, therefore, appears to me that not only some of the Companies but the Executive Committee also have been completely swept off their feet by a wave of panic. The drastic reduction of premiums by a Company may not have attracted so much attention in the normal course but for the tremendous volume of new business written by that Company following the reduction in rates. Back of all this agitation, therefore, is the 'Fear Complex'. It is all the more necessary now, in view of the imminence of a third revision of premium rates, to judge the issues calmly and dispassionately and take a long range view of the issues involved. The contemplated revision of Premium rates will naturally mean an upward revision because the measure fixing the 'Floor Rates' will be that which will allow the weakest of the particular group to operate with a reasonable chance of success. The result would be straightaway to give an unearned bonus to the bigger Companies of that group. This will naturally enable the bigger Companies not only to declare a much higher rate of bonus thus increasing the attractiveness of their Policies but also provide them with more funds to spend on their organization. The result is therefore, likely to be just the opposite of what is intended, i.e. the bigger and more efficiently managed of each group will throw out of the field the weaker units of that group, thus paving the way

for a monopoly of the big ones again—the only difference being that, whereas under the present system of 'free enterprise' there is a need for bigger Companies with lower premiums always to keep a vigilant watch over their expenses (as the margin for any extravagance is very small), the situation created by the adoption of these 'Floor Rates' will encourage recklessness and start a 'Bonus War' in the place of the present 'Rate War'. Competition is the very breath of and the only healthy check on private enterprise and if we remove these healthy checks we are paving the way for nationalization and all that it means in terms of State Monopoly and lack of enterprise.

For the purpose of illustrating my point, I take two Companies with a business in force of over Rs. 10 Crores. Company A: Renewal expense ratio is, say, 13%. Its mortality experience is 60% of the Oriental Mortality table. It earns a net interest of 3.75% on its investments. Company B: Expense ratio is 15%. Its mortality experience is 80% of the Oriental Mortality Table. It also earns the same rate of interest on its investments. In a competitive field, if both these Companies are required to operate on the same premium, the advantage which Company A derives as against Company B is obvious. Yet all this agitation is today carried on by Companies of 'B' type in the mistaken belief that the adoption of the new principle of 'Floor Rates' will help them to maintain their place against Companies of 'A' type.

I shall now examine the principles underlying the fixation of 'Floor Rate'. In General Insurance, a Tariff rate may be workable as practically every risk underwritten by a big or small Insurer gets under which he is required to reinsure the excess over his retention limit is a very small percentage. Each Company builds up its own underwriting practice—in every case it is an individual risk that is assessed and the experience of each Company is different. In many cases, even the policy conditions and privileges vary. So standardization is not only not called for but definitely unworkable. It will only stifle the will to improve one's standards; it will encourage extravagance in administration and definitely lead to a lowering of underwriting standards. Who will be the beneficiary of all these lowering of standards? The milch cow—the Policyholder. As long as he is kept in the dark, he may keep quiet,—but once he is awakened to the realities of the situation and learns that he is required to pay a higher price for no corresponding benefit to himself but to keep alive a few struggling units in the Industry, his reaction will definitely be not to the liking of those who are sponsoring this agitation. Before I proceed to suggest positive measures for helping the smaller and younger Companies, I shall make a passing reference to the activities of the Postal Life Insurance.

Till very recently the Postal Life Insurance Department has been catering to the needs of the Government Servants. It was not required to pay commission to any agent for canvassing business. The fees fixed for the conduct of the medical examinations by Government Doctors are comparatively low. It was not necessary for the Department to send out any renewal notice as the premiums were adjusted from salary bills. Only two types of policies were issued. Loans were not given till very recently. So the administrative work was reduced to the minimum. The premiums quoted were naturally low. This was one attraction to its clientele, and secondly the premiums were deducted from the Salaries; thus the employees did not feel 'the loss of income'. In recent years, the Postal Life Insurance has become more aggressive—they are producing Sales literature. They have been giving full cover to Military Personnel at normal tabular rates of premiums. Loans are also given. They have not only thrown open the doors to Local Bodies but are actively canvassing business from semi-Government industrial concerns like Chittaranjan and other factories. Yet the public—the taxpayer—rarely gets an opportunity to know the working of this Department. We have all been reading in the past few months interesting revelations about these State managed institutions. Reports of the Auditor General and the Public Accounts Committee are revealing. When the Postal Life Insurance Department thus enters a competitive field, is it not reasonable that this Department also should subject itself to the same standards as are required to be maintained by private Insurers? Take for instance the grant of full cover to Military Personnel at no extra cost. The Department advertised this as a selling feature. In fact, they have even gone so far as to get the Defence Department to issue a Circular to all Army Personnel to get their existing policies with private Insurers paid up and go in for fresh assurances with the Postal. It is a recognised fact that an assured engaged in Military Service is, because of his occupation, not a normal risk. An occupation extra is called for. If this is so, how can the Postal Life give free cover? Evidently, the Government is giving some sort of subsidy, treating this expenditure as an item of the National Defence Budget. I do not see any objection to this, provided the Government extends this concession to Private Insurers also; for, after all, it is the country's tax payers who pays for it and I am sure he certainly will have no objection to bear this additional burden in the interests of the defence of the Country. I am mentioning this point only to say that Postal should also accept 'Floor Rates' if it is ultimately decided to have them; it should also be required to submit and publish all the returns on the same lines as any Private Insurer is required to; its investments also should be within the framework of the restrictions imposed by the

Insurance Act. In fine the Postal Life Insurance should not enjoy any special privilege.

In actual working, too, the adoption of 'Floor Rates' will lead to a good many administrative difficulties. To mention just one:—

Take the case of a Company with a business in force of, say, Rs. 9 Crores. Under the present classification, it would be a small Company and the loadings for bonus expenses etc., will be those applicable to the Group Rs. 3 to Rs. 10 crores business in force. Next year, if the business in force exceeds Rs. 10 crores, will the Marginal Company be required to revise its Premium rates again?

The remedy, to my mind, does not lie in adopting these artificial stimulants but in creating conditions under which there is free and full scope for the healthy growth of both small and big units, at the same time giving the policyholders a square deal. By introducing 'Floor rates', we are definitely going to alienate the sympathies of the one person who in the ultimate analysis is our boss—The Policyholder.

I am of opinion that the following measures will, while helping the bigger units to develop their own individuality and offer better returns to the Policyholder, give scope for the smaller well-managed units to grow.

(1) If the present expense provisions now allowed are found to be inadequate, an increased provision may be made for a definite period of years, e.g. if a Company with a business in force of Rs 3 crores is of the First Year Premium and 18 per cent of the renewals, allow that Company to spend, for the first six years from now, 20 per cent of the renewals for the first two years, 19 per cent for the next two years, and then 18 per cent for the last two years. This extra provision of 2 per cent of the renewal premium income is not going materially to affect the bonus earning capacity of the Company.

(2) Give scope for the Companies to develop their own pattern of organisation. Under the present Act, a special agent is allowed an overriding commission of only 15 per cent of the First Year Premium income. This rule applies to both small and big Companies. It is common knowledge today that no Company, big or small, is able to get a bonafide special agent on this remuneration. The present day special agents are only ordinary agents drawing a higher rate of first year commission because of their bargaining power. They are invariably above-average producers who are not prepared to work on the schedule First Year commission. The section in the Act providing for 80 per cent of the renewal commission in the event of their leaving their own Insurer and going to another (under certain conditions) gives them a good handle to hold the Companies to ransom. If small Companies are to build up a sound organisation without, at the same time, entering into onerous and long-term fixed commitments, they should be allowed to offer higher rates of overriding commission to

the Special Agents. A bigger company may, for a period of say 5 years, be precluded from appointing special agents on the present terms. The minimum qualification must be raised in the case of bigger Companies to atleast six working agents each contributing a business of Rs 10,000 and a first year premium income of atleast Rs 9,000 a year—the bases will have to be changed from the present face value (Rs 50,000) to First Year Premium income basis.

(3) A sliding scale of overriding commission may be allowed to special agents so that there may be an incentive to the bigger producers to produce more and earn more. I am confident that this provision will, at one stroke, eliminate on the one hand all the present bogus appointments of Inspectors who are nothing more than pro rata organisers and on the other hand help the Insurers to avoid the need for manipulating their accounts and issuing fictitious letters of appointment etc. The present Code of Conduct has not yet eradicated this evil and under present conditions will never do it.

(4) The smaller Companies may be allowed to pay a higher rate of commission to ordinary agents—say, for a period of five years from now.

Incidentally, this opportunity should also be utilised to examine the question of removing the present ceiling on agency commission. If this is done, and Companies are allowed to pay sliding scale commission to ordinary agents say upto 60

per cent, most special agents will automatically disappear. It is also worthwhile examining whether this enforced reduction in agent's and Special Agents' commission has in any way reduced the expenses under Procurement cost. If it is not under agency commission etc., the expenses appear under the head of salaries and allowances—the net result is that the same amount is being spent. It would perhaps be better to illustrate this point with reference to the experience of India's biggest Company, the "Oriental". Prior to the statutory recognition of the special agents, the Oriental had no special agent at all in its field force. Agents who were producing Rs 1 lakh and agents producing even Rs 10 lakhs were all paid a maximum commission of 40 per cent. Once the institution of special agency was recognised in the Act and minimum qualifications were prescribed and the Section 42A & the Sixth Schedule found a place in the Statute Book, the Oriental had to make a departure from their 75 year old tradition and, for fear of losing their productive agents, offer special agencies to these very people and pay them instead of the original 40 per cent and 5 per cent of renewals, 50 per cent of the First Year Premium and 7½ per cent for the next two years and 5 per cent thereafter on the renewal premiums. Is it not, therefore, necessary for the powers that be to consider the effect of piling unworkable and unenforceable restrictions one upon the other without considering whether they have helped to remove the malpractices they were supposed to

eradicate and help the growth of healthy traditions and standards?

(5) Even as we now recognise the need for giving some sort of preferential treatment to smaller Companies to help them grow, the desirability of fixing some common standards for adoption of Valuation bases may be considered. Otherwise, instead of a "Rate War" which we are now trying to fight, we may soon find the need to apply our minds to fighting a "Bonus War". It appears to me far more easy and desirable to evolve certain definite standards of Valuation basis as it would also be easy to enforce these standards. The Controller will have before him the actual mortality experience, the net rate of interest earned and the actual expenses incurred by each Company whose Valuation he is scrutinising and can see how far they conform to the standards fixed. The smaller Companies may be allowed preferential treatment in this case also for a definite period.

(6) Even as Life Assurance Companies are not allowed now to issue to the General Public policies for less than Rs 1,000 the bigger Companies may be precluded for a period of 5 years from competing with the smaller Companies in booking Policies for less than Rs 1,500. This would help the small Companies to have a monopoly in one field. From the point of view of the bigger Companies also, it would be helpful as they can thus try to increase their average sum assured—and thus reduce their expenses. The agents of the bigger Companies will then be enabled to increase their output

and thus earn more.

(7) All the Companies have now been working on the reduced premiums for atleast 3 months, i.e. from 1st April 1954. By the time the Executive Committee meets in Bombay, the Companies would have about four month's experience. Let there be no disturbance just now. Let the Controller with the assistance of three or four Independent Actuaries (either practising or employed in Part B States or in Departments other than Insurance Department) go through the bases adopted by the Companies who have submitted their revised rates and find out how far the bases adopted are justified and in accord with the experience of the respective Companies. Let him submit his findings together with the views of the panel of Actuaries to the Executive Committee before the close of the year, for their consideration. By then, the atmosphere would have changed and the Executive Committee will also have the benefit of the experience of not only the Companies working on the new rates but also the public reaction to the situation. They can then take a decision in a much calmer atmosphere. Any hasty decision now taken under this emotional stress is likely to cause permanent and irrevocable harm to the larger interests of Indian Insurance. Insurance is a long-term business. We are dealing with the life savings of a large section of the middle class—any false step we take may lead to the shaking of the public confidence in our capacity to handle this very essential economic service to the community.

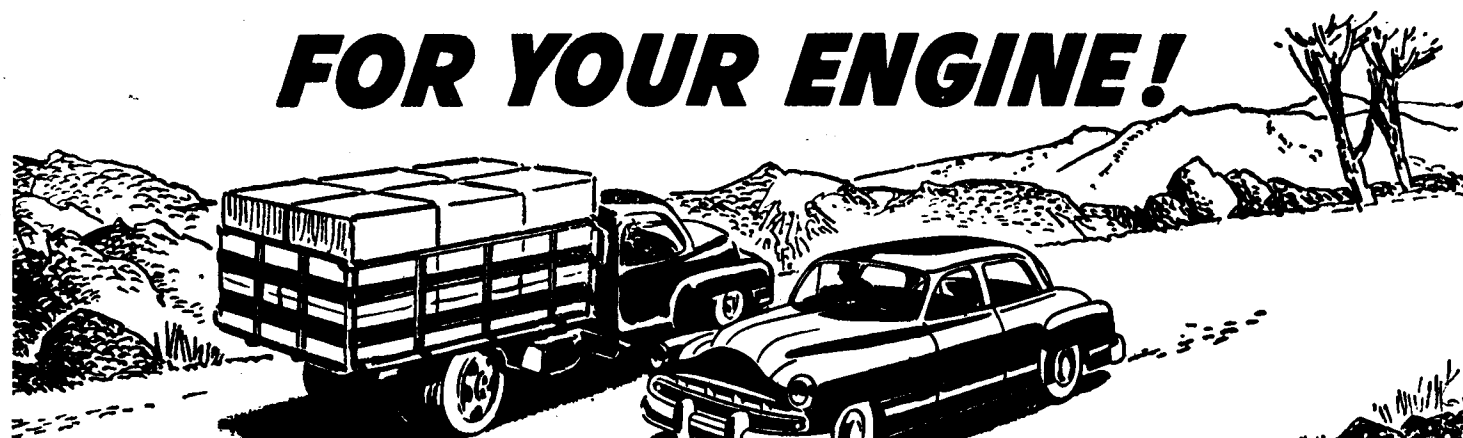
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THE recent lowering of rates of life insurance premia by the two premier Indian companies, "New India" and "Oriental", has created a lot of stir. A large number of the smaller companies represented to the Life Insurance Council and the Finance Minister that such lowering was likely to harm their own interests. These companies urged that they could not lower their premia to the same extent as the giant concerns, because they did not have the giants' large resources, strong financial position and standing, and capacity, to withstand losses that might occur. On the other hand, the case for the lowering of rates by the giant concerns was effectively put forward by Mr A. D. Shroff of the New India, speaking at "New India's" annual meeting.

Mr Shroff began by saying that there was tremendous scope for life business in the country, provided the business faced its problems with "earnestness, enterprise and imagination". He said that, in India, with a population of 360 million people, the new business under-writing capacity of Rs. 130 crores for the country as a whole and annual savings of Rs. 20 crores diverted to life insurance, were exceedingly poor. He urged that one of the biggest deterrent to the development of life insurance, was its prevailing high cost, and the urgent need of the day was, therefore, to make life insurance as cheap as possible, consistent with security and soundness. There was considerable force in the contention that the basis on which premium rates were being calculated before the reduction were getting farther and farther from realities. He said that, in the case of New India, mortality had, in recent years, been only 50 per cent of that assumed, while the interest yield on the funds had gradually risen to 4.5 per cent against the assumed rate of 2½ per cent and, besides, the average expense of the company had been below those that had been provided for in the premium rates. In view of these favourable features, in the actual working, the case for rate reduction became formidable, since the safety loadings in the premium rates were well in excess of security loadings, on consideration of prudence and security of the policyholders.

Mr Shroff further maintained that New India's new rates contained adequate margins to withstand adverse fluctuations. Other factors remaining the same, the premium rates could be self-supporting even if the interest yield fell to 1½ per cent from the present 4½ per cent, or if the renewal expense ratio rose by 10 per cent from the present level of 14 per cent. Since adverse fluctuations of this magnitude were beyond the bounds of practical possibilities,

Mr Shroff maintained that the reduced rates were perfectly justified.

In the case of "Oriental" also in recent years experience had been quite favourable. Though the company invested mainly in gilt-edged, yield in 1952-53 was over 3½ per cent and expenses had been under 15 per cent. During 1953 the mortality experience was only 42 per cent of that expected. It was the favourable experience of these companies that permitted such a high reduction of premia, at about 25 per cent in the case of whole life policies and about 8 per cent in the case of endowment policies.

It cannot be denied the lowering of premium rates gives considerable stimulus to increase in the new volume of business. The experience of these two giants after they had lowered the premium rates in this direction, gave full support to the view that the cheaper the commodity, other things being the same, the larger the sales. It is sometimes urged that, instead of lowering premia rates, insurance companies would be better advised to maintain the present level, and to issue larger bonuses on the basis of actual experience. This contention does not take into consideration the fact that a large volume of life insurance business is without-profit business and, if, at the time of valuation, favourable experience is met with in all three directions, namely, mortality, expenses and interest earning, the without-profit policyholders, who had all the time paid higher premia and made possible such favourable experience, would get no manner of return for their sacrifice, in the shape of bonus. It is also questionable whether higher bonuses are themselves a greater attraction to policyholders than the lowering of premia rates. There was a period before the war when several companies vied with one another in declaring larger bonuses and this, to a certain extent, deceived the unwary, and led the growth of business of firms announcing larger bonuses in their valuation at the expense of others. As far as the aggregate life insurance business booked by all firms in the country in those years was concerned, the position was nearly stagnant. This temptation of offering larger bonus may, therefore, be said to have been tried and found wanting. There is the further point that a lower premia offers greater attraction, because even when a larger bonus rate is declared, the shrewd policyholder can spend his money on a larger without-profits policy, assuring him of a sum certain, rather than take the risk of a contingent bonus declaration at the prevailing rate in the future years, and of ultimately realising a slightly larger sum on a with-

profit policy taken by paying the higher premium. A would-be policyholder, with any degree of foresight, will prefer always a bird in the hand to the two birds in the bush, when, as in this case, the bush contains not two birds, but probably 1.1/8th birds.

On the protest made by the smaller companies, a Committee of Actuaries has been appointed and an attempt made to evolve a schedule of basic rates below which no company could sell life insurance. Of course, the fears of the smaller companies were justified because if they continued to sell insurance at the old rates when the others substantially lowered their rates, all their business would naturally flow over to the others. In the absence of serious questioning of the basis for rate reduction by the giants, the position of the objectors to the change becomes somewhat weakened. The complaint that they themselves could not lower rates but had to continue to charge higher premia and that, if they lowered rates, they would be harming the stability and soundness of their concerns and, if they did not, their business would flow into other hands—this involves that there is far too much diversification of life insurance, and that, even after the

insurance Act has been in force for years and the Controller of Insurance has been exercising greater vigilance, there continue in existence a number of small or medium concerns of doubtful financial strength.

One aspect of this question is that the doubtful stability of smaller concerns is detrimental to confidence in life insurance as a whole, and to the safeguarding of the primary interests of policyholders who pay their small savings, month by month, into the coffers of these doubtful institutions, in the expectation that, ultimately, they would be able to meet the claims when they occur. Secondly, considering the question from the point of future policyholders, it would seem to be unfair to charge them higher premia than is actually warranted, merely to keep a number of uneconomic units going. The proposal for fixing a floor rate basis for all life insurance companies was fundamentally unsound, because costs of insurance comprised mortality, interest and expenses of individual offices, dependent on their under-writing, investment and administrative practices. None of these three factors easily lends itself to standardisation.

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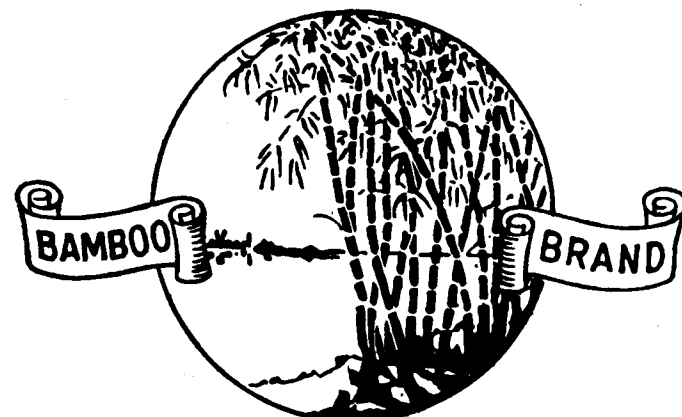
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Food Production Trends

In India foodcrops take up about 85 per cent of the total sown area. Food production has to keep pace with a rapid population growth. The constant depletion of the soil, inadequate irrigation, the recurrence of drought, unexpected floods and the havoc worked by pests aggravate the problem. The improved situation of the present is mainly due to well-directed attention to each of these factors; and to the proper channelling of peoples efforts and to an imaginative policy of gradual decontrol. The Grow More Food Campaign continues though without the label and as part of a wider programme. The GMF campaign included productive schemes of a permanent nature like irrigation, the building of tanks, bunds and the installing of tube-wells and river pumps, the supply of seeds and manures and fertilizers in compact areas of assured rainfall or irrigation. Specific mention must be made of the excellent work being carried on to stop the denudation of the forests, to check the spread of the deserts, to fight the menace of pests and to render sandy regions cultivable. Work under the Five-year Plan is an elaboration of these with significant additions.

Relaxation of controls started in June 1952. Statutory rationing was gradually suspended or its method modified; bit by bit, the restrictions on their movement within a state were removed; and open markets were revived. Restriction on sale, price and movement of flour was moved in April 1953; four months later followed the decontrol of quantitative limitations on issue of wheat. When complete decontrol was possible in early 1954, the immediate reaction was a recovery in prices which had fallen too low, particularly in the case of coarse grains in the North. Following decontrol, and the freedom of movement of food grains the disparity in prices as between surplus and deficit states narrowed down. The increase in the marketable surplus was specially marked in the case of wheat, with the result that India found her purchases, commitments of 10 lakhs metric tons under the International Wheat Agreement superfluous; the price position eased to such an extent that the International Wheat Council was requested to reduce the minimum price to make it comparable with the domestic price. This was typical of the general improvement in the inter-

nal supply position and the downward trend in the internal market prices which were mostly lower than the landed cost of foreign grains. There was the consequent impact of India's foreign trade. Increased production, coupled with decline in prices has reduced the country's dependence on imports. In 1951, we imported 4.7 m tons of cereals, while the corresponding figure in 1953 was 2 m tons. Now that food self-sufficiency has been achieved, partly through favourable weather, the government are aiming at building an adequate reserve stock to safeguard against violent fluctuations in the market or large-scale damage to crops. The present import policy is governed mainly by the need to create buffer stocks aimed against contingencies.

The main accent is still on increased production. India's record of the past two years is heartening. A comparative statement of achieved production and the target is given below:—

(Million Tons).		
Cereals	Production target in 1953-54	Production in 1953-54
Rice	25.6	27.1
Wheat	7.5	7.8
Others	16.8	21.2
Total Cereals	49.9	56.1

In 1953-54 the actual production exceeded the target aimed at for 1955-56 by 3.6 m tons. Over the year 1952-53 wheat showed an increase in 7.5 per cent in acreage and 5.5 per cent in production. Rice production was 2 m tons in excess of '52-53 and 4 m tons in excess of 1951-52. Such were the strides made that the late Mr Kidwai claimed that the Indian Union today produced more food grains than undivided India.

This remarkable rise in production is part of a general world trend. In 1954, for the second season in succession world food production has continued to rise faster than the increase in population. The largest surpluses in grains exist in North America while the total agricultural production is greatest in Western Europe and the Near East. This upward trend has been particularly well marked in the Colombo Plan region.

A salutary innovation in Indian agriculture has been the introduction of the Japanese method of

rice cultivation. It is estimated that an additional production of 1.88 lakh tons of paddy during 1953-54 was secured with the help of this technique. The estimate for 1954-55 is an additional 12 lakh tons.

Alongside the introduction of mechanisation schemes and the establishment of fertilizer factories like Sindri, the search for new and better food is also being pursued. The work done in the Central Food Technological Research Institute, Mysore, is chiefly in connection with the storage and preservation of food, processing, and treatment of coarse foodstuff to improve the food value and the preparation of concentrated and vitaminised food. It is calculated that one-fourth of India's consumption of rice, wheat or millet can be replaced by extensively grown tuber products like tapioca without having any adverse effects on health.

The per capita food consumption has risen from 1398 calories in 1952-53 to 1623 calories the next year. The part contributed by cereals and pulses in these are 1241 calories and 1469 calories respectively.

Self-sufficiency in foodgrains, however, does not necessarily

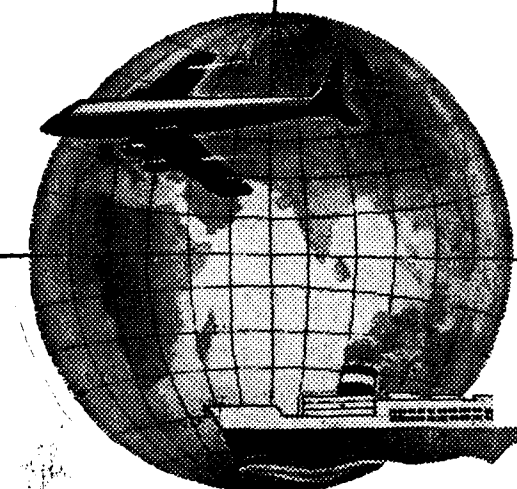
mean that there are not many half-starved and ill-fed.

ESTIMATE OF CEREALS 1953-54. SUMMARY.

Cereals	Area (thousand acres)	Production (thousand tons)
Kharif Cereals:		
Rice	76,646	27,079
Jowar	42,990	7,691
Bajra	28,820	4,246
Maize	8,982	2,854
Ragi	5,472	1,564
Small Millets	13,167	2,183
Total K. Cereals	176,077	45,617
Rabi Cereals:		
Wheat	26,098	7,792
Barley	8,190	2,721
Total R. Cereals	34,288	10,517
Total Cereals	210,365	56,130

PRODUCTION OF PRINCIPAL CROPS.

Year.	Rice (1000 tons)	Wheat (1000 tons)	Other Cereals (1000 tons)
1947	21,669	4,971	15,904
1948	21,247	5,570	16,924
1949	22,597	5,650	15,067
1950	23,170	6,290	16,558
1951	20,295	6,374	15,117
1952	20,741	6,039	15,660
1953	23,424	6,762	17,398



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SOUTH EAST ASIAN ECONOMIES

THE Third Annual Report of the Consultative Committee of the Colombo Plan throws into sharper relief many of the major problems which beset the economies of South East Asian countries. Some of these problems are common to almost all the countries in this region. Others are individual in their character and impact.

In spite of a general relaxation of trade restrictions, the majority of these countries show a decline in the volume of trade in 1953-54. The position would have been worse if the American recession expected in the last quarter of 1953 had materialised. The persistent and dire dependence of the larger part of South East Asia on the industrial countries of the West for marketing their principal produces emerges obtrusively from the study of the impact of variations in the domestic economic fortunes of the latter on those of the former.

Over 70 per cent of Ceylon's exports consists of tea and rubber, an equal percentage of Malaya's consists of rubber and tin; and more than 80 per cent of Pakistan is made up of raw jute and cotton. Rubber, oil and tin constitute the bulk of the exports of Indonesia. The Korean boom created an artificial and shortlived increase in demand for most of these commodities, which meant a commercial heyday for the region. But with the disappearance of the boom, the internal adjustments consequent on the increasing demand became a serious problem. It is some comfort to see that the countries concerned have on the whole succeeded in tackling this problem through measures to adjust costs and reduce consumption, the adoption of anti-inflationary policies frequently through the imposition of quantitative restrictions and through encouragement to local industries. The total value of imports by all the countries in this region was brought down by about 30 per cent from the 1952 level. Food and other consumer goods mainly account for this decline. In every country there has been a larger output of foodstuffs, particularly cereals. While this increase in food output is generally a boom, for Burma alone it has meant the

accretion of a surplus, for which there is no ready and profitable foreign market.

Export earnings of the region have fallen by only 20 per cent, that is 10 per cent less than the fall in the value of imports. There is thus a clearly favourable trend in the balance of trade. This trend which could not be assessed except in relation to the terms of trade both ways, should not obscure the need for the development of intra-regional trade. The ECAFE has now taken up this question. A complementary pattern is evolving among the different national economies of the region. The pace of this evolution would depend on the volume of investment in new industries.

In this respect, though progress hitherto has not been uniformly satisfactory in all the countries, there is evidently a firm determination everywhere towards achieving greater speed. In Burma against Kyats 913 million of domestic capital formation for 1953-54 the figure for 1954-55 is calculated to be Kyats 1160 million. Ceylon will be spending Rs 400 million on development schemes in 1954-55 as against Rs 349 million in 1953-54; in 1952-53, Ceylon spent only Rs 300 million. In India, against an outlay of Rs 560 crores in 1953-54, Rs 760 crores is likely to be invested in 1954-55. In Indonesia, there seems to have occurred a progressive setback in development expenditure in the public sector. In 1952 Rs 2500 million was spent. The Revised Estimates in the 1953 budget showed as expenditure of Rs. 1800 million. In 1954 the provision is only for Rs 1400 million.

Indonesia has yet to complete the preparation of a national development programme. A Planning Bureau to which the task has been entrusted is expected to finish its labours by the end of 1955. Meanwhile, certain independent schemes are already in operation: rice production has gone up from 5.8 million tons in 1950 to 6.9 million tons in 1953. The production of export crops is also being stepped up, marked increases having been recorded in rubber, sugar, coffee

and palm-oil. Tea alone forms an exception, production having declined from 46,500 tons in 1951 to 36,800 tons in 1953. On the industrial side, Indonesia hopes to concentrate first on production which would replace imports.

In the Federation of Malaya, Singapore, North Borneo and Sarawak, the heavy fall in the price of exports since the 1950-51 boom period has created problems for which neither the Government nor the people have been able to provide an answer. The economies are just a bit better than in the pre-boom period, as indicated by consumption levels. In Malaya, food production has gone up since 1948. The rice crop in 1953 was nearly 4½ lakhs tons against 3½ lakhs tons in 1948. The output of fish rose by more than 50 per cent. Other foodstuffs also registered substantial rises. The fall in Malayan export prices, as for instance, the fall in rubber price from 4sh in 1951 to 1-3d in the first quarter of 1954 and the fall in the price of tin from £1032 to £639 in the first quarter of 1954, would have had a fiercer impact on the domestic economy of Malaya but for the fact that a substantial portion of the export earnings go to foreign firms. The change has not brought about any serious decline in total employment. But for the emergency expenditure which in 1953 is estimated at £171 million representing a third of the normal revenues of the Federation, consumption levels in Malaya would have been far higher.

In Nepal, where expenditure on defence and administration accounts for nearly 58 per cent of the total revenues, there was no appreciable increase in production, or in the progress of development projects. A fall in the earnings of principal exports such as paddy, oil-seeds, jute and timber, with the prices of imported goods remaining high, contributed to a budgetary deficit of Rs 2.6 crores. Planned development is more or less in the initial stage of preparation.

After a spell of acute food deficit Pakistan is again on the road to self-sufficiency in food. As a result of a new grow more food campaign, the increased use of fertilizers, the speeding up of agricultural extension projects and plant protection measures, it was expected that in 1954-55, Pakistan would be able to have a surplus left for export. Import liberalisation and fiscal concessions have stimulated industrial expansion. During the year under review, a number of industrial undertakings were set up;

production of cotton yarn increased from 129 million pounds in the previous year to 171 million pounds and cotton cloth from 169 million yards to 244 million yards. Substantial increases were registered in the output of woollen goods, jute manufactures, safety matches, sugar, rubber tyres and tubes, hydrogenated vegetable oils, etc. In spite of a decline in revenue, development expenditure has continued to rise. In 1954-55, Pakistan's estimated development expenditure is 39.2 per cent of total public expenditure, as against 14.5 per cent in 1951-52. Over the three years, 1951-54, the progress of economic development absorbed Rs 200 crores, representing twice the rate of expenditure envisaged in 1950. If prices were stationary, the increase in expenditure would have been less. It has to be noted that external aid during these three years amounted to Rs 82 crores, (part of which remains to be utilised) as against a total Central and Provincial Government expenditure of Rs 206 crores.

Apart from the notable advance in industrial production in most of the Colombo Plan countries and the general improvement in agricultural production, there has also taken place a general increase in the provision of social services. Developmental projects in the area have reached a point where tangible returns would begin to flow. Total developmental expenditure in the area has increased by 27 per cent over that of the previous year. During the current year, it is expected to increase by 31 per cent. There was a general decline in State revenues leading to budgetary deficits. The increase in industrial production achieved during the year was the combined result of the full utilisation of existing capacity, addition of new facilities and of new lines of production. The latter are generally in the sphere of processing primary products of domestic origin and the supply of light consumer goods. In India, however, a more advanced stage was reached and the emphasis continued in engineering and other durable products.

Financial pressure led to the discovery and exploitation of new methods for stimulating savings and investments, as also voluntary community co-operation activities. The latter have started playing an increasing role in the development of fiscal and human resources with relatively small liquid capital. This development is of special significance to an area, where finance in relation to requirements is never likely to be adequate.

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Centenary of Cotton Textiles

THE Centenary of the Indian Cotton textile industry, which was celebrated in Bombay last year, provided the occasion for bestowing thought on the industry's basic problems, as much as for the usual felicitations. The Union Minister for Commerce and Industry seized the opportunity not only for giving some well-meant advice to the industry, but also to make it clear that, in the case of the Government, advice develops by easy and rapid stages into warning and then finally into orders. Whether or not the present position of the cotton textile industry calls for threats of this kind, it is certainly less debatable that the occasion is not appropriate for brandishing the weapon of a sovereign democratic State in the face of the millowners. The formulation of the present problems and the lines on which their solution should be sought is a far more difficult task than a bald statement of the powers and intentions of the Government. It is no doubt important that under cover of convivialities appropriate to the Centenary celebrations, the millowners should not be allowed to have an exaggerated idea of their contribution to the national economy or to overlook altogether the blunders in their past record. And the general public should feel glad to note that Sir Homi Mody himself speaking as President of the Textile Association, showed no anxiety to leave this aspect out of his purview and was in fact quite explicit on this question. He said, "The spotlight has been turned on the misdeeds of a section of entrepreneurs. Far be it from any of us to offer any excuses for malpractices, or to be blind to the harm they are causing to the whole structure of the industry. Such of the industrialists as recognise the obligations of honest and efficient management can have no truck whatsoever with those who are not ashamed to exploit the undertakings of which they have acquired control, and something has got to be done to create conditions in which sharp practices are invariably dragged out into the open and it is made increasingly difficult for their perpetrators to escape the consequences. How this is to be done is a problem which industrial organisations have seriously to consider".

It is one thing to view the prevalence of these malpractices and their elimination as one of the problems which the cotton textile industry has to tackle at the present juncture. It is quite another to allow the malpractices to determine one's attitude to the industry as such. Now that a whole century in the history of the industry is over only an ungrudging acknowledgement of the great achievement of the industry in the face of well-nigh insuperable obstacles is appropriate. The keenest resentment against recent malpractices will not help one to detract from

the obstacles that were placed in the way. Let it be remembered in this context that the present centenary is that of the mill industry in its modern form. Cotton spinning and weaving is as old as this ancient land. It flourished in this country for centuries, before the British found in its repression an invaluable help to the growth of the textile industry in Lancashire. But the main advantages of cotton weaving in India lay only in the abundance of the raw material and the skill of the weavers. When these advantages were reduced by the development of modern shipping and of industrial technique, the old primacy of handloom weaving in the world's trade was sure to be undermined. India's resort to mill production on modern lines was thus inevitable. The inevitability was best borne out by the emergence of the industry even in the most discouraging circumstances and its rapid growth in spite of innumerable obstacles.

In assessing the achievements of this industry during the last one century, it would be as dangerous as it is unfair to give disproportionate importance to the events and developments of recent times, whether they are favourable or unfavourable to the millowners. Like any industry, which was started in the pre-freedom period, the cotton textile industry called for a degree of pioneering zeal and patriotic fervour for which due credit must be given. The advantage of the political sense which enabled the millowners to wring protectionist aids from Government and at the same time appropriate the advantages of a campaign of Swadeshi under the banner of the national Congress has not been less to the nation than to the millowners themselves. A perusal of the successive Tariff Board Reports in the twenties and the thirties would show that in spite of all these advantages, the cotton mill industry had to tackle a number of problems. That within a decade and a half the industry was able to raise the quality of Indian cloth to parity with the best from abroad is a point which the public is apt to forget at the present time. The development of manufacture of fine and superfine cloth in the thirties was no small achievement. Compared to the work of the earlier years, even the development of an export market in the post-war years is not much to speak of. For the export market was the result in the main of post-war scarcities and the preservation of a low level of costs in industry compared to most other manufacturing countries. Taking the history of the cotton mill industry in its full range, the expansion of production and productive capacity to the point at which not only is the nation wholly self-sufficient but it is left with an export surplus large enough to make India one of the chief ex-

porting nations, is the most solid and most praiseworthy achievement. To appreciate it better, one has only to remember the manner in which the sugar industry has left the country after two and a half decades of liberal protection in need of sizeable imports of sugar.

It is perhaps no coincidence that it is just at this stage that the cotton textile industry is confronted with many problems which are at once crucial and ponderous. If the attainment of self-sufficiency has up to now seemed a great achievement, it also serves to throw up the closely allied question of whether the cotton textile industry is capable of that steady expansion which will assure the people of an increasing consumption of cotton cloth per capita. Likewise, if in the last few years, the industry has been enjoying a large export trade, it also prompts the other question whether, in the first place, it can retain this export trade in the face of the return of powerful old rivals and, secondly, whether it can increase its share of the available foreign markets or increase the quantum of exports of cotton yarn and cloth. These questions impinge on public policy as much as the internal working of the industry itself. In some

cases, as in the matter of taxation or the treatment of labour, there is considerable overlapping of the two spheres. But in considering the problems of an industry, the primary importance belongs to the internal management and the total functioning of the industry as such. The importance is enhanced by the fact that malpractices have been allowed to flourish in recent times. Nothing that the Government or the Planning Commission or the public can do will avail anything, if the industry itself is to retain a sluggish conscience in this regard. Sir Homi's admission that 'something has got to be done' needs to be followed up with a concrete programme of action which will convince the public and the Government that every advantage afforded to the industry will return in a manifold form to the country itself.

Equally important is it for industry, particularly an essential consumer goods industry like cotton textiles, to accept the steady expansion of production and consumption as the only valid test of its success. Such an acceptance of expansionism as the guiding principle will naturally entail the acceptance of all its implications in management, in production and in price policies. It has often

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of ore in all the mines taken together come to about one million tons.

Among the expansion programmes carried out by the Corporation during the current year are worth mentioning the New Strip Mill and the erection of the third Boiler. A new Railway siding with wharf wall was also completed during the year to serve the colliery. On the whole the capacity of the alumina plant is estimated at 5,000 tons and that of the reduction plant at 1,500 tons of aluminium. The highest production so far attained was in 1946-47 when it produced 3,027 tons of alumina and 1,512 tons of aluminium. Since then there has been a decrease in production. Moreover, the activities of the utensil manufacturing section have been stopped since September, 1950 as it did not prove successful. The full loan amount of Rs. 50 lakhs sanctioned by the Industrial Finance Corporation of India was drawn during the year for stepping up the production of aluminium ingots and to increase the sheet rolling capacity.

A unique feature of the Corporation, unlike that of the Indian Aluminium Company, is the proximity of the different units of production around Jaykaynagar, seven miles from Asansol. One of the reasons for the choice of the site is its nearness to the Corporation's colliery, as the Corporation is generating its own power. The Corporation has its own coal mine, a thermal power plant, an alumina plant, a reduction plant, a petroleum coke calcining unit, a sheet rolling mill,

and a utensil manufacturing section. The Corporation has built up an extensive modern colony for its employees at Jaykaynagar and has on hand plans for its further expansion.

The Indian Aluminium Company started its operations in 1941 with the fabrication of imported aluminium ingots into sheets and circles at its Belur Works. Two years later, production of aluminium from imported alumina was taken up at its reduction works at Alwaye, Travancore-Cochin. The Company's small additional investment. The actual production is restricted to about 5,000 tons as the demand for alumina for the reduction works at Alwaye is not very great.

The reduction works at Alwaye, however, are forging ahead with plans for expediting production from the present rated capacity of 2,500 tons per annum to 5,000 tons. The chief source of difficulty in the expansion phase of the Company has been insufficiency of power supply. Although operations at the Lohardaga Mines and at the Muri Alumina Works continued on a scale sufficient to meet the requirements of the Alupuram Smelter and outside sales, production of ingot during 1953 was only 1,984 tons, the lowest for any year since 1947, because of the longer duration of the seasonal power-cut caused by water shortage in South India.

The Company's rolling mill at Belur near Calcutta has potential capacity of 3,000 tons. The pig aluminium produced at Alwaye is fabricated at the Belur works. The

Company is also fabricating small quantities of imported pig aluminium. In 1948-49, the Company produced 4,360 tons of aluminium hydrate, 2,347 tons of pig aluminium and 2,284 tons of sheets and circles. Last year, nonetheless, owing to the depressed condition of the aluminium market, the Belur rolling mills operated well below capacity, output being limited by the paucity of orders.

One great disadvantage that the Indian Aluminium Company suffers from is that its operations are scattered over a number of places. Thus, for instance, the Company's alumina works are located at Muri in Bihar, the reduction works at Alwaye in Travancore-Cochin and the rolling mill at Belur near Calcutta, with the result that it has to incur heavy freight charges for the transport of alumina and aluminium. The distribution of the production units at different centres, however, was not made without weighty reasons supporting it. The rolling mills were located near Calcutta which is the biggest market for aluminium sheets and circles. The reduction plant was located at Alwaye at the instance of Government to meet war-time demand, the primary consideration for the selection of Alwaye being the availability of sufficient power at a cheap rate. The alumina works are located at Muri for the sake of proximity of bauxite ores.

Regarding its expansion programmes, the most important of which is the building up of a smelter at Hirakud with initial capacity of 10,000 tons and capable of easy ex-

pansion to 20,000 tons, the Company has gone as far as practicable with this project after the collaboration with their Canadian consulting engineers. Continuous progress on this new scheme will have to depend on the steady supply of electric power without stint. The expansion of the Company's smelter facilities in Travancore and of the rolling mills at Belur have proceeded satisfactorily and the installation of an extrusion press adjacent to the smelter in Travancore has been put in hand.

As has been said above, the immediate problem of the Aluminium industry in India, if it is to stimulate production of, and the demand for, aluminium, should be the reduction in the cost of production of the metal. Generally, the cost of power is considered as the most important factor in the cost of production. In India, however, the wages of labour have assumed an equal importance in the computation of costs. While the rates of wages and amenities to be provided are going up, there is little corresponding increase in productivity. In Europe and the USA, for instance, the man-hours per ton of aluminium range between 20 and 30, but in India, it is as high as 120 to 140. This large uneconomic labour force, coupled with the cut in power supply, leads to increased total labour cost and inefficiency in production technique. A reduction in cost of production of aluminium will have to be brought about chiefly by a mitigation, if not the removal, of the effect of these two impeding factors.

THE AUTOMOBILE INDUSTRY

TWO years ago the automobile industry in India consisted of a dozen factories, mostly employed in assembling parts and components imported from foreign countries. These twelve units were enjoying protection in varying degrees. In spite of this protection, the local assemblers and manufacturers were generally found to be unable to market the cars on a competitive basis and the Tariff Commission, which reported on the industry in the middle of 1953, has rebuked both the industry and the Government for the inflated capacity which was permitted to be built up, without due calculation of the domestic demand; in fact, the most prominent phase of the growth of this industry followed the unusual rise in demand consequent on the outbreak of the Second World War. The sudden fall in imports was avidly seized as an opportunity for the expansion of local assembling and manufacture; but the pace of expansion bore no proportion to demand.

In 1953 the Hindustan Motors Limited, the premier automobile manufacturing concern disclosed arrears of depreciation to the extent of nearly 1 crore in the first six years of its existence. The company, on one occasion, had to suspend production on account of insufficient demand. It was a general complaint amongst the Indian manufacturers as against those who were engaged in assembling alone that protective tariffs were inadequate and there were loopholes in customs regulations which enabled considerable imports of cars without the payment of full duties.

The Tariff Commission, which examined the background of these conditions, recommended a substantial cut in existing manufacturing capacity. For achieving this purpose all those units, which did not have a programme of manufacture, would be eliminated in the course of three years. Of the twelve units, the seven which did not have a manufacturing programme would have their imports cut by stages in the course of these three years and eventually they would be wound up. For the remaining five, a certain broad allotment in the matter of manufacture of the different varieties of vehicles was fixed. Against an average annual demand of 20,000 cars, including commercial vehicles of all kinds, the assembling and manufacturing units now have a total capacity exceeding 84,000. In 1952, only 14,875 vehicles were released by the industry, representing approximately 18 per cent of the installed capacity; in 1951, the total output was 21,577 vehicles.

The latest trend in the annual offtake of motor vehicles shows that, instead of the desired expansion, there is actually a contraction in the supply of vehicles. The

Tariff Commission estimated that the country will absorb 22,000 new vehicles every year. The Commission has based this estimate on the average offtake for the five years, 1947-51. The pent-up demand of the war years which found fulfilment during this period was off-set, in the calculations of the Commission, by the requirements of an expansionist economy. But the Commission's expectations have been belied by the actual figures for 1953 and for part of 1954. In 1953, the actual off-take of vehicles assembled in India came to only 13,000 and the figures available for 1954 indicate an even lower annual off-take.

Let us turn to another set of figures. Mr. H. S. Batliwala, the President of the Bombay Branch of Indian Roads and Transport Development Association, tells us that, while the Bombay State had, at the end of March 1952, 16,034 goods vehicles in operation, twelve months later, their number was a thousand less. Mr. Batliwala accuses the Government of neglecting road development. Similar views were expressed by Mr. T. S. Santhanam, at the 28th Annual Meeting of the Madras Motor Vehicles and Allied Merchants Association. Mr. Santhanam points out how motor transport is getting increasingly beyond the reach of most citizens and how in Madras the State appropriates by way of imposts as much as 40 per cent of the gross earnings of public transport owners.

The Hindustan Motors Limited, the Premier Automobiles Limited Standard Motor Products of India Limited, Ashok Motors Limited and Automobiles Products of India Limited were the five concerns who had submitted programmes of manufacture to the Government. The Tariff Commission recommended that Automobile Products of India should be allowed to manufacture light cars and the medium truck. Ashok Motors were allowed a heavy truck and a baby car. This particular recommendation did not find favour with the Government, who apparently maintained that the manufacture of baby cars should be more widely dispersed. Some of the major components for the Hindustan 14, Studebakers and the medium truck assigned to the Hindustan Motors were already being manufactured in their factory and imports are expected to thin year by year. The company is drawing exclusively on indigenous raw materials for the manufacture of the Studebaker engine and other items.

Premier Motors have a tool designing section and a tool room capable of putting out the necessary jigs, dies and other kinds of tools. Production of the Standard Vanguards, tractors and jeeps is included in the Manufacturing

programme of Standard Motor Products. The Tariff Commission whose hopes were centred on cheaper cars had therefore found it necessary to recommend a steep reduction in duties. This reduction was intended to facilitate the placing of cheaper cars in the market even within a few months. To ensure proper co-ordination of aims and policies between the Government and the industry, a Development Council was also to be set up. The Government have also proposed to set up a standing machinery "to deal with the problems", of the industry.

General Motors of India Ltd., and Ford Motors of India Ltd., the biggest firms in the assembly line, have therefore, wound up operations. Against the original five, only three firms are engaged in the field of manufacture with approved manufacturing programmes. These are Hindustan Motors Ltd., Premier Automobiles Ltd., and Standard Motor Products of India Ltd. Another firm, Automobile Products of India Ltd., which originally belonged to this category, has since dropped out as it was unable to submit a satisfactory manufacturing programme. A fresh programme made for three years commencing 1954 has provided for the manu-

facture, by Hindustan Motors Ltd., of the Studebaker (big car) and the Hindustan 14 (light car) and the Studebaker (medium truck). The firm claims to be utilising, for its Hindustan 14, 65 per cent components of Indian manufacture, in terms of value, and for its Studebaker cars and truck, it expects, by the close of the three year period, to use not more than 50 per cent (in value) of imported knocked down components. Premier Automobiles Ltd., will make in this three year period, Dodge, De Soto and Plymouth, in the big car category, and Dodge De Soto and Fargo, in the medium truck category. Standard Motor Products of India Limited will make the Standard Vanguard, a medium car. Premier Automobiles and Standard Motor Products will also see that the imported components, at the end of the three year period, do not exceed 50 per cent of the c.i.f. value. The need for small cars will be met by Hindustan Motors Ltd., making Morris Minor, Premier Automobiles Ltd., Fiat 1100, and Standard Products of India Ltd., Standard 8. In regard to small cars also, the firms have undertaken to ensure that, by 1956, the percentage of imported components does not exceed 50.

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In regard to heavy duty diesel vehicles, Ashok Motors Ltd., have been authorised to manufacture, first the Leyland "Comet" and, at a later stage, the Leyland "Tiger Cub", in collaboration with the Leyland Motors of the U.K. As demand in this line is not expected to exceed 1000 per annum, only Ashok Motors has been permitted to make heavy duty diesel vehicles. Leyland Motors of the U.K. will be investing a substantial amount in this line, and, besides, they have undertaken to use, at the end of a five year period, 53 per cent of indigenous components in the manufacture, at c.i.f. prices. Regarding medium trucks, the scheme submitted by Tata Locomotive and Engineering Co. Ltd., Jamshedpur, in collaboration with Daimler Benz of Germany, has been approved. The scheme has the additional attraction of planning the manufacture of all the components of the vehicle, in India itself, within a period of four years. Mahindra and Mahindra Ltd., will continue, as at present to assemble jeeps from components imported in a completely knocked down condition.

But the major problem of the industry still remains; the inadequacy of demand in relation to potential capacity. The Planning Commission had set a target of 30,000 motor vehicles per year from 1956 onwards, the present demand is only about a third of this figure. The poverty of demand has become sharper, when

compared to the offtake in Western countries, and even some of the neighbouring countries of Asia. The total number of motor vehicles registered in India, not taking into account motor cycles, is roughly 285,000; in Britain it is over 3 million and 33 lakhs and in US it exceeds 50 million. Against one vehicle for very three persons in the US, for 15 persons in the UK, for 16 in France and 110 in Brazil, India has one vehicle only for every 1,350 persons, on an average. Another set of figures may also be mentioned. The US has 12,000 vehicles for 100 square miles; Britain has 30,000 and France 7,000 and Ceylon 1,300. India has only 250. Even allowing for the density of the population, the contrast with the other countries is striking. The only explanation to this backwardness lies in the comparatively low level of per capita income.

Taxation and Road Development presents two other current problems. By the time this article appears in print, the Taxation Enquiry Commission's Report may have been out. It is the general expectation that the Report will contain recommendations of such a character as would make vehicles substantially cheaper. With the present taxes on the purchase of a car is very much beyond the means of many persons, who otherwise would not have hesitated to go in for it. It is estimated that from the three lakhs and odd motor vehicles in use in March 1952, the

State had taken by way of taxes, directly and indirectly, about Rs. 52 crores which represents over Rs. 1,700 a year on a person owning a motor vehicle. One authoritative estimate puts the operating cost of a bus company in India as 42.7 pies per mile against 34 pies per mile in the United States.

The Motor Vehicles Taxation Enquiry Committee, appointed in 1950, to make a scientific examination of the existing levels of motor taxation and to recommend changes which would make the existing structure in this field more uniform and sound, has made a number of recommendations. The Committee has pointed out that the levels of taxation differ widely between States, that there has been a steady rising trend in taxation and that an unduly large percentage of the operating costs of motor transport went to the general revenues. The Committee expressed itself in favour of substantial reductions in the taxation of motor vehicles, so that the State might not favour one means of transport at the expense of the other. The plea for reduction of taxation is being reiterated from time to time from spokesmen of private motor transport. The point was sharply emphasised at the meeting of the Transport Advisory Council which met at New Delhi early in November. The question of motor taxation is inseparably linked with that of road development. The Nagpur Plan was thrown overboard at a time when resources

were considered inadequate to implement it completely; but at present, official opinion seems to be veering round to the view that road development must absorb more money.

In this connection, the issue of the nationalisation of road transport has also to be re-examined in the light of certain relevant facts. Nationalisation, now confined mostly to urban areas, should be proceeded with further, only if it is clearly more economical and more beneficial to the public. Just now, the nationalised sector consists of about 15,000 vehicles as against 140,000 in the private sector. The Auto-motive Manufacturers Association in India has pointed out that nationalisation has resulted in ousting from the field of road transport innumerable private operators hailing from the middle class who had invested their small savings and who were also pioneers to open up new routes. State Transport generally does not compare favourably with private transport in the matter of rates. And where the services are run at a loss, the general tax-payer has to foot the difference. It is also estimated that over 30 per cent of the carrying capacity of the private sector is not being utilised, owing to the inroad of state transport of about Rs 140 crores. These arguments and facts point to the need for an unbiased re-examination of the relative merits of private and State road transport.

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each other better...*



In a great effort to improve and extend the transport and communications network, India is spending Rs. 497 crores in the Five Year Plan period. The building of new roads, railway lines, port facilities, and air terminals proceeds side by side with the opening of new telephone exchanges, wireless circuits, post and telegraph offices throughout the country. At the same time, Indian factories are now turning out locomotives and railway coaches, automobiles and aircraft, telephones and electronic equipment, thus paving the way for a more rapid advance in the future. Apart from material benefits, this great development of transport and communications will serve to bind closer together peoples of diverse tongues and creeds who inhabit this vast land. Mutual understanding will prevail over distance, and our children will know each other better. Since bringing the first pneumatic tyres to India in 1898, Dunlop have played a vital part in the development of transport facilities in the country. The Dunlop factory near Calcutta—the largest tyre plant in Asia—produces a wide range of tyres and it stands ready to meet any additional demands to help fulfil the tasks the nation has set before itself.

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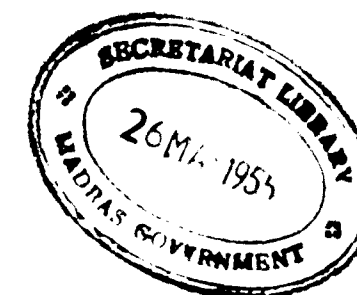
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The

INDIAN BICYCLE INDUSTRY

By Rai Bahadur Janki Das Kapur



briefly under the following headings:—

The Machinery and Equipment used in the Factory:

The modern Bicycle Factory uses upto-date equipment and plant to enable each component to be made to a high degree of accuracy and to have a lasting finish. The vital part of the factory is its toolroom, where the designing and manufacture of dies and jigs are under taken. The dies and jigs are used in the Press Shop for turning out small components on a mass scale. The machine shop equipped with modern precision lathes, automats and drilling machines produces other components which cannot be made by press operations.

The Atlas Factory possesses a modern tool room and an ever-expanding Press Shop. Its Machine Shop contains automats and centreless grinders.

The Factory is also equipped with a Ballard Automatic Plant for stove enamelling parts to a glistening finish. The electroplating shop employs the most modern means for giving parts a bright chrome finish.

In the manufacture of mudguards, an automatic rolling machine is used adopting the latest spot welding methods. High precision drilling machines are used in the machining of cranks for the bicycle. Chain wheels are produced on a mass scale on automatic machines, after the initial pressing operations are done.

The manufacture of main bicycle parts:

The frame, which is the main part of the bicycle, is processed by modern means. After the pipes are cut and fitted to the precise limits, they are jointed together by the methods of special treatment followed by dip brazing. After the enamelling, the frames are given their finish in the Assembly Shop.

Forks are similarly fitted and passed from operation to operation in a scientifically planned layout. Handle-bars are fitted, brazed, bent, machined and polished prior to electroplating. Brakes and pedals, like other parts, are fitted in the Final Assembly.

A very important aspect of the entire production is the rigid inspection carried out from floor to floor and stage to stage. Individual parts like the frame and fork are subjected to severe tests for stress, strain and distortion in machines designed for the purpose.

Marketing of bicycles:

The functions of the Bicycle Manufacturing Concern do not end with the production of bicycles. If the factory is to be successful, it has to look to the marketing side also. Since the bicycle trade in India has been established several decades ago, normal arrangements exist for the marketing of bicycles. There are, however, two main difficulties with which the bicycle manufacturers have to contend. Although the Indian Bicycle Industry receives tariff protection, import of bicycles still continues. Added to this is the prejudice of the public in favour of imported bicycles. In spite of the fact that the quality, finish and performance of the bicycles have been considerably improved and that they are favourably comparable to those of the familiar imported brands, yet the latter command a premium in the minds of the public. Then comes the price factor, many assume that the tariff protection alone will enable the Indian Manufacturer to compete with the foreign manufacturer. Several facts are over-looked in this. For one thing, the foreign manufacturer has a century of experience in the line and secondly, his is a world market. These factors enable him to produce bicycles on a mass scale and at low cost. On the other hand, the Indian Factories have been only recently established. For such of the components and raw materials as are imported by him, he has to pay heavy import duty (the same an importer will pay on parts imported by him for sale). For such of the components as are made in the Indian factory, the cost is bound to be high, due to the fact that the quantity made is small and the initial experiments that have to be undertaken are costly. In spite of all these difficulties, the Indian bicycles are priced reasonably.

I shall conclude this article by dealing with an important aspect which affects bicycle manufacturing in India. It is the quantitative aspects. While forecasts are given of the approximate number of bicycles that may be required for the country in the next several years, it would be difficult to guarantee sales. In a country like India where the purchasing power is low, it is very difficult to anticipate sales with any degree of accuracy. Sales would depend on various general economic factors and the Indian Bicycle Factories have to keep watch over the situation from year to year and adjust their development programme accordingly.

IT is an admitted fact that the problem of transport in India is yet to be solved adequately. Whether it is a metropolitan city or the remote village, transport difficulties exist in one form or another. From very early days, the bicycle has played an important role in local transport. It comes in handy as a means of conveyance in the town as well as the village. In the back-ground of this fact, the importance of the bicycle industry can hardly be overstressed.

have adopted a system of according sanction to the schemes put forward by private enterprises. It has sanctioned four major schemes in the four directions of the country, each with a capacity to produce 1,00,000 bicycles annually. The Atlas Cycle Industries Ltd., Sonapat, represents the major scheme for the North, the other three being, The Hind Cycles Ltd., Bombay, The T.I. Cycles of India in the South and the Sen Raleigh Industries Ltd. in the East. With the development of these four units, the Bicycle Industry has been firmly established in India.

India has been and still is one of the biggest markets for bicycles. Up till the end of World War II, the entire requirements of the country were met by imports, mostly from the UK. This involved a huge drain on India's foreign exchange, but nevertheless continued. The end of World War II, closely followed by the attainment of Independence, ushered in an era of industrialization in India. While industries, which were already well established, expanded considerably, many light engineering industries received a great impetus; and, with the launching of the national programme of industrialisation, the Bicycle Industry came in for the special attention of the Government of India. Although a beginning had been made in the early forties, the Indian Bicycle Industry came to be firmly established only after the National Government came in. Recognising the importance and the great future possibilities of this industry, the Government gave its active support to it. The Bicycle Industry was classified as a protected and a specially assisted one. It was given a place in the list of priority programmes of industrial development prepared by the Planning Commission in the First Five Year Plan.

With a view to seeing that this important industry is developed on the right lines, the Government

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The Cycle-Makers of North India

THE Atlas Cycle Industries Ltd. is a name fairly well-known throughout India, as manufacturers of quality bicycles. The bicycles made by its factory are sold under the trade names of the "Eastern Star" and "Zebra", which have become extremely popular on account of their good quality and finish.

The concern was established in the middle of 1950 and its scheme for the manufacture of 1,00,000 bicycles annually, was sanctioned by the Government, soon after. The factory started with a production of just 200 cycles a month and its rate of production rose upto 6,000 cycles in 1954 and by August of the year, it completed its first

1,00,000 bicycles. It is expected to reach its initial target rate of annual production of 1,00,000 bicycles some time next year.

The factory is situated in Sonapat, a place very near Delhi. It has been built up in a spacious area of 50 acres of land near the Railway Station. Three main wings of the factory building were built up first and further wings are being constructed. The machinery and equipment installed in the factory are of the latest types and production is carried on, on a large scale. The factory is manned by able and experienced staff of Engineers and Technicians. The

number of workers in the factory is over 1,000.

From the beginning, the management and the staff were extremely watchful of the quality of the bicycles produced. In this factory, every component made is individually tested before it is passed to the assembly stores. There is a specially appointed squadron of Inspectors, who are on the round constantly, testing, checking and measuring the accuracy of the parts in the various stages of production. Parts showing the slightest defect are weeded out. The process of production is also checked then and there; and, in case of any drawback, the Chief Inspector is called for, and he has authority to suspend production and see the defect is rectified before the production could be recommenced. The result of these precautions and the ability of the Engineers and Artisans is the out-put of bicycles of excellent quality and finish—machines of strength and, at the same time, light of running.

The Company adopts a sound trade policy and supplies are made through Principal Dealers in the respective cities and places. On account of the extreme popularity of the bicycles, the demand exceeds production and the Company has to adopt a system of rotation in the matter of compliance of orders. The factory has a well equipped

laboratory, which is in the charge of a Capable Technician. It is provided with very accurate and sensitive instruments for purposes of checking. It has got gauges which can measure the thickness of Chromium Plating upto 1/1000th of an inch. The laboratory is playing a notable part in maintaining the quality and finish of the bicycles being produced in the factory. Moreover, researches are being made constantly, which have resulted in many valuable improvements in the quality of production and the processes of manufacture.

The affairs of the Company have been very satisfactory from the beginning. The second annual report disclosed profit and dividend to shareholders. The year ending 31st December, 1953, saw further strides in the affairs of the Company.

Very cordial relations exist between the management, the staff and workers and the whole organisation continues to progress in a spirit of active co-operation.

The Atlas Cycle Industries is making solid contributions to the Development of an important Indian Industry. It has made notable progress within a short time and has a promising future in the industrial set-up of the country.

The Chemical Industry

THE chemical industry, in spite of the vital importance of its products in the manufacture of a large number of major and minor industries, such as, fertilisers, explosives, metals, cotton and silk textiles, and paints and varnishes, made little headway in India till the Second World War. In view of the restricted development of the industrial sector in the country, the term 'heavy chemical industry', which ordinarily comprises products of a very wide range, has only a limited connotation in that the present plans for the industry embrace only the most important products, namely, Sulphuric Acid, Soda Ash, Caustic Soda and other miscellaneous chemicals.

It has been said that the index of a country's industrialisation is the quantum of consumption of Sulphuric Acid. Although the early beginnings of this industry were made even before the First World War, the production and consumption of this product recorded sizeable increases only in the late forties and early fifties of the present century. While in 1939 there were only 23 units producing about 29,000 tons of acid, there are at present as many as 47 units with a production capacity of 1,00,000 tons a year, which is only 50 per cent of the installed capacity. The installed capacity and actual production of

Sulphuric Acid in the eight years ending 1953 may be noted from the following table:

Year	No. of Units	Installed Capacity (tons)	Actual Production (tons)
1946	36	80,000	60,000
1947	36	80,000	60,000
1948	42	1,00,000	80,004
1949	43	1,50,000	99,456
1950	43	1,50,000	1,01,480
1951	43	1,50,000	1,06,132
1952	47	1,90,000	96,072
1953	47	1,97,000	1,07,796

From the above, it can be seen that a record production was reached in 1953, while in 1952 there was a sharp downfall, essentially due to the Korean crisis during which the supply of sulphur was restricted. At present, however, the industry bids fair to be more productive as the rate of production now stands at about 12,000 tons per month.

The sulphuric acid industry has been built up by the private sector. The capital invested is estimated at about Rs 2 crores. The consumption of sulphur for the production of sulphuric acid was estimated at 35,000 tons in 1950 and 37,000 tons in 1951. The consumption of sulphuric acid in different industries in 1951 was 1,06,935 tons. India's requirements of sulphuric acid have, however, increased greatly in recent years. In 1955-56 they are expected to reach the figure of 2

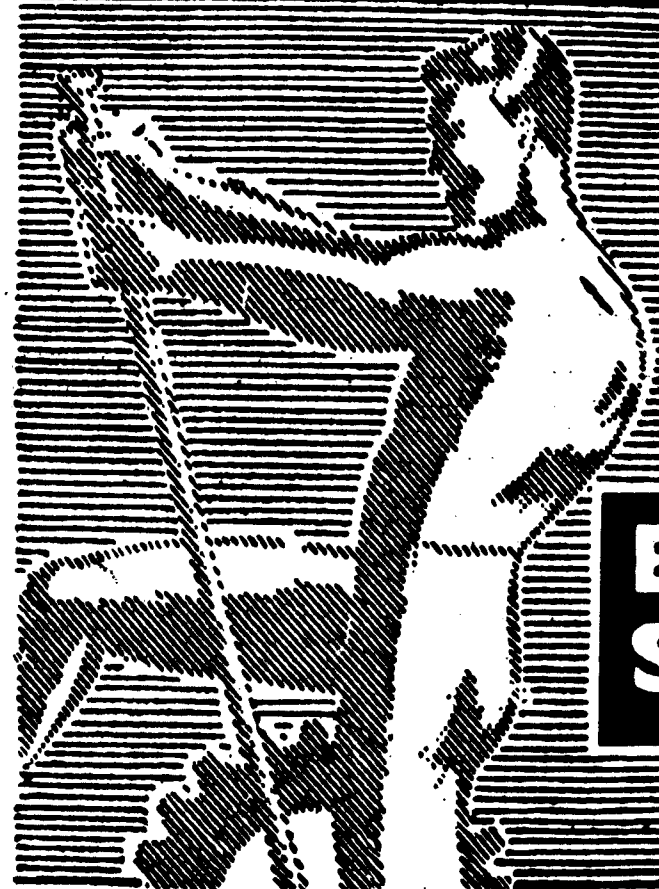
lakh tons, of which more than 50 per cent 1,16,000 tons, to be precise, is expected to be required for the manufacture of fertilisers. The industry has largely been working on the basis of imported sulphur.

This need not be disquieting as it is only a very few countries of the world, like Italy, the US and Japan, that have adequate supplies of their own sulphur. The deficiency of sulphur did not prevent the building up of large sulphuric industries in countries like Germany, Britain and the USSR. It is possible, for instance, to manufacture sulphuric acid from gypsum, large quantities of which are available in India. The larger mines of gypsum so far located are in Rajasthan and in the Trichinopoly district of South India. The source at present largely exploited is the Rajasthan deposit which is estimated to yield about 20 million tons, but of which only 25 per cent is expected to be of the approved quality. The Ghatsila Works of the Indian Copper Corporation discharge sulphuric gases able to provide annually 6,000 to 7,000 tons of sulphur or sulphuric acid. Of late, geologists are engaged in exploring the deposits of iron pyrites in Behar and other places. Besides, experiments have also been undertaken to develop processes for recovering sulphur from sea water.

The alkali industry, comprising the manufacturing of soda ash and caustic soda, has presented even more serious problems. The Dhrangadhra Chemical Works, the Mettur Chemical and Industrial Corporation, Tata Chemical and the Alkali and Chemical Corporation of India were the pioneers in alkali industry. The rated capacity in the soda ash industry is 54,000 tons per annum, against which production in 1953 was 56,880 tons. The quality of soda ash produced in the country is suitable for all uses where light soda ash is required. The following table gives the actual production of soda ash in the last few years:

Year	No. of Units	Installed Capacity (tons)	Actual Production (tons)
1949	2	54,000	17,916
1950	2	54,000	43,788
1951	2	54,000	47,532
1952	2	54,000	44,328
1953	2	54,000	56,880

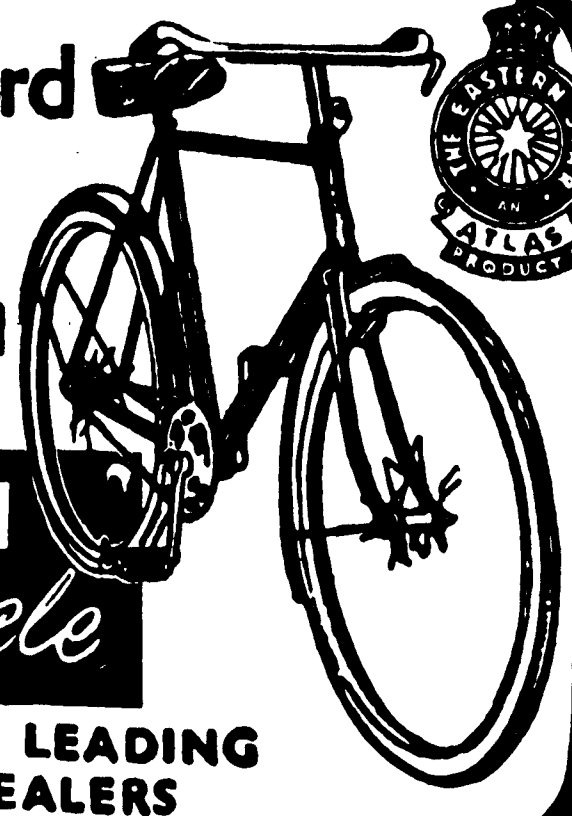
In the case of caustic soda, actual production in the country is far short of total demand. While internal demand stands at about 55,000 tons a year, production during the current year has totalled, on an average, about 25,000 tons. Except one, all the plants manufacturing caustic soda in India



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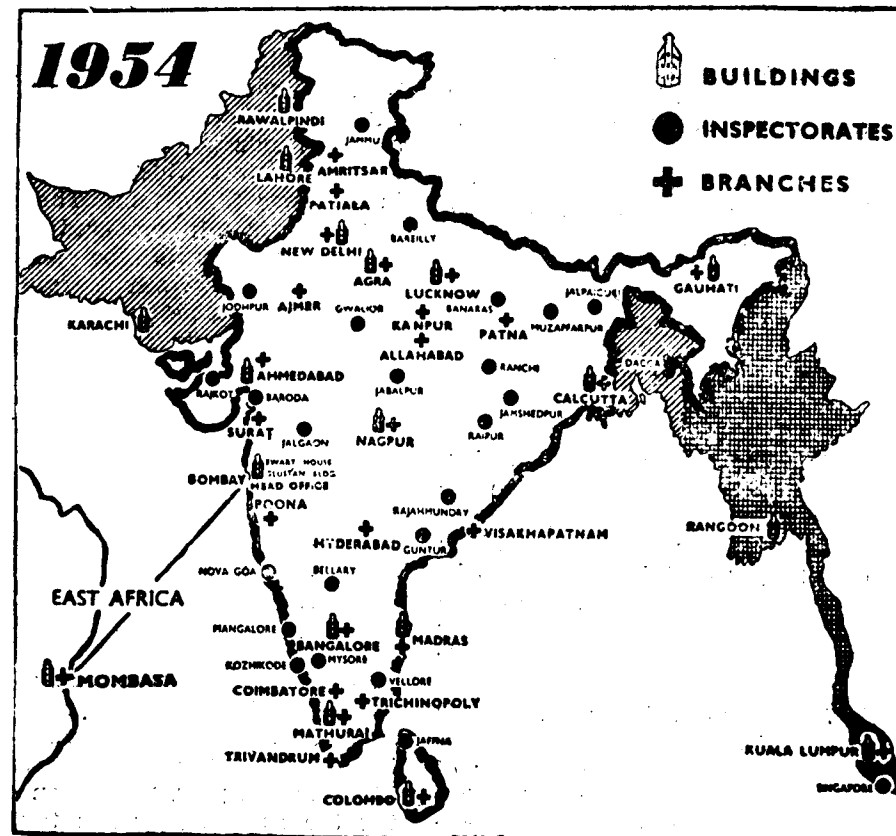
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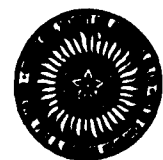
Total Claims Paid :

Rs. 61,36,02,282

Total Funds :
Rs. 72,23,22,839

YEAR	POLICIES IN FORCE	BUSINESS IN FORCE	FUNDS	CLAIMS PAID
1874	4,821	Rs. 1,59.3 Lakh	Rs. 14.4 Lakh	Rs. 3.1 Lakh
1894	20,110	Rs. 5,26.1 Lakh	Rs. 91.0 Lakh	Rs. 42.1 Lakh
1904	43,356	Rs. 8,88.0 Lakh	Rs. 2,37.6 Lakh	Rs. 1,77.5 Lakh
1914	65,269	Rs. 12,37.1 Lakh	Rs. 4,72.9 Lakh	Rs. 4,33.2 Lakh
1924	92,921	Rs. 18,76.7 Lakh	Rs. 6,49.1 Lakh	Rs. 8,42.0 Lakh
1934	2,59,380	Rs. 54,20.4 Lakh	Rs. 15,52.9 Lakh	Rs. 16,29.9 Lakh
1944	5,40,783	Rs. 1,17,99.5 Lakh	Rs. 36,83.4 Lakh	Rs. 31,84.7 Lakh
1953	8,80,165	Rs. 2,06,99,67,376	Rs. 72,23,22,839	Rs. 61,36,02,282

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employ the electrolytic process. The Government have recently issued licences for the setting up of new electrolytic plants. The installed capacity for caustic soda is expected to rise to 52,000 tons a year in the near future. Demand for caustic soda is, however, estimated to increase at a much faster rate reaching an all-time high of nearly 87,000 tons in about four or five years. The figures of production of caustic soda during the last five years may be seen from the following:

Year	No. of Units	Installed Capacity (tons)	Actual Production (tons)
1949	5	13,500	6,300
1950	6	18,725	10,848
1951	—	21,174	14,724
1952	—	34,944	17,064
1953	12	38,112	22,536

Production of liquid chlorine, nevertheless, has recorded surplus for the past several years, due largely to the development of the electrolytic caustic soda industry. The demand for this product ranges from six to nine thousand tons. Ammonium sulphate is under the category of limited supply, although there are three factories manufacturing this product (including the largest Government-owned unit at Sindri). The present installed capacity of Ammonium Sulphate is roughly 420,000 tons a year against the current year's total demand of 675,000 tons. Actual production last year was only 319,120 tons. For Superphosphates, the installed capacity is placed at 225,000 tons and the demand at 100,000 tons. It is expected that by 1955-56, the demand would catch up with the installed capacity.

Although the chemical industry, on the whole, has made rapid strides of development in the post-Independence years, it still compares unfavourably with its counterpart in the UK. Thus, for example, the capital invested in the chemical industry in UK is equivalent to Rs 5,420 million, while that in India is only Rs 254 million; secondly, production of chemicals in the UK is worth Rs 6,940 million, while in our country it is Rs 270 million; thirdly, against a total number of 1,51,349 employees in England, there are only 34,800 in India; and production per employee, which is of the order of 45,800 in the UK, is nearly 6 times that in India.

Finally, it is important to remember that the imports of chemicals into the country have been considerable, despite the rise in internal production. This is because there has been a steady increase in demand which has not been met by internal production. Thus, in 1951-1952, the value of imports was the highest in the last three years touching nearly the fringe of a total sum of Rs 20 crores. During 1952-53 and 1953-54 it was of the order of Rs 12.68 crores per year. It would thus be seen that the need for making the chemical industry self-sufficient is insistent and in the general industrial expansion of the country envisaged in the Second Five-year Plan, it is only apposite that greater attention is paid to the chemical industry.

Dark Days For Black Diamonds

Judged by recent records of production and export, the coal mining industry gives the impression of vigorous effluence. Mr W. N. Baldock's speech at the Annual General meeting of the Indian Mining Association paints a totally different picture. The affairs of the industry are in a state far from healthy; many companies are working at a loss. The margin between costs and selling prices is getting steadily reduced. While statutory prices have gone down, costs have gone up. The impact of fiscal measures on mining companies is oppressive. Difficulties are placed before the Government from time to time; but invariably there is no response. The Coal Board, which itself, according to the Association Chairman is nothing more than a pale shadow of the National Coal Commission suggested by the 1946 Committee, has as its Chairman, an official who, by virtue of his being also the executive head of the State collieries, can scarcely be depended on for unbiased consideration of the private owners' problems. The latter are not permitted to participate in the Board's work, on a footing of equality with the official members. Needless fetters are thrown on the industry and are kept on in spite of repeated requests for removal. Vital technical improvements in operation are hindered by unimaginative State policies. Rail transport remains chronically inadequate. Above all, there is the constant threat of nationalisation.

Procrastination on the part of the Government is seen even in the matter of implementing relief on which decisions have been taken. Several months ago, the Board made an announcement of a ten per cent

increase in the level of assistance payable in respect of sand-stowing for conservation. The decision has not taken effect and no one knows when it will.

That, amidst these difficulties, the industry not only survives but records increasingly higher levels of output should occasion some surprise. Mr. Baldock has an explanation. He warns that observers should not be taken in by the 1954 output, which he implies is delusive. Perhaps, the analogy of the heroic individual who goes ahead, braving every possible danger, is appropriate in this case.

There is a transparent reasonableness in the demands voiced by the Chairman of the Indian Mining Association. He is agreeable to the retention of control on prices. As far as this industry is concerned price control seems to be a vital necessity. As long as there are sharp differences in the strength of individual companies, price control serves to protect the weak against unfriendly practices by the strong. As Indian coal is having a fairly stable export market, it might be ruinous to permit complete freedom in the matter of pricing. Happily, there is agreement on these points between the industry and the Government. We wonder if distribution control has an equally valid case; the industry has no doubt that it hasn't.

The present composition of the Coal Board certainly militates against considerations of fairness. In actual functioning, as the Association Chairman himself is willing to concede, there may not be very

much to complain of grave discrimination as between the public and the private sectors of this industry. But the potentiality of discrimination is strongly implied in the set-up. The reconstitution of the Board on the broad lines of a Commission as envisaged by the Expert Committee which went into the whole question in 1945, must now be taken up by the Union Government for active consideration. This key-industry should no longer be made to feel neglected and therefore sulky. If for any reason a radical overhaul of the Board were thought impracticable at present, at least it must have a Chairman who in appearance no less than in reality is impartial and is not inhibited by even the remotest sense of special obligation to any section of the industry. There is also force in the demand for equal representation for all interests in a body whose normal function is to discuss the problem of the industry as a whole.

The industry can draw great comfort from the fact that the Taxation Enquiry Commission have conceded most of its major demands. The Commission recognise that the mineral industry in India in general is yet in an undeveloped state and with a view to encouraging its future development, the Commission have treated it on a special basis for income-tax purposes. As per the Commission's recommendations, royalty, even where it is held to be an appropriation of profits, should be allowed to the extent of the amount which would be admissible if it were calculated as prescribed in the Mineral

Commission Rules 1949; abortive expenditure on exploration should be allowed as a revenue expenditure in the years in which such expenditure were incurred; all other expenditure, consisting of (a) capital acquisition expenditure, (b) productive exploration expenditure, (c) development expenditure and (d) at the option of the assessee, the cost of the buildings, plant or machinery used for exploration or mining purposes, should be allowed to be amortised on the same basis, except in the case of the last year of the working of the mine. These concessions are subject to some qualifications; but the latter do not substantially affect the benefits envisaged for the deserving.

But, although the recommendations of the Taxation Enquiry Commission hold out hope for mining industries generally of measures which might help in development and expansion programmes, the primary difficulty that the coal industry faces has not been touched, and therefore continues to be a troublesome and anxiety-provoking factor. It is true that certain tax concessions have been recommended; it is true that "abortive" expenditure on exploration is suggested to be permitted to be written off; but it is also, unfortunately, true that labour legislation hamstrings the operation of colliery companies.

The recent history of coal pricing and labour legislation is such as to have earned the doubtful honour for the coal industry of being the most controlled segment of the Indian

economy. While there can be no gainsaying the fact that coal mining both because it is a hazardous and difficult occupation, generally is high paid work, it would seem obvious that there should be some proportion between the higher wages or facilities or amenities that are statutorily fixed for labour and the price at which coal may be sold. There is no such proportion, as far as concerns coal. On the other hand, the disproportion has been sought to be increased over the past few years.

In the first place, the maze of labour legislation has become a labyrinth; and some measures do little of particular good for labour as such. A case in point is the requirement that pit head baths must be provided. The colliery industry has made it clearly known that the preference of the mine worker is to bathe in running water, as he has always traditionally done. The pit head baths, built at high cost, are largely empty. If, as Mr Nehru pointed out some time ago, it would be folly to dissipate resources on nationalisation of existing industries where such capital could profitably be utilised on fresh ventures, it is no less folly to fritter away such small capital that colliery companies might possess on amenities that are not being taken advantage of.

Another problem, peculiar to the coal industry, is that which concerns the migratory nature of its labour. With a view to assuring the industry of year-round availability of labour, a plan was drawn up to provide incentive to labour upon the basis of bonuses paid for regular attendance. The original plan was sound; the extra expense that management might have been put to would have been amply repaid by the certainty that absence in the working forces would be cut down. But that original plan never saw the light of day. For some reason, Government held that the bonuses should be paid quarterly—on the basis of attendance in that quarter. The result has been that the original purpose has been defeated; and a high rate of absenteeism continues the sorry experience of collieries.

While these may be said to be the particular problems of the coal industry, it is pertinent to make some observations on labour and industrial relations generally.

An undeniably long history of under-paid labour has been followed by the last quinquennium of speedy labour legislation. A spate of labour legislation has sought to do, in this country, in a brief span of five years what it took industrially advanced nations as long as half a century. Such quickening of labour legislation is not altogether to be welcomed. Labour legislation should surely be a dynamic process; it should not merely consist in the arbitrary prescription of minimum wages and the like. As important is the side by side education of labour—the education of labour such that it can understand that further improvements in the individual worker's standard of living can come about only from greater

productivity by the worker. Without such simultaneous education of labour, no increased production would result, but only added costs.

It is obvious that labour legislation should not be such as to endanger the very existence of an industry; labour legislation, it must be made clear, is a two-way measure: it enjoins management to give higher wages and to provide more amenities to its workers; at the same time, it must entail the co-operation of labour in increasing productivity in the larger national interests.

Another factor which makes industrial relations with labour even more complex is the insistence on demands. Labour 'demands' its rights and privileges. Surely, there is never the need for demanding a right or for insisting on a privilege. Rights and privileges have to be worked for, not struck for. Labour legislation which merely stresses the rights and privileges that management must provide for labour prevents the education of labour as regards its duties and responsibilities. It is understandable that Government should desire to 'de-exploit' labour. But it is doing labour no real good if it is not made clear that only the completion of duties and the acceptance of responsibilities can earn rights and privileges.

These are facts to reckon with in industrial relations; and these are facts which are, or which should be, of considerable interest and importance to the Government. The Government will undoubtedly figure more and more prominently as an employer of labour. So long as industrial disputes arose in the private sector, the scape-goat phrase that could be used was exploitation of labour. But, when Government themselves become the employer, can the national economy afford legislation of the variety that freely hands our rights and privileges? It is necessary to evolve a new policy towards labour such as can constructively improve industrial relations.

What must that new policy be? It is not that we should suddenly turn a deaf ear to the legitimate pleas for amelioration of labour conditions. It is important to remember that the key word in the next few years will be co-operation. Co-operation alone can enable the development and industrial progress that we wish for. Labour must work in harmony with management; management and labour must in concord strive for increasing production; and Government's attitude should be so fashioned that such a synthesis of effort is possible. Labour time, management money and Government energy must all be synchronised towards achieving industrial progress in India. Thereafter, each would earn its reward—of higher wages, of better profits, of greater production. If it is recognised on all sides that the key to tomorrow's India is co-operation, we should have little difficulty in doing away with the pinpricks that infest the industrial relations of today; and, therefore, we would be enabled to ensure the success of Indian endeavours for development.



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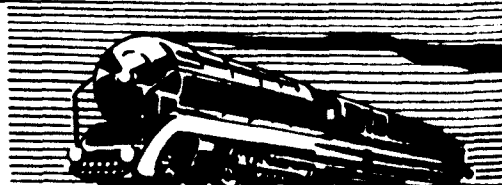
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The Cotton Textile Industry

IN the third week of March 1954, the Indian Cotton Textile Industry celebrated its Centenary. The speeches and felicitations made by spokesmen of the industry and of the Government, apart from serving as a necessary review for the achievements of the industry over the past one hundred years, contributed to a general understanding of the industry's current problems. The textile industry is one of the few which could claim the distinction of having achieved the final target of production of the first Five-year Plan, ahead of schedule. In 1953, production reached 5000 million yards.

This is the most creditable aspect of the industry in its latest phase of progress. But on the other side of the account, there are the chronic lack of demand for handloom goods, the controversies on the subject of handloom versus mill-production and the challenge to rationalisation from labour and the Government. The latter is interested in seeing that no step undertaken by the industry led to large-scale unemployment. Export trade has looked up and through the accentuated efforts towards export promotion, it is now possible to hope, that the measure of balance such exports are intended to secure will not be lacking for the industry in the years ahead. It is also pertinent to mention another circumstance which falls clearly on the debit side. Sir Homi Modi's speech as the President of the Textile Association on the occasion of the Centenary has drawn attention to this circumstance, and points out what it means and what it should not mean. "The spotlight has been turned on the misdeeds of a section of entrepreneurs. For be it from any of us to offer any excuses for malpractices, or to be blind to the harm they are causing to the whole structure of the industry. Such of the industrialists as recognise the obligations of honest and efficient management can have no truck whatsoever with those who are not ashamed to exploit the undertakings of which they have acquired control and something has got to be done to create conditions in which sharp practices are invariably dragged out into the open and it is made increasingly difficult for their perpetrators to escape the consequences. How this is to be done is a problem which industrial organisations have seriously to consider". There is one piece of legislation before Parliament, intended to deal with this problem.

Though the postwar situation has been extremely helpful for the expansion of Indian textile exports, it is a matter for no little pride that even Lancashire has now begun to view with misgivings the

impact of these exports into Britain on British textiles. The expansion of production and productive capacity to the stage at which it was possible to have a sufficiently large export surplus to make India one of the leading exporting countries is the most solid achievement of the industry. There is another obvious instance of an Indian industry which having enjoyed protection all through its life is still unable to meet the country's needs in full, let alone the prospect of a steady export surplus.

On the other side, the problems of the industry can scarcely be under-estimated. Domestically, it is in the throes of ideological controversies, of a far-reaching and to some extent disguised character. Externally the markets which are now open to it bear many uncertainties.

The Kanungo Committee which was entrusted with the task of reviewing the entire textile industry with a view to discover a basis for the healthy functioning of its two sectors, the mills and the handlooms reported in September. The Committee's major recommendations are (1) that the textile mills' production of cloth should be pegged to the current level of 5,000 million yards per annum. For this reason there should be no expansion in the weaving section for the next six years, and the ordinary looms should be replaced by automatic looms at the rate of five thousand per annum spread over the next twenty years, by which time about half of the existing looms could be thus replaced. (2) Cooperatively-owned spinning mills on the model of the Mill at Gundakal should be set up. Alongside there should also be integration of spinning mills with the handloom industry as far as possible on the lines of the Cauvery Spinning and Weaving Mill at Pudukkotta. (3) Irrespective of internal demand, exports should be maintained at a level of 1,000 million yards; and there should be greater concentration on fine and superfine fabrics for exports, as the profits on these are larger than on medium and coarse cloth. The Committee found that there was considerable scope for improvement in the technical organisation of the handloom and power-loom industries. In this sector, the Committee's main recommendation was that production should be doubled. This was to be achieved by converting the handloom either into semi-automatic looms or power-looms. The resulting loss of work for the weavers, according to the Committee should be made good through their absorption into agricultural and other industrial pursuits. In respect of marketing of handloom products, the Committee was rather diffident. The Com-

mittee was not quite in favour of differentiating, for purposes of export fabrics manufactured by the three sectors, mills hand-looms and power-looms. That Government or statutory action for the encouragement of exports of handloom products was necessary, was admitted.

Rationalisation continues to recur in public debate. The Working Party for the Textile Industry has reported that the percentage of machinery more than 25 years old was as high as 90 in Bombay. Out of the 450 mills, at least a third are unsound, as a result of the continued use of worn-out machinery. That a large number of mills were running at a loss was also to a large extent due to this fact.

The amount needed for the rehabilitation and replacement of machinery in the Mills is estimated to be between Rs. 300 and Rs. 350 crores, as against a total invested capital of no more than Rs. 100 crores. The Working Party has therefore suggested that rehabilitation and replacement should be spread over a period of 15 years and that, in any case substantial Government assistance for this purpose would be unavoidable. The supply of textile machinery also

presents difficulties, in spite of the fact that a number of leading items are being manufactured in India and their output is on the increase.

Towards the end of March, the Government turned down the request of some of the textile owners to introduce automatic looms; the ground for refusal was that such replacement would lead to retrenchment. Against one worker in two ordinary looms, there would only be one worker for twenty to thirty automatic looms. The Government policy on rationalisation is still in a fluid state. Only in Cawnpore has the experiment in rationalisation gone some way. This was possible because of an agreement brought about between labour and management through the intervention of the U.P. Labour Minister.

According to the East India Cotton Association Receipts of cotton into Bombay during 1953-54 by rail and sea were 1,889,243 bales compared with 1,812,748 bales during 1952-53 against which, receipts of Indian cotton were 1,164,869 bales during 1952-53. Receipts by road mostly from Khandesh, Madhya Pradesh and Coompta-Dharwar areas according to voluntary returns received from its members were 72,133 bales

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during the year as against 24,240 bales last year. Receipts of Indian cotton exceeded last year's by more than a lakh of bales. Increased receipts were particularly in respect of Vijay and Coomptadharwar varieties and may be attributed to increased consumption by mills. Out of the total receipts of 1,880,243 bales 385,303 bales were transported by rail for consumption at upcountry centres as against 446,304 bales last year.

The total imports of foreign cotton into Bombay during the last two years were as follows:—

(In bales of 392 lbs. net)		
	1953-54.	1952-53.
Sudan	32,375	86,883
Egyptians	2,26,375	2,21,627
East Africans	1,69,352	2,66,257
Americans (including Peruvians and Brazilians)	1,67,015	73,007
Pakistan		
Other Countries: (Burma, Syria, Afghanistan, etc.)		107
Total	5,95,117	6,47,879

Licenses for the import of foreign cotton aggregating to 102,001 bales of 400 lbs each were issued from the first of September to the 20th November 1954. The breakup figures are 42,968 bales Egyptians, 22,832 bales East Africans, 9,481 bales, Sudans 22,921 bales USA and 3,799 bales of other Sterling area cottons mainly Peruvians. Arrivals of foreign cotton from the com-

mencement of this season till the 20th November were 73,590 bales including 36,517 bales East Africans 17,827 bales Egyptians and 14,561 bales USA cottons.

Exports of Raw cotton from Bombay totalled 2,96,992 bales out of which 1,25,667 bales were shipped to foreign ports and 1,71,325 bales to Indian ports. Corresponding figures for the previous year were 470,045 bales 327,213 bales and 142,832 bales respectively.

Mills in Bombay consumed in 1953-54 12,44,676 bales of cotton of which Indian cotton accounted for 9,86,148 bales. The comparative figures for the previous year are 12,35,416 bales and 929,187 bales respectively. Consumption of cotton by all-India mills during 1953-54 amounted to 46,07,821 bales of which 38,88,747 bales were of Indian cotton. The comparative figures for the previous year are 44,50,416 bales and 36,11,630 bales respectively. Stocks of cotton in Bombay at the end of the year were 6,14,943 bales as against 5,04,216 bales last year. This included the stock of 2,09,875 and 2,53,152 bales respectively held by mills.

The all-India Second estimate of cotton for 1954-55 puts the current year's acreage at 14,080,000 acres, as against 13,102,000 acres of the adjusted second estimate of 1953-54. This shows an increase of 978,000 acres or 7.5 per cent in area

Details according to trade descriptions of the current and previous year's estimate are given below:—

Trade Descriptions.	1954-55 Second Estimate	1953-54 Second Estimate Adjusted
Bengals	808	851
Americans	1,754	1,643
Sarilla (including Warran)	2,074	2,175
Vernum	754	405
H-420	394	273
Oomras	2,568	2,074
Hyderabad Gaorani	1,184	1,107
Malvi	898	1,261
Broach-Vijay	957	825
Surti-Suyog	525	476
Dholeras	1,391	1,238
Southerns	685	716
Comilas	58	58

According to staple lengths. Long staple 3,816,000 acres as against 3,597,000 acres last year:

VARIETYWISE BREAK-UP OF ACTUAL EXPORT FOR 1954						
	(Figures in million yards)					
	Coarse	Medium	Fine	S. Fine	Total	
January	25.2	45.7	7.5	1.1	80.5	
February	20.2	52.1	9.9	1.9	84.1	
March	16.3	43.7	6.5	1.7	68.2	
April	16.5	43.1	7.9	2.0	69.5	
May	14.3	38.4	5.3	2.2	60.2	
June	7.3	45.8	7.8	1.9	62.8	
July	20.8	71.9	6.5	3.4	102.6	
August	10.2	37.0	3.1	2.0	52.3	
September	15.3	61.5	4.9	1.6	83.2	
October	14.3	65.0	4.8	1.2	85.4	
Grand Total	160.4	505.2	64.2	19.0	748.8	
November (Passed for shipment)	13.9	55.4	4.6	1.4	75.3	

Medium: 6,393,000 acres as against 6,143,000 last year. Short Staples: 3,871,000 acres as against 3,362,000 last year.

The increase in acreage during the current year has been mainly reported by Madhya Pradesh, Hyderabad, Bombay and Saurashtra and has been attributed to favourable weather conditions at sowing time and to efforts made under the cotton extension scheme during the current year. The high prices of cotton at the time of sowing also contributed towards the increase in area in some States, especially in the case of Madhya Pradesh. Mysore has however reported a slight decrease in acreage. As between the different varieties of cotton the increase in area has occurred mostly in Oomras, Venum Dholera, Broach-Vijay and Americans.

THE FUTURE OF ELECTRICITY

In India, before the first Five-Year Plan was put into operation, the generating capacity totalled 1.7 million kws. Nearly two-thirds of the existing public utilities were thermal stations, the biggest of which was the Calcutta Electric Supply, with a capacity of 4.67 lakhs kws. The total capacity of all the thermal stations put together was 9.5 lakhs kws, out of an aggregate capacity of 1.7 million kws. for the whole country, including thermal, hydro and diesel generation. The hydro-electric stations accounted for 5.48 lakhs kws. In all, the biggest among which was the Tata Hydro-Electric Agencies with a capacity of 2.44 lakhs kws. Several of the important hydro-generating stations were built up in the early years of this century. One of the first hydro-electric stations was in Mysore, which derived its generating power from the Sivasamudram Falls. The Tata Hydro-Electric Agencies, with a capacity of 2.44 lakhs kws, was erected in 1915. Several important hydro-electric generating units were constructed in the thirties in Madras, Travancore-Cochin and the U.P.

If we look at the pre-Plan power resources, province-wise, we find that Bihar had two stations accounting for 31,000 kws., Bombay, three stations, with a capacity of 3.81 lakhs kws., Madhya Pradesh, one station, with capacity of 9,000 kws., Madras, four stations, with a capacity of 1.54 lakhs kws., Punjab, one station, with a capacity of 48,000 kws., Uttar Pradesh, four stations, with 1.39 lakhs kws. capacity; West Bengal, three stations, with 5.36 lakhs kws. capacity; Hyderabad, one station, with 22,000 kws. capacity; and Travancore-Cochin with a capacity of 28,000 kws.

The uneven distribution of power generating equipment in the several provinces was responsible for the uneven per capita consumption of power. Thus, Bombay had a kw. consumption of 44.8 per head per annum, while West Bengal had 42.2, Mysore 48.8, Madras 11.3, Bihar, Madhya Pradesh, Orissa, Hyderabad, Madhya Bharat, Rajasthan and Pepsu less than 4. The two cities of Bombay and Calcutta alone consumed about 40 per cent of the total electricity generated in India. About 3 per cent of the country's population in six large towns got the benefit out of 57 per cent of the total public utility installation.

While all the towns with a population of 50,000 and over and most of those with a population of about 20,000 were supplied with electricity, rural electricity made very little progress in the pre-Plan years. Out of approximately 5.6 lakhs villages in the country, only about 3,000, or one out of 200, were served with electricity. It was only in the provinces of Mysore, Madras and U.P., where large hydro-electric stations had been put up and power

made available at a low cost that at least some of the villages got the benefit out of electricity. It may be said that, barring nearly 140 towns and cities in India, each with a population exceeding 50,000, the rest of the country had to manage, willy-nilly, with the oil lamp.

Besides the 1.7 million kws. capacity installed by public and private generating concerns, we had in the pre-Plan years, about 0.6 million kw. installed capacity owned and operated by industrial units for their requirements. The following table gives the particulars as on 31-12-50:—

Industry	Installed Kw.	Hours generated in the plant	Industry capacity millions
Cement (Primary)	76,830	235,513	
Cement (Secondary)	3,256	12,623	
Collieries	61,447	266,846	
Jute	49,904	312,029	
Iron and Steel	184,070	445,156	
Iron and Steel (Secondary)	1,056	102,968	
Paper	45,215	186,278	
Soap		10,204	
Sugar	19,570	42,884	
Tanneries	448	1,629	
Cotton Textiles	97,360	1,053,677	
Silk	96	2,690	
Wool	3,308	30,107	
Aluminium (Primary)	16,482	108,390	
Aluminium (Secondary)		4,044	
Copper (Primary)	9,875	35,011	
Copper (Secondary)		2,835	
Fertilizers		29,507	
Chemicals	15,232	54,512	
Gold	3,700	101,967	
Total	587,849	3,088,970	

We will now turn to what has been achieved under the Plan.

The installed capacity, under all public utilities, both government-owned and company-owned, as on 1st January 1954 is estimated at 23.05 lakhs kws. There was a progressive increase in this figure between the period 1-1-51 to 1-1-54. On 1-1-51 the capacity was 17.12 lakhs kws., on 1-1-52 it was 18.46 lakhs kws., on 1-1-53, 20.61 lakhs kws., and on 1-1-54 23.05 lakhs kws. The total of 23.05 lakhs kws. was composed of 10.86 lakhs kws. state-owned (public sector) and 12.19 lakhs kws. company-owned (private sector). The aggregate was made up of 13.93 lakhs kws. steam generated, 7.31 lakhs kws. hydro-generated and 1.8 lakhs kws. diesel generated. The total was also made up, province-wise, of 5.47 lakhs kws. in West Bengal, 5.11 lakhs kws. in Bombay, 2.16 lakhs kws. in Madras, 2.11 lakhs kws. in Uttar Pradesh and 1.79 lakhs kws. in Mysore, among others.

The total expenditure on the electricity projects for the four years 1951-52 to 1954-55 aggregated Rs 109.27 crores against Rs 147.13 crores in the revised total for all the five years.

Most of the development in electric generation under the Five-Year purpose projects, Table I (see next page) gives the expenditure on these projects.

The additional installed capacity under the projects in several States is indicated in Table II.

In the private sector the major undertakings will have about the plan period and 1,70,000 kws. 1,20,000 kws. generating capacity in after completion. The Ahmedabad Electricity Co. will be adding 60,000 kws. and the Tata Power Co. 22,000 kws., excluding 50,000 kws. at Trombay. The Calcutta Electric Supply Corporation commissioned 30,000 kws. of capacity in 1951-52. Up-to-date, the private sector has commissioned about 86,000 kws. of generating plant in addition to the 20,000 kws. at Delhi by the Delhi State Electricity Board. The Central Railway have added 24,000 kws. of thermal power at the Kalyan Steam Power Station and expect to add a further 18,000 kws. by 1955-56.

Taking the States individually, the Andhra State has two major projects in its plan, the Machkund Hydro-Electric Project, which is a purely power project and the Tungabhadra Project, which is an irrigation-cum-power project. The Machkund Power House is expected to be commissioned in June 1955, while the

Tungabhadra generating units are expected to be in service early in 1957. On these two projects, the expenditure in 1951-54 was Rs. 10.96 crores out of a provision of Rs. 20.41 crores. In Bihar, the most important development is the electrical side of the Damodar Valley Project. Most of the generating capacity of this Valley belongs to industrial undertakings and was over 2 lakhs kws. With the commissioning of the Bokaro Steam Power Station, of 1,50,000 kws. public utilities have now about an equal amount of generating capacity in the Damodar Valley.

In Bombay, a capacity addition of 15,000 kws. has been made in the South Gujarat Grid scheme and the Bombay Government's steam power station at Chola is expected to be commissioned in 1954. The North Gujarat Electric Grid scheme and electrification of villages and towns under nursery scheme and electrification of villages and towns under nursery scheme have made good progress. In Madhya Pradesh, 51,000 kws. of plant has been installed against a target of 73,000 kws., involving an expenditure of Rs. 3.61 crores against an allotment of Rs. 6.00 crores. In Madras, the Moyal Hydro-Electric Scheme and the Papanasam scheme, second stage extension, along with the first stage, of the Madras scheme have been



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completed, the three together giving 68,000 kws. of additional power. The expenditure up-to-date has been Rs. 14.46 crores against a total allotment of Rs. 26.64 crores. In Orissa, the Hirakud Project is expected to generate power in 1956-57. The completion of the transmission schemes is being synchronised with the main project 1.23,000 kws. of installed capacity in the first stage of the Hirakud Project will be utilised in the Orissa State. The progress of expenditure has been Rs. 1.90 crores out of a provision of Rs. 3.91 crores excluding the Hirakud Project. In Uttar Pradesh, a number of medium-sized hydro schemes are under way. A number of thermal stations are also being set up in the eastern districts of U.P. and also at Manipuri in Agra for supplying power, a sum of Rs. 10.15 crores has been spent against an allotment of Rs. 14.11 crores. In West Bengal, besides the D.V.C., the other important project is Mayurakshi Project under which 4,000 kws. of power will be generated.

About 4,50,000 kws. of new power have been generated under the different projects upto the end of 1953-54. Out of this about 1,50,000 kws. is by the D.V.C. Although there might be some time-lag, this power is expected to be absorbed in the valley which covers a rich industrial region. In the U.P. the bulk of the capacity addition will be available by 1955. In Madhya Pradesh about 51,000 kws. have been added, most of which has been sold except the capacity that has been

reserved for the newsprint factory at NEPA. Andhra, Mysore, Madras, Travancore-Cochin and the Bombay areas account for about 2 lakhs kws. out of remaining 2,50,000 kws. These are power-hungry areas where power will be absorbed by normal growth in existing demands, or has booked against firm load commitments, and, in the case of Mysore, for industries like the Machine Tools Factory and Bharat Electronics, Hindusthan Air Craft, Textile Mills and Paper Mills and the Pig Iron Furnace at Bhadravate. In most of the major power systems the additional power is being fed into the existing grid and there is a set of tariffs covering the electricity rates in such power systems. New power is, consequently, sold at the same rates as the old power from such systems. Regarding the D.V.C., a set of tariffs has been drawn up which is far more favourable than that previously adopted by the small licencees. By and large, the tariff imposed by the new power schemes is not unreasonable.

Rural electrification, though it has made some progress, yet lags behind. It is confined mainly to lift irrigation from wells and canals and small cottage industries, such as, local processing of village produce. In Madras over 2,500 villages had been electrified by 1953; in Mysore nearly 700 villages had been electrified by the middle of 1954; and in Travancore-Cochin the target is to electrify 800 villages by the end of the Plan.

States	Installed Capacity (Additional) '000 KW.			
	1951-54 Plan	1951-54 Achievement	1954-55 Anti-cipated	Five Years (Target)
Bhakra Nangal	48	154	96	144
Damodar Valley Project	154	154	154	274
Hirakud	18	18	18	123
Additional provision for revised estimates	..	..	..	..
Net Projects	..	..	..	..
Total	202	154	250	541

Part 'A' States	Installed Capacity (Additional) '000 KW.			
	1951-54 Plan	1951-54 Achievement	1954-55 Anti-cipated	Five Years (Target)
Andhra	..	52	14	67
Assam	..	..	..	5
Bihar	..	5	5	11
Bombay	..	67	22	83
Madhya Pradesh	..	73	51	73
Madras	..	111	68	111
Orissa	..	7	5	8
Punjab	..	..	..	..
Uttar Pradesh	..	29	14	109
West Bengal	..	..	16	4
Total Part 'A' States	..	344	179	471

Part 'B' States	Installed Capacity (Additional) '000 KW.			
	1951-54 Plan	1951-54 Achievement	1954-55 Anti-cipated	Five Years (Target)
Hyderabad	..	53	15	53
Jammu and Kashmir	..	..	6	7
Madhya Bharat	..	14	4	15
Mysore	..	72	72	72
PEPSU	..	..	..	..
Rajasthan	..	11	12	72
Travancore-Cochin	..	73	9	81
Total Part 'B' States	..	226	97	275

Part 'C' States	Installed Capacity (Additional) '000 KW.			
	1951-54 Plan	1951-54 Achievement	1954-55 Anti-cipated	Five Years (Target)
Bhopal	..	3	3	5
Coorg	..	..	..	..
Kutch	..	..	..	..
Tripura	..	..	..	..
Vindhya Pradesh	..	..	..	3
Himachal Pradesh	..	..	..	1
Manipur	..	..	..	..
Total Part 'C' States	..	3	3	9

JUTE AND JUTE MANUFACTURES

THE Jute Industry holds a unique position in the Indian economy and is an important factor in the well-being of the country. The fortune of this industry has undergone a complete metamorphosis ever since the partition of the country. The industry is out and out an export industry. As such, it derives its prosperity only from a continuous flow of orders from abroad. During the last war, such orders greatly dwindled down due to the incidence of various circumstances. With the cessation of the war, the industry had once again to turn to its foreign customers for absorption of its production. It was found that the war brought about a vast change in our overseas markets. When the partition came, acute shortage of raw materials distressed the industry too much, and the simultaneous supply of raw material by Pakistan to industry's rivals on the Continent enabled them to consolidate their position. Later on, however, expansion of domestic cultivation of jute and easier availability of it under the various Indo-Pakistani trade pacts relieved the industry of its headache on the score of raw material; but newer developments happened to render its position extremely perilous in the overseas markets.

The scarcity of the war-years brought into use a number of substitutes for jute bags as packaging material and created the institution of bulk-handling in various commodities. This competition from substitutes and bulk-handling gained ground. Further, the growth of competitive units in the Continent and elsewhere also cut into the markets of the Indian Jute Industry. Locally, the partition of India, the loss of the raw material source from Pakistan and the heavy export duties on jute goods handicapped the Indian industry. Pakistan's discriminatory duty on raw jute exports to India for a period helped the foreign units in regard to cost. The boom helped the foreign units to modernise themselves at a rapid rate and gain better productive efficiency. As the mill consumption of raw jute is on an average 55 lakh bales a year, till such time the Indian crop could be increased sizeably, there was acute dependence on Pakistan which naturally sought to exploit a situation which afforded opportunities for realising the maximum prices for the golden fibre. As the food situation also was difficult, the Indian Government felt unable to lift or liberalise the price control measures affecting both jute and jute manufactures for some years. Thus, large sums in foreign exchange were lost as there could be no restrictions on the sale of gunnies once they left the Indian shores. Besides, great harm was caused to the industry as the heavy export duties acted as a subsidy to the

Continental mills which, in the absence of similar restrictions, were enabled to make larger profits. The increasing burden of export duty is visible in the following table:

CHANGES IN EXPORT DUTIES.

Period.	Hessian Sacking	
	Rs.	Rs.
Pre-War	32	20
November, 1946	80	50
September, 1949	350	Unchanged
October, 1950	750	Unchanged
November, 1950	1,500	150
March, 1951	Unchanged	350
February, 1952	750	Unchanged
May, 1952	275	175
February, 1953	120	80

As a short-term answer to the competition from the Continental mills, the successive reductions in duties on hessians and sackings were greeted as a more or less adequate and opportune decision. But, the reduced level of duty was regarded to be still too high in the context of the rapidly strengthening rivalry of Pakistan's young and up-to-date jute mills. While not under-rating the value of the export duty cuts, manufacturers regretted that it was not found possible to abolish the export duties altogether. Conditions, however, changed very much for the better since September 1953 when the export duties were reduced to to present levels; and the industry's overall exports have been creditable during 1953-54. The figures reveal a new trend in the pattern of the export trade. The following table gives the commodity-wise exports during the past three years with values:—

QUANTITY IN TONS.

Item.	1951-52, 1952-53, 1953-54.		
	Rs.	Rs.	Rs.
Hessian Bags	28,168	12,616	17,253
Hessian Cloth	2,49,661	3,11,506	3,70,908
Sacking Bags	4,66,716	3,00,623	3,71,066
Sacking Cloth	10,666	7,816	10,902
Rope and Twine	5,199	6,680	6,850
Twist and Yarn	1,478	1,247	5,083
Bagging for Raw Cotton	32,735	22,443	23,915
Canvas	369	434	649
Carpets	25	83	570
Others	..	3,119	3,828
Total	7,95,017	6,75,570	8,11,014

VALUE (IN CRORES OF RUPEES).

Item.	1951-52, 1952-53, 1953-54.		
	Rs.	Rs.	Rs.
Hessian Bags	12.55	2.66	3.26
Hessian Cloth	95.18	60.19	66.42
Sacking Bags	121.12	41.19	42.30
Sacking Cloth	3.15	1.11	1.39
Rope and Twine	1.15	0.91	0.68
Twist and Yarn	0.59	0.24	1.01
Bagging for Raw Cotton	..	2.32	1.72
Canvas	0.22	0.22	0.16
Carpets	0.01	0.03	0.15
Others	..	8.63	0.87
Total	240.22	109.50	117.96

JUTEGOODS

A survey of the prospects, facing the industry at the start of 1954, provided ground for enough confidence that the outlook would remain considerably better than the bleak cheerless conditions that prevailed in 1953. The improvement was the result of variety of influences. Reduction in export duties, greater availability of raw material, the Indo-Pakistani agreement which helped the flow of Pakistani jute to Indian mills, the despatch of Delegations to study the requirements of other countries, the switching-over of looms from sacking to hessian production, a satisfactory level of US burlap consumption, Argentine purchases and some degree of progress in modernisation of plant and machinery—all these factors contributed to bringing about a reasonably satisfactory situation during the first quarter of the year.

The transfer of looms from sacking to hessian production rendered Indian jute goods cheaper in the American market, resulting in the Continental mills being priced out. When a squeeze in hessian supply was perceived at the beginning of the year, USA entered the market and staged veritable scramble for jute goods. The market, however, developed sudden weakness in March

due to some fear about a resurgence of Continental competition following the sharp fall in the price of Pakistani jute which, it was felt, would help to offset, to some extent, the advantage the Indian mills secured as a result of the reduction in export duty on hessian in September, 1953. Another reason for the general weakness of the market was the end of the fear of a shortage of raw jute as it was believed at one time that the shortage would be acute. The lack of overseas enquiry also aggravated the downward trend in prices.

The market took a turn for the better from April when the Argentine showed a revival of interest in hessians. It was believed that their requirements would be heavy as the crop prospects were bright over there. The position also with regard to sackings was a very healthy one due to larger offtake by some of the consuming countries of the world which went short of these classes of goods. As a matter of fact, mills were even compelled to switch-over again from hessian to sacking production due to renewed demand in view of shortage of certain classes of goods. The other factor, which gave a bullish trend to this section, was the announce-

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ment, made in mid-June, of decontrol of jute goods in Australia where controls in respect of distribution and sales were to end from January 1955 for Woolpacks and from February 1955 for Cornsacks. Thus, the statistical position of both hessian and sacking goods remained very strong in the second quarter of the year; and this was reflected in a steady rise in prices.

The decision of the IJMA to increase the working hours from 42½ to 48 hours per week with effect from the 12th July was generally welcomed by market circles and the need for larger output was keenly felt due to the substantial improvement in foreign demand. Also, it was felt that the mills would not find any difficulty in disposing of their stocks in view of the encouraging picture of the production and export trends in the 1953-54 jute season. But, in contrary to expectations, the market turned weak due to renewed selling pressure following the news of the "cease-fire"

in Indo-China, reports of difficulties experienced in receiving import licences from the Argentine and the Government suggestion to raise further the working hours from 45 to 48 hours per week. It was generally felt that any decision to increase further the working hours should be preceded by reduction or total abolition of the export duties to render the mills a competitive position in foreign markets.

Conditions turned a shade quieter in October when there was comparative quietness in sacking goods due to lack of business in view of poor shipments and the reports that several steamers carrying these classes of goods, scheduled to leave in October, were delayed for November. As a result, prices yielded ground towards the close on bear pressure. Moreover, there were conflicting ideas about the raw jute supply position, as some sections felt that supplies of the golden fibre in the coming year might become so short as to make

it impossible for the mills to work the 48-hour week successfully. In November, there was a revival of activity in the sacking goods section in anticipation of big orders from China. Sellers became reserved as their fears, entertained in October, with regard to the possibility of accumulation of stocks due to the cancellation of shipments, were dispelled in expectation of heavy buying by China. Moreover, business done with Australia and West Africa, the announcement by the UK Jute Control of the increase in the selling prices of both raw jute and imported Hessians, rumours of Burma inviting tenders—all these factors imparted strength to the market. Reports of record shipments in November and fresh enquiries from Thailand also contributed to the continued strength of the market. Despite the lack of business, prices of Hessians remained high due to a shortage of stocks for which premium prices were even paid for

ready delivery. Stocks were also showing a steady decline as a result of scattered business taking place and the buying interest shown in forward positions, resulting in only a small gap between ready and forward rates. Activity at the end of the year was rather restricted, being confined to bazar operators. Overseas buyers were reluctant to enter into any commitments due to the instability in prices. The market finished the year on a firm note. At this stage, it will be of interest to analyse the stock, production and export trends (figures in tons):—

STOCKS.			
1954: End Of	Hessian Sacking	Total*	
January	21,300 72,700	94,000	
February	21,900 71,900	93,800	
March	29,600 31,400	61,000	
April	32,500 37,500	70,000	
May	34,900 50,000	84,900	
June	36,100 49,200	85,300	
July	35,000 44,300	79,300	
August	32,300 38,800	71,100	
September	28,700 39,000	67,700	
October	22,900 44,700	67,600	
November	27,000 40,800	67,800	
December	23,500 45,100	68,600	

PRODUCTION.			
January	31,600 33,300	64,900	
February	31,900 34,000	65,900	
March	34,500 38,100	72,600	
April	31,800 40,500	72,300	
May	29,300 39,400	68,700	
June	29,800 42,100	71,900	
July	29,300 45,500	74,800	
August	31,700 43,800	75,500	
September	32,600 43,700	76,300	
October	31,100 41,500	72,600	
November	35,800 49,800	85,600	
December	36,300 54,400	90,700	

Total for 1954	388,900	508,100	927,700
Total for 1953	388,900	450,500	869,200

TOTAL EXPORTS INCLUDING INTERNAL CONSUMPTION.

January	34,100 32,700	66,800	
February	31,000 35,300	66,300	
March	28,400 49,800	78,200	
April	29,200 44,700	73,900	
May	28,600 47,600	76,200	
June to October	189,600 222,600	412,200	
November	33,000 54,300	87,300	
December	39,900 49,600	89,500	

Total for 1954	389,800	536,500	950,000
Total for 1953	402,800	457,500	864,000

*Includes also Other Varieties.

It will be seen that production in 1954 is substantially higher than that of the previous year. This is mainly due to the increase in working hours of the mills from 42½ hours to 48 hours per week with effect from the 12th July and again to 48 hours per week with effect from the 18th October. It is significant that, out of the total increase in production from 869,200 tons to 927,700 tons, the rise in the production of Sackings has been more pronounced than in Hessians as a result of the switch-over from hessian to sacking production following increasing demand for these goods throughout the year. Figures relating to despatches from mills show that consumption (both internal and export) has not only been substantially higher than in the previous year, but has also outrun production. Thus, there was a welcome adjustment between demand and production during the year under review and the industry did not find itself in an over-stocked position in any classes of goods. Stocks with the mills, despite increased production during the year, were only at 68,700 tons as against

98,600 tons at the end of 1953. As a matter of fact, stocks with the mills were lower than even a month's production.

Raw Jute:

Weather played an important role in keeping the movements of prices of Raw Jute during the first quarter of 1954. When weather conditions in the jute-growing areas, both in India and Pakistan, were reported to be quite satisfactory till the end of April, there was a tendency on the part of the stock-holders to push up prices. When mills showed good interest in their purchases due to the rising trend in the manufactured goods section, sellers were also found to be reserved in their ideas of prices. Thus, the total business done till the end of April was on a small scale.

The market ruled rather quiet during May and June when prices developed an easier tendency on reports that the jute-growing areas had been experiencing favourable weather conditions and sowings were in progress. Mills were confident that supplies would be adequate even if the working hours were increased to 48 hours per week. They were not generally inclined to take the threat seriously with regard to the orders issued by the Pakistan authorities to destroy that part of the crop which exceeded the official target of 4.2 million bales. Though

the market ruled firm in August and sellers were found to be reluctant to reduce their prices on reports of floods in the jute-growing areas, both in India and Pakistan, it was believed that the standing crops were sufficiently well-grown to withstand the floods. There was, however, a reversal in the trend of prices from September onward due to reports of further floods, which naturally complicated things. But for the floods, there would have been no break in jute mills obtaining their raw materials. The declining stocks of raw jute started causing concern to the mills who were compelled to make their purchases at slightly higher rates in order to meet their immediate requirements.

In October, prices continued to rule firm following the Government's announcement of a considerable reduction in the crop output due to floods. It was becoming clear that the effects of the floods were likely to be felt in quality rather than quantity. But mills were making only sporadic purchases to meet their immediate requirements. They felt that, with substantial carry-overs from the last season in both India and Pakistan, supplies would be adequate; but an artificial shortage was created due to the cultivators not marketing their production, resulting in small-

ler imports into mofussil and up-country centres. In November, an important factor cropped up relating to the short crop in Pakistan. The official crop placed the outturn for 1954-55 at 27.08 lakh bales. While production of Indian crop was calculated at about 28.25 lakh bales—about 3 lakh bales less than the previous year's figure. These caused a firmer tendency in the prices of jute not only in Pakistan, but also in India. Sellers were found to be reserved even at the end of the year, while growers were also holding on to their stocks and releasing them only in small lots with the object of getting higher prices. There were also reports that the cancellation of trading licences had affected exports of Pakistani jute to India. Mills were, however, watching developments following the subsequent news with regard to the Pakistan Government's decision to revalidate certain licences cancelled by them. The market finished the year on a firm note.

On the whole, the jute industry deserves the credit for its determined effort to adjust itself to changed conditions and meet the challenge of adverse circumstances. The setback in the demand for Sacking goods, in the early part of the year, was a cause of great concern and a positive source of loss to the mills. But, when mills decided to tune up the respective production

of hessian and sacking goods according to demand, the resultant achievement had its ample reflection on the overall production figures for the year. Thus, the process of switch-over of looms from sacking to hessian and vice versa reached a point of adjustment.

Of course, mills' prospects in the current year depend on two things: a reduction in the price of raw jute or a rise in the prices of finished goods due to increased buying from abroad. Some sections fear that supplies of the golden fibre may become so short as to make it impossible for the mills to work on a 48-hour basis successfully. Dearer raw jute will, no doubt, be out of line with the prices now being obtained by the mills for their manufactured goods, and there is no reason to think that overseas importers will be willing to take their jute goods at rates much above those now ruling. But the rise in raw jute prices can only be temporary, because a firmer market now makes it all the more certain that the next crop will be a big one. It was already expected that sowings will be extensive in the coming season, because food crops have fallen in value and jute is by far the most attractive proposition to the cultivator. If sowings are as big as expected, new crop jute will soon be offered forward at a substantial discount

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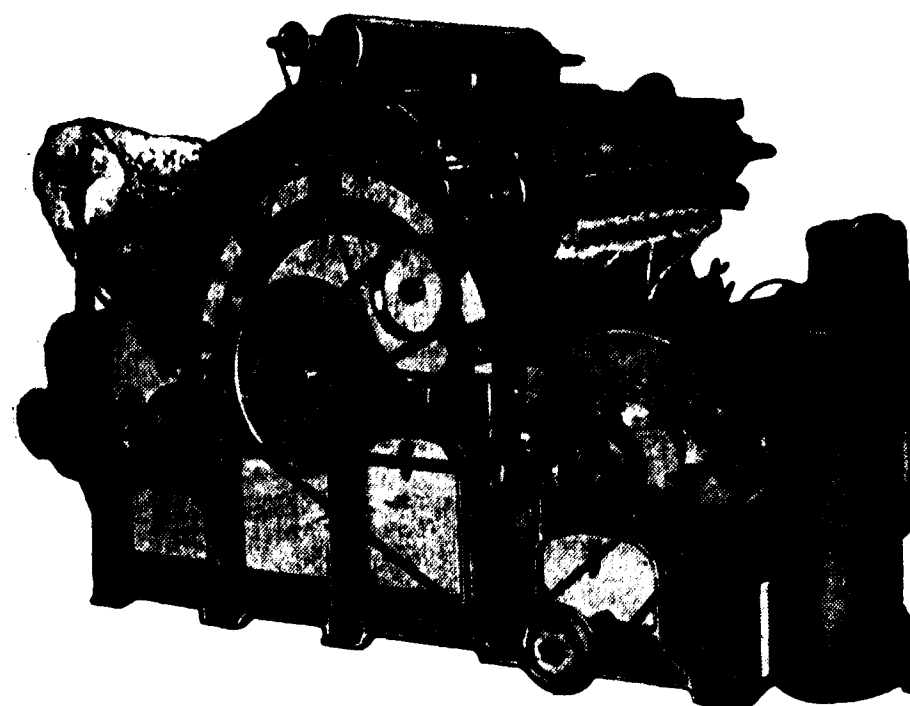
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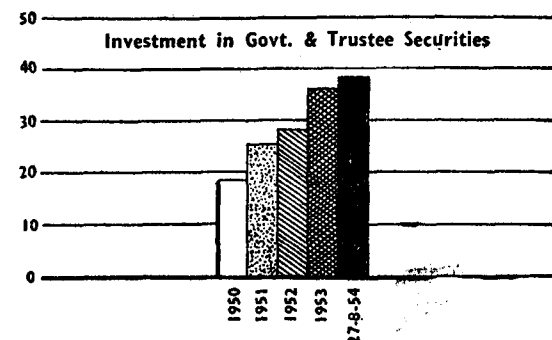
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HOW BANK SAVINGS HELP THE FIVE YEAR PLAN



The deposits of the Punjab National Bank stood at Rs. 44 crores on January 1, 1951. By June 30, 1954 they exceeded Rs. 70 crores—an increase of Rs. 26 crores or 59%. This increase reflects the growing confidence of the public in the Bank and the spread of the banking habit to all communities.

It is interesting to note how this increase in Deposits has helped the Five Year Plan, upon which depends the future prosperity of the country. The Bank's investments in Government Securities, which stood at Rs. 19 crores in January, 1951, increased by 95%, i. e. to Rs. 37 crores by August 27, 1954. This shows how a very large portion of the savings of the nation entrusted to us have been placed at the disposal of the Government through investment in national loans to aid the Five Year Plan.

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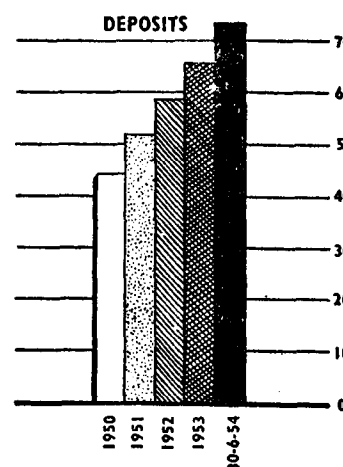
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MINING

Marble is to be found as "layers" extending in some instances for miles and at others for short distances only; sometimes just below the surface and, at others, reaching deep down into the bowels of the earth constituting the Quarry and necessitating deep excavation to be carried out before the layer is uncovered and free to be sawn to conveniently sized blocks for removal. These layers may be of one colour and variety or they may consist of strata of various kinds differing in colour and texture. Each stratum has to be worked in turn to meet the commercial demand for any particular type of marble.

Correct mining of marble is an art in itself as there are numerous technical points to be observed, such as deciding how the block is to be cut with a view to maintaining uniformity and correlation of the veining to enhance the value of the blocks. This work can only be successfully carried out by those specially trained and under the supervision of experts with years of experience to their credit.

Marble layers are often to be found at places geographically far apart, necessitating the operation of more than one quarry to meet in full the commercial demands for marble of the difficult colours and varieties. This does not present any serious difficulty, as preliminary investigations have revealed that Railway Stations capable of booking blocks are situated within easy reach of the known marble quarries. The most that the Railway may be called upon to do is to provide the necessary cranes to facilitate loading both at Booking Stations and at Terminal Stations at which transshipment may have to be done from narrow to a broad gauge or vice versa. It can be safely assumed that normally cranes are available at Terminal Stations.

SAWING FRAME FACTORY

A Sawing Frame Factory is equipped with special machinery for the sawing of large blocks into slabs of different uniform thickness. Such a factory should be of such a capacity as to serve a group of quarries and be established, if possible, adjacent to the Marble Processing Factory. This arrangement would be beneficial in many ways. It would reduce the initial cost of providing such a factory, for one thing, by using a wing of the Processing Factory itself; next, it would eliminate all possibility of breakage en route by Rail from Quarry to Processing Factory, which has been so serious in the case of the transport of slabs, and so, no provision in the sale price would be necessary to cover the cost of breakage. It would, further, wipe out the cost of the movement from the Sawing Frame Factory to the Processing Factory, thus enabling the marble to be offered at a lower cost. No Sawing Frame Factory equipped with modern machinery exists in India today. Blocks are sawn into slabs by hand or by very old type of machine and, due to this, the surface is so

uneven and undulating that the cost of processing is multiplied manifoldly, making the price to the actual consumer very costly.

PROCESSING

If possible, the joint Sawing Frame and Processing Factory should be situated within easy reach of a Railway siding at which and from which the blocks can be collected.

In the Processing Factory, the slabs received in a rough and unfinished condition from the Sawing Frame Factory are cut to required sizes, moulded, shaped, sculptured and polished ready for fixing at site.

GENERAL

Marble today costs more than other building materials chiefly because of the long distances from which it has to be imported and the risk of breakage and import duty. In the case of indigenous marble, Railways charge more freight on marble than for ordinary building materials such as coloured stones, etc., as marble has been treated more as a luxury article than as a utility building material, which it definitely is, because it requires very little maintenance and lasts for centuries in an unimpaired, beautiful condition. Once this aspect is clearly recognised by the building world and marble is available in larger quantities, the Railway Board could be persuaded to adjust the freight for marble to that of normal building materials, to encourage the development of this new industry.

The cost of marble itself will automatically be lowered when quarries are equipped with modern machinery, as marble then will be available in larger quantities and at a lower quarrying cost. The present antiquated method is slow, tedious and most wasteful; consequently marble available is sold at a premium. The cost of processing marble, quarried and sawn with up-to-date machinery, will also result in the reduction of the cost of processing, as the marble so quarried and sawn will have an even surface which will facilitate the polishing process before it is ready for despatch to site.

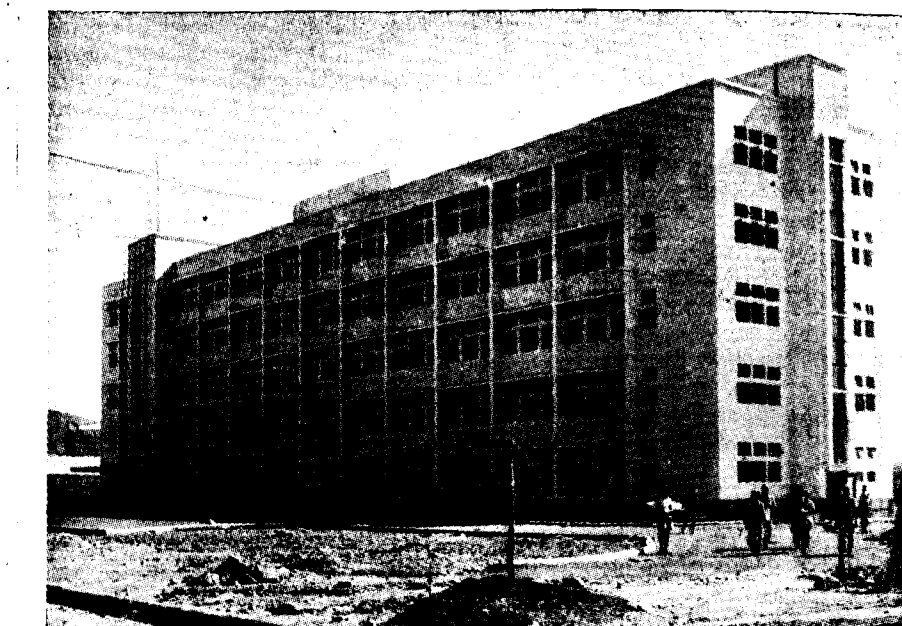
The difficulties connected with marble can be readily overcome if only some enthusiastic pioneer would take the initiative to invest the necessary finance to employ modern machinery. Unfortunately, the marble industry is new to India and the vast possibilities and scope prevailing in the industry both to the individual investor and the nation are not fully recognised. Financiers, therefore, are hesitant to invest the necessary capital. The fact is that India is well situated geographically and could supply many Eastern Nations.

Government could prepare the ground to dispel the hesitation of prospective financiers by showing their interest in the development of the quarry industry in India any by offering their co-operation to facilitate the solution of the problems that may have to be confronted by this new industry.

Oil Refineries in India

THOUGH the beginnings of the oil refining industry in India were made as early as 1920 by the Assam Oil Company, a subsidiary of the Burmah Oil Co., real interest in starting oil refineries was evinced only after the Second World War. Conditions after the war were entirely different and necessitated the setting up of the industries within the country. With the loss of Abadan, the largest refinery, the connection with the main source of petroleum products for India was severed. What was more, despite the increasing demand for oil in India, the Assam refinery was able to meet only about 7 per cent of the country's total requirements. Even now, the Assam refinery produces only about 180,000 gallons a day, or 250,000 tons a year.

In spite of the fact that immediate attention was paid to it only after the war, rapid progress has since been made in the formulation of plans, in the final agreements with foreign firms and the actual execution of the work agreed upon. As a result of negotiations, two foreign firms submitted schemes for the establishment of a synthetic petroleum plant for the manufacture of 150,000 tons of diverse petroleum products using 1.7 million tons of non-coking coal from the Damodar Valley area. In 1948 a three month on-the-spot study and other investigations were undertaken by a technical mission appointed by the oil companies, at the instigation of the Government of India. The mission, during its stay in the country, reconnoitred several places



A view of the Burmah-Shell Refinery's modern-looking administrative building, which is equipped with sun control louvres.

such as Bombay, Madras, Calcutta, New Delhi, Nagpur, Baroda, Ahmedabad, Visakhapatnam and Bhavnagar. On their publication of a comprehensive report, enumerating various suitable places for the establishment of refineries, the Government entered into agreement with the Burmah-Shell Group of Companies and the Standard Vacuum Oil Co. Recently, Government have also entered into an agreement with Caltex Co., for starting another refinery near Bombay.

By 1957, when the three oil refining industries are expected to go on stream, they will refine approximately 3.6 million long tons of crude oil per year which would meet about 80 per cent of India's needs of petroleum products. The present level of consumption stands at 3.75 million tons a year. It is likely that by the end of the First Five-year Plan period, this rate of consumption may rise up to 4 million tons. The total foreign investment involved in the construction of the three refineries will be more than Rs. 55 crores. Of these three, the Burmah-Shell refinery will be the largest in India—costing between Rs. 27 and Rs. 30 crores.

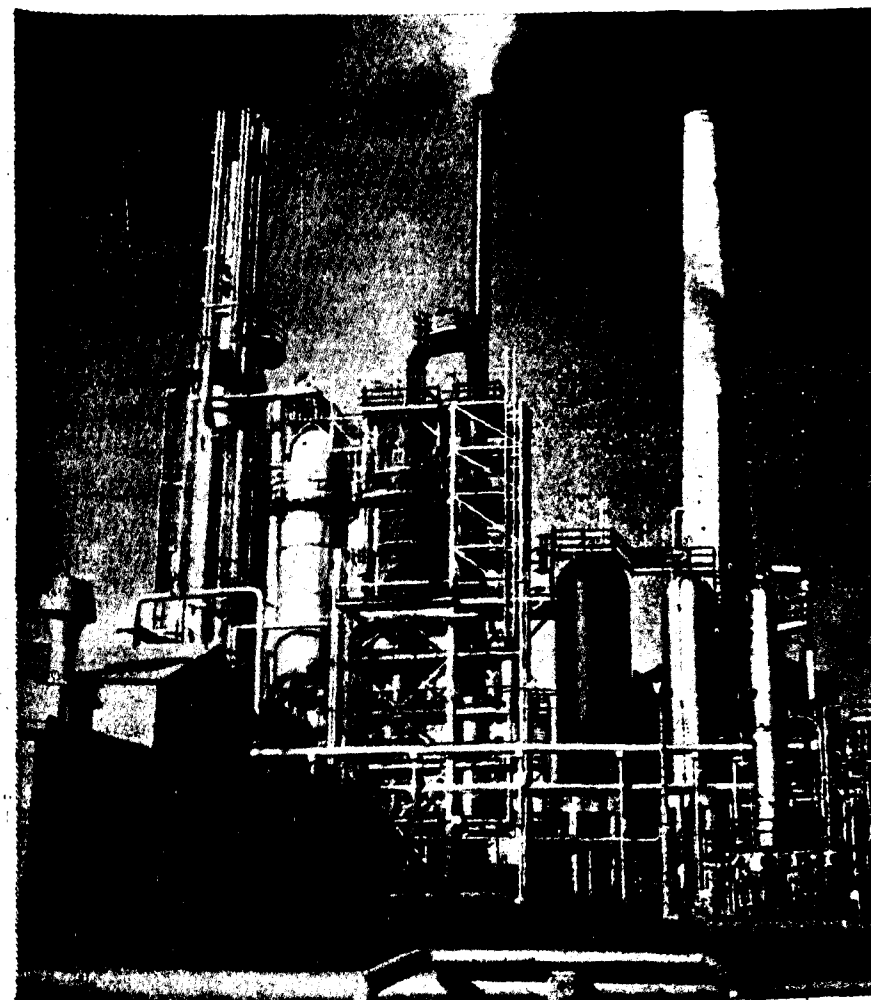
The Burmah-Shell refinery will have a refining capacity of 2 million tons of crude oil per annum and will account for over 50 per cent of the total refining capacity of the three refineries. It will also be the sole manufacturer of one million drums of bitumen, in addition to its largest supply of motor spirit, kerosene, high speed diesel oil, light diesel oil and furnace oil. The main refining operations of the Burmah-Shell refinery will include crude distillation, vacuum distillation, gas separation, bitumen manufacture, catalytic cracking, and packing. The usefulness of catalytic cracking is that it will increase the yield and improve the quality of gasoline.

It is a matter for gratification that both the Stanvac and Burmah-

shell refineries were completed on schedule, the former going on steam earlier. The Standard Vacuum refinery at Trombay, construction of which was started two years ago, commenced its operation from the last week of July last year, but up till now the refinery has been building up stocks at the rate of 25,000 barrels of petroleum products a day. The petrol produced from the Stanvac refinery has been styled "Double-powered Mobil Gas", a highly powerful motor fuel.

In accordance with the agreement of 1951, crude petroleum, the chief raw material for the refineries, will be imported (in lieu of finished products) from the Persian Gulf area and will be carried in tankers of up to 30,000 tons capacity. The new Marine Oil Terminal, which has been built on Butcher Island near Bombay, will serve as a storage from where sub-marine pipe lines will be connected to the refineries. Already three of the seven submarine pipe lines have been laid. The import of petroleum products (they are not refined in India) includes mineral turpentine, aviation spirit, solvent oil, lubricating oil and jute batching oil.

There has been lately an increasing awareness on the part of the Government of India that, in order to pare down a sizable sum of foreign exchange due to imports of petroleum products, an indigenous plant for the production of synthetic petrol could be gainfully set up in the country. In September last year, the Synthetic Petrol Committee gave their unanimous consent over the establishment of this plant. Although the project is an expensive one, costing as much as Rs. 20 crores for a hundred-thousand ton capacity plant, it is believed that valuable by-products will be yielded, which would offset the disadvantages of higher costs in the production of



The "Cat Cracker" of Stanvac.

oil. There is, in the air, a scheme for a new prospecting division for natural mineral oil to be set up by the Ministry of Natural Resources. The scheme envisages also the drilling for oil. At present oil prospecting in the country is done by two bodies of the Natural Resources Ministry, namely, the Geological Survey of India and the Indian Bureau of Mines. It is now being undertaken in Kutch by the Government agencies and in West Bengal and Assam by private companies. Good results have been achieved in Assam, as oil has been struck in three wells in the Nagratia region. There have been other notable achievements in the research field, such as, for instance, the erection of a plant for converting low grade smoking coal into high combustion smokeless coal. Six lakhs tons of low combustion coal called "slack coal" were choking the mines in the country and hence the new plant would reinforce the caloric strength of the coal and produce valuable coal tar as by-product. This coal tar could be used again by the plant for the conversion of slack coal into high grade coal. The pilot plant at Dhanbad would yield 20 tons of smokeless coal per day.

The erection of similar plants near coal pits in Bengal and Bihar will have to await an assessment of the work of the pilot plant. The three foreign companies for prospecting for oil in India are the Standard Vacuum Oil Co., the American Overseas Petroleum Co. and the Assam Oil Co.

The need for synthetic petroleum product to be produced within the country would be apparent when we take into account the consumption of these products during the last year.

The Burmah-Shell refinery was inaugurated by the Indian Vice-President Sir Sarvapalli Radhakrishnan recently. The crude distillation and the feed preparation units are almost complete. Among the units which have made progress are the Crude Distillation Unit Control Room, containing electronic recording instruction; the Medical Centre, the Laboratory; and the Canteen. Side by side with the establishment of the Burmah-Shell refinery, there has been a huge expansion in demand for the most important raw materials that have gone into its construction, material utilised in

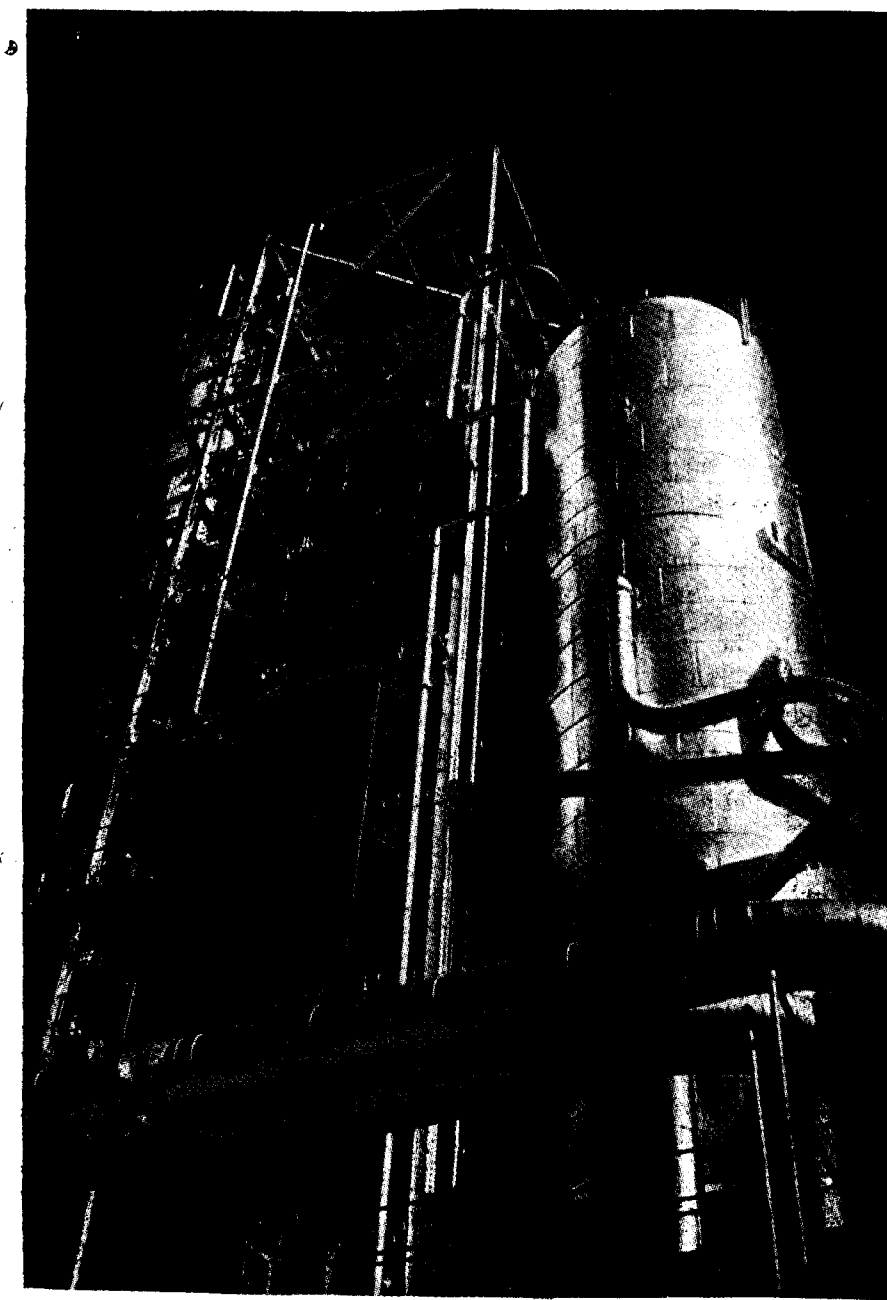
the construction of the refinery includes; the quantum of steel consumed would be as high as 60,000 tons; roads constructed to a total length of 12 miles; electric cables and wiring laid along 20 miles; not to speak of the removal of 800,000 cubic yards of earth and the laying of concrete to the extent of 30,000 cubic yards.

The supply of thermal electric power in this refinery will be made available by the thermal station which will be constructed by Messrs Tata Hydro-Electric Co. The connection between the refinery and the Tatas to the main line railways will be undertaken by the Central Railway and the new water main through which the refineries will draw their requirements of one million gallons of fresh water per day will be made by the Municipality.

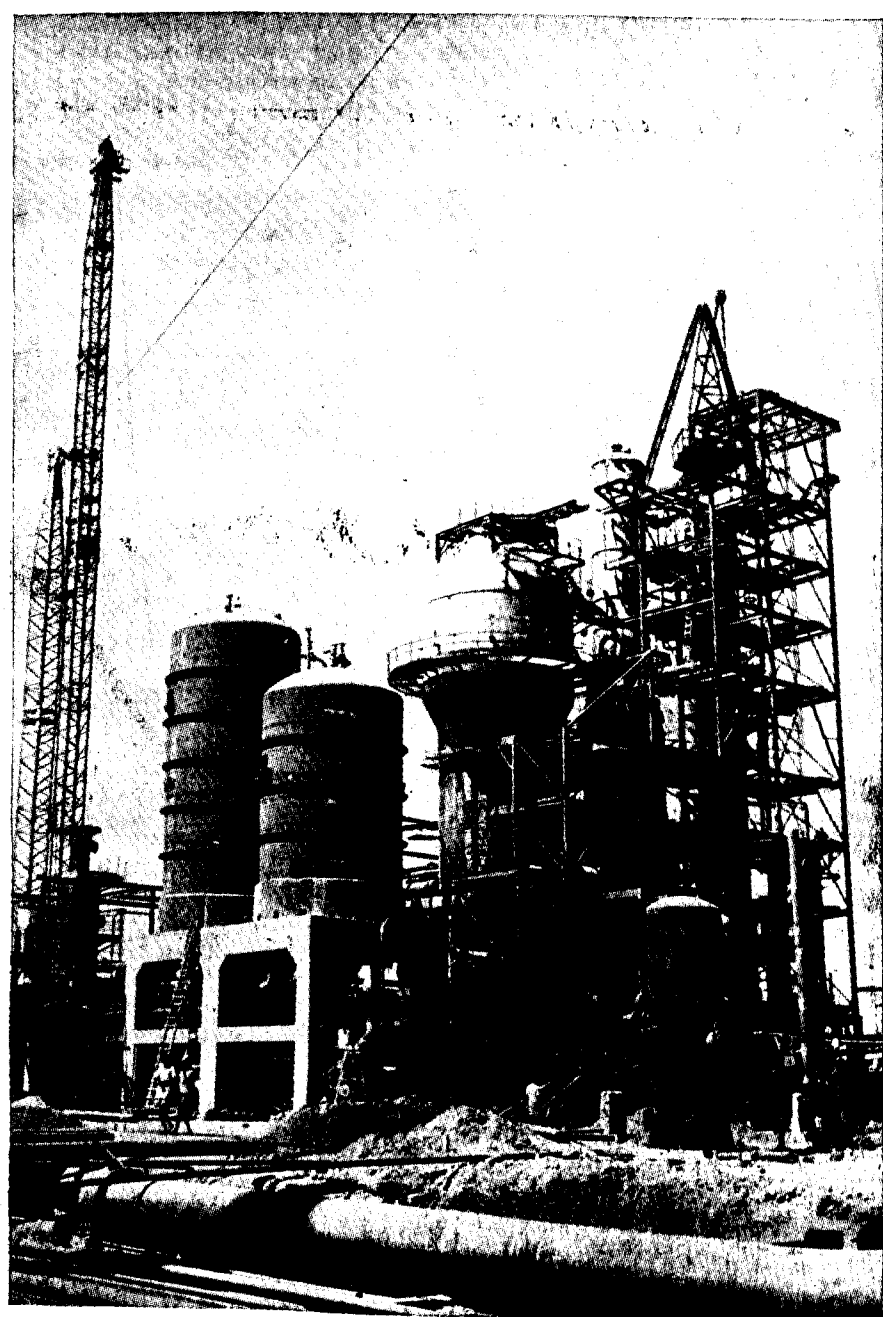
A significant offshoot of the development of refineries in India will be the opening up of opportunities for enabling advanced, specialised work. The Burmah-Shell refineries Limited have undertaken an expensive training programme for Indians in all phases of refining. In the first

instance, 45 Indian trainees have already been sent to Britain and already been sent to Britain and Holland for advanced technical studies. The Company have also in view the arrangements, on an extensive but individual basis, for special courses of training in their refineries and laboratories on the Continent.

Undoubtedly, the advantages and benefits of encouraging foreign firms in India are immense. Apart from the beneficial effects, like increased employment and training of Indian personnel, foreign investors have been appraised of the fact that there is plenty of scope for investment in the country. This has enabled them to veer round to the belief that a favourable climate for further large-scale investments in the basic industries of national importance has been created. At a time when there is greater need and consumption of oil, the establishment of three refineries augurs well, particularly when we consider the big industrial expansion schemes which would be taken up under the Second Five-year Plan.



Two main fractionating columns of the Crude Distillation Unit, the heart of the Burmah-Shell Refinery.



The Catalytic Cracking Unit, the biggest single plant in the two-million ton Burmah-Shell Refinery.

THE CRISES IN SUGAR

THE sugar industry in India may be said to resemble a magician. In the matter of producing crises of a most unexpected character, scarcely any other could show a comparable record. It has been the unique distinction of this industry to take a big leap towards the Planning Commission's target even in the first year of the Plan. In 1951-52, total sugar production in India amounted to nearly 15 lakhs tons, the highest ever attained and aimed at. It was a magnificent achievement, especially at a time, when low agricultural production was necessitating heavy inroads on foreign exchange resources. But almost simultaneously, even before the Government or the industry could heave a sigh of relief and spend a little while in mutual congratulation, the peak production was discovered to be not an achievement but a crisis. Actually it turned out to be so, because there was no adequate domestic demand. With a carry-over stock of another 5 lakhs tons, the country was faced with the problem of disposing 20 lakhs tons of sugar in the course of one year. In 1952, annual consumption of sugar in India remained somewhere about 14 lakhs tons, at the uppermost, and a market had to be found for at least 2 to 3 lakhs tons, after providing for a normal carry-over.

The hurried opening of the export market provided the needed relief and decontrol was aimed to do the rest. Decontrol answered a persistent demand from the industry, and was hailed as such. For a time full decontrol tended to work smoothly. But again, prices began to behave badly. By the end of 1952 when sugar stocks were admittedly ample there was a sudden rise in prices. And we had the spectacle of the Government throwing it on merchants and the merchants in their turn coolly transferring it to the wagons that did not move. It is even now obscure where the real fault lay or, if it did in more than one place, the measure of responsibility of each. Meanwhile, the peak surplus of 1952 was steadily getting transformed into a deficit. From nearly 15 lakhs tons in 1951-52, domestic production has shrunk to about 10 lakhs tons in 1953-54. For 1952-53, the figure was about 13 lakhs tons. Against this annual 2 lakhs tons decline, consumption has chosen to march the other way about. Domestic consumption was estimated at 11.63 lakhs tons in 1951-52. In 1953-54 estimated consumption is over 18.5 lakhs tons. In other words, against a 50 per cent decline in production, there has been a more than 50 per cent rise in consumption. Last year, when these conflicting trends had already become blatant, the Union Government were faced with the choice of either restoring control or importing sugar. They decided in favour of the latter step. It

was done in the hope that the unhelpful relation between production and consumption would be reversed or at least mitigated and imports on a modest scale would supply just the measure of cushioning which was needed in the transitional stage. Events have not been obliging. On the contrary, in the current year, the imports had to be raised from 2 lakhs to more than 7 lakhs tons. Even with this hefty import, the domestic price of sugar is getting out of hand. Government have started thinking on the lines of the restoration of controls. Already stocks have been seized, movements cancelled or blocked and the first bugles sounded for a warfare against blackmarketers.

Whatever be the solution the Government might think of as best suited to meet the present emergency, events during the last two or three years as briefly reviewed above, show that the Government of India have either not got a firm grip on the basic problems reflected in the recurring crises which take one form or another, or having discovered an effective solution, they are finding it difficult to implement it. Hitherto, it has all along been a matter of simply reaching to crises without being able to stabilise the industry at a satisfactory level. For the Sugar industry, the Five-year Plan is being worked in reverse order; the target was achieved in the very first year, and in the course of the succeeding two years the entire improvement wiped out. When production was a peak, there was no demand in the domestic market; when consumption reached a peak, production touched a bottom. When the country got some relief through the cessation of food imports, the shortage of sugar has threatened to offset the benefit. It used to be argued that when gur prices were low, sugar production would go up and vice versa. This relation, which for long, was held to be axiomatic, is also now reversed. Imports would normally stimulate domestic production, when the demand is on the increase. Even in respect of this phenomenon, some elusive forces seem to be in operation.

If consumption of sugar is actually what it is estimated to be, and a steadily increasing trend is envisaged for the future as well, the situation could be met only by a corresponding increase in production. If this is not found practicable, it is necessary to investigate how the recent leaps in consumption have occurred, and to put across measures designed to arrest and reverse the trend. If in 1951-52, the sugar factories could produce 15 lakhs tons, there is no reason why they, barring natural calamities, should produce less in subsequent years. The Government should closely scrutinize all the facts and apply whatever incentives or restraints are necessary to restore a

production already found feasible. Even if it meant paying a little more to the grower or the factories, that would be preferable to draining foreign exchange on imports. The problem of sugarcane as a convertible cultivation has also to be examined and a policy capable of carrying automatic annual price adjustments, arrived at. A little more sympathy and direction from the Government will impart to the growers' co-operatives an extra robustness.

The Government of India have announced their sugar policy for the year 1955-56 by fixing a minimum price of Rs 1-7 per maund for gate deliveries and Rs 1-5 per maund for deliveries at rail centres for cane which will be purchased by vacuum-pan factories during the season 1955-56. These prices are the same as for 1954-55, announced by the Government in September, 1953. Although the trend of agricultural prices has been downward, the Government have decided not to reduce the minimum cane prices for 1955-56 in order to provide greater incentive for increased production of sugarcane and sugar. Moreover, as in the past two years, the Government have further decided not to exercise any statutory control on the price or distribution of sugar, gur and khandasari during the 1954-55 season.

It is admitted on all hands that the future of the industry would be assured, only if yields improve and for this very reason, a better regional distribution of factories effected. The average yield once reached 15.33 tons. It is now 12.43 tons. On the basis of yields, and equally conspicuously of the length of crushing seasons, the claims of the Deccan and South India for more factories are unassailable. In the Deccan, the working season could be as long as 200 days. In Mysore, the season could extend to the whole year. In the UP, it could not extend to more than 120 days. Actually, it is much shorter. It is the Union Government's responsibility to see that these claims are promptly met, in the wider interests of the country. If shifting of factories, against which there are powerful impediments, is not immediately feasible, new factories could be opened. Even the existing factories in South India and Deccan do not seem to utilise their full capacity. The Union Government will be condemning themselves in the eyes of the public, if they betray their helplessness for taking up certain steps which natural circumstances point to as unavoidable. It is time that the supply of sugar, which last year cost the nation nearly Rs 40 crores, is taken up as an all-India problem.

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(Established 7th September, 1906)

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NATIONAL PROSPERITY NEEDS....

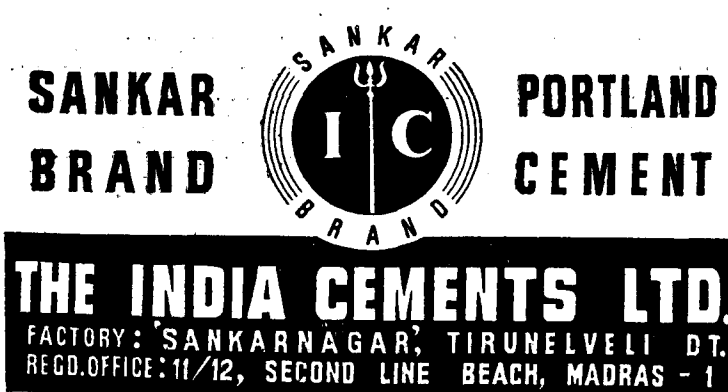
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OF INDIA  LIMITED

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TULSIDAS KILACHAND, ESQ. (Chairman).
DHARAMSEY M. KHATAU, ESQ.
JEHANGIR PESTONJI PATEL, ESQ., M.A. (Cantab).
AMBALAL KILACHAND, ESQ.
GULABCHAND HIRACHAND, ESQ.
ANANDLAL H. SETH, ESQ.
VRAJLAL CHHOTALAL, ESQ.

General Manager: M. G. Mody, Esq.

Total Assets as at 31-12-1953
exceed - Rs. 1,75,00,000

Total Life Assurance in force
as at 31-12-1953 exceeds Rs. 3,75,00,000

BONUS DECLARED IN LATEST VALUATION

Principal Office in the Union of India:
45-47, APOLLO STREET, FORT, BOMBAY.

OFFICES AT

AHMEDABAD, AMRITSAR, BARODA, BELGAUM, BHAVNAGAR,
CALCUTTA, CALCUT, COCHIN, CHITTAGONG, COLOMBO, DELHI,
HYDERABAD (Dr.), INDORE, JALGAON, KARACHI, LUCKNOW, MADRAS,
MANGALORE, NAGPUR, NAIROBI, POONA, SURAT, VIJAYAWADA.

REPRESENTATIVES AT

ALEXANDRIA, AMSTERDAM, BRUSSELS, BEYROUTH, COLOMBO,
DAMASCUS, KAMPALA, LONDON, ROTTERDAM.

STORY of INDIAN TEA

It was in the year 1900 that Brooke Bond India Limited was founded. What applies to an individual applies to an institution as well. Men who have become great had their humble beginnings and their path to glory was not always smooth. It is equally true to say that great institutions of today started in a small way years ago and Brooke Bond India Limited is no exception to this rule.

It will not be incorrect to say that up to the end of 19th century, almost all the tea sold in India was in loose form. In the early days the people who were accustomed to loose teas had a prejudice towards packets. The response was very meagre. The organisation had to face considerable difficulties and opposition in popularising the packets and making the general public realise the advantages of buying tea in packets. Later, some of the pioneers in the tea industry realised the value and importance of putting tea of guaranteed quality in packets which had a registered trade mark.

These pioneers were able to foresee that in packing tea in packets with a guaranteed quality and weight available to the masses, they would not only organise the trade on a healthier level but they would also help to increase tea consumption in a vast country like ours. Packing tea in packets of various sizes and making them

available to merchants and traders, who could conveniently handle the packets and pass them on to the tea consumption.

Having realised that there was no organised distribution of packetted teas in India consisting of proprietary brands and blends, this Company with a farseeing foresight initiated a bold policy to increase tea consumption within India. To a layman, who finds the Company's packetted teas in the bazaar, it will seem a very simple matter to put tea into a packet and sell it. Only those who have been in the tea trade for years and who have faced enormous difficulties can understand what it is to pack and market tea in packets and make a guaranteed quality and quantity constantly available to millions of consumers throughout India.

As we all know, our country contains far more villages than towns and unless we are able to penetrate into the interior and make the packets available to the consumers there at a reasonable price, the objects of the enterprise will not be achieved. Obviously, this could be done only by organising and running an efficient sales organisation, apart from large units scientifically to blend and pack tea under hygienic conditions.

Perhaps, Brooke Bond India Limited is the only organisation throughout the country which keeps



Direct delivery of Brooke Bond packet by the Company's own staff ensures that the garden-freshness of the tea is maintained at all times.



Cases of garden-fresh teas arriving at a Brooke Bond factory where they will soon be blended and packed.

in direct touch with a very wide clientele of dealers and tea shops without a middle man. In other words, we have no distributors or agents and every pound of our tea sold in this country is sold through the hands of our own salesmen.

Direct Service:

The tea trade is greatly dependent on the consumption of tea in villages. Our direct service which extends to the interiors of the country greatly depends upon the transport available. It is a regrettable fact that in a vast country like ours, the means of communica-

tion are still not all that one would desire. Despite it, our men use all kinds of transport to reach these villages, such as, rail, bus, tonga, bullock carts, camels, boats and in many cases make the journey by foot. Our men cover both the hills and the plains unmindful of the difficulties or inconveniences to them and they derive great satisfaction and pleasure at the journey's end, i.e. by serving their dealer friend with his requirements of Brooke Bond Tea and Coffee.

During the war years when there was a shortage of tea, the inevitable

THE BANK OF TOKYO LIMITED

(Liability of the Members Limited)

Registered in Japan

SUCCESSORS

YOKOHAMA SPECIE BANK

CAPITAL Subscribed and Paid-up - Yen 1,100,000,000
RESERVE FUND - Yen 3,680,000,000
DEPOSITS - Yen 73,914,000,000

HEAD OFFICE:

6-3, I-chome, Nihonbashi Hongkucho, Chuo Ku, TOKYO

IMPORTANT BRANCHES IN JAPAN:

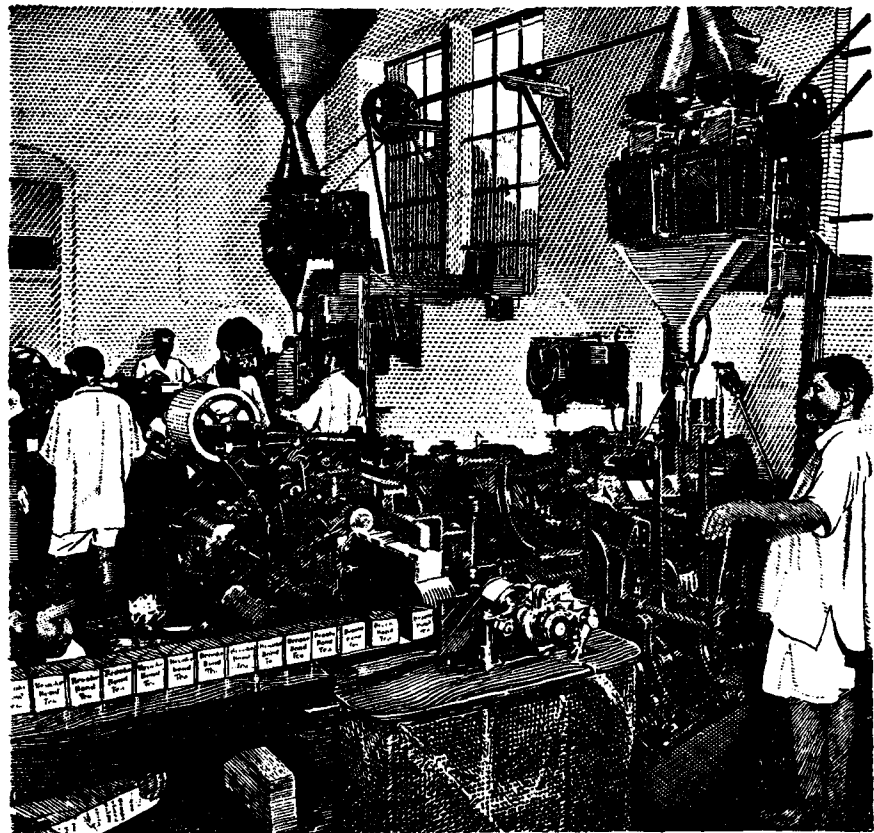
YOKHHAMA	KOBE
NAGOYA	MOJI
KYOTO	FUKUOKA
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LONDON	KARACHI
NEW YORK	HONGKONG
SANFRANCISCO	HAMBURG
LOS ANGELES	

INDIAN BRANCHES:

CALCUTTA	BOMBAY
5, Clive Row	221, Dr. Dadabhai Naoroji Road.



Automatic packing of tea is an important feature of Brooke Bond's modern factories ensuring clean and hygienic packing of fresh tea.

evil of speculation developed. Even at that time, instead of playing into the hands of speculators we went far and wide into the interior and served and encouraged the smaller dealers and tea shops by giving them supplies at the wholesale price. This helped the consumers beyond measure and in many important towns, where we found dealers inclined to charge more for tea, we opened retail shops for sale to consumers at wholesale prices. This checked speculation.

It was during the period of war too that we made tremendous expansion in our direct service system throughout the country. That was just at a time when due to exigencies of war both the rail and road transport was severely cut off. It looked paradoxical to many that we were reaching more and more interior places during such days when anyone else would have hardly thought of travelling. Our aim was to deliver the goods at Company's prices at the very doors of dealers and tea shops in the interior despite all trials and hardships.

Our vast sales forces are also actively advertising with a view to increasing tea consumption in India. Our men hold liquid tea demonstrations where free tea is distributed. A large number of cups of hot liquid tea at a very reasonable cost are sold in big exhibitions, religious festivals, shandies, etc. This direct propaganda is designed to establish the tea drinking habit.

Planned Campaigns:

Planned and regular advertising campaigns are undertaken. Our bright orange posters depicting our different brands of tea are a very common sight in either towns or villages. Our small red vans

through which our salesmen carry stocks and regularly serve thousands of dealers and hot tea shops are also a familiar sight in the bazaars of all cities and towns. Everything that we do makes consumers prefer packeted and branded tea to others and the general emphasis is always on TEA.

We are living in an age of "branded goods" and this is an indication of advance in civilisation. Discriminating tea drinkers who have a taste for good tea are not prepared to take any chances and they insist on getting their tea in packets which carry a registered

trade mark and along with it a guarantee of quality, weight, etc. The advantages of buying tea in packets are numerous and the first and most fundamental of all is that the consumer knows what he is buying and is paying for. Although the Excise regulations have brought about a discrimination between packeted tea and loose teas, the primary aim and ambition of the organisation of Brooke Bonds is to promote the sales of tea in packets and by the same means to increase tea consumption.

The Pioneers:

In making a general reference to the tea trade as a whole, I believe we must not forget the pioneers who helped to set the tea industry in India on such progressive lines. The tea industry in India was started as a deliberate act of policy so that the growing United Kingdom demand might be met from within the Commonwealth. Although nowadays we have more liberal ideas on trade, the tie remains. Amidst great odds, difficulties and trials, when the means of communications were by far undeveloped, British planters made bold, intelligently, to exploit the valleys in Assam and South India. But for their perseverance the tea trade in India would not have reached the status it now occupies in the nation's commerce.

Thanks to the pioneers and those who followed them, the Tea industry, which is next in importance to jute so far as the revenue to the national exchequer is concerned, is on a firm footing and all indications are that this important industry will grow day by day. We can take pride in saying that Brooke Bond India Limited have played their own great part in the deve-

lopment of this national industry over the last 50 years and it is the ambition and desire of this huge organisation to continue its efforts, with greater vigour and enthusiasm in the interests of this great country and its people. Our activities are not confined to the internal market alone—considerable quantities of Indian Tea are exported by us to various countries within the Commonwealth and outside—this again earns foreign exchange for our National Government.

Sales Offices:

Brooke Bond India Limited have 28 Sales Control offices in India situated at strategic centres apart from the Head Office at Calcutta. There are 5 blending and packing factories. Thousands of salesmen are in charge of sales depots in all parts of the country. There are sales supervisors over them. The managerial staff in the branch offices and heads of several departments in the Head Office are all Indian citizens. All the labour in factories is Indian. For this happy state of affairs, thanks are due to the men who initiated this policy.

The Company has had a long, weary and patient journey and has a very interesting history behind its business. It claims with all modesty that it has played a significant part in increasing tea consumption within India. Brooke Bonds are second to none in holding the view that the tea consumption within India, should be increased and it is the Company's determination and policy to do all it can to promote it. The Company's activities in India have been and will always be directed to the achievement of progressive trade and commerce leading to a successful and prosperous national economy.



The Tea Taster in action. His trained palate quickly decides the correct tea required for a certain blend.

THE TEA INDUSTRY

THE Tea industry is one of the mainstays of India's economy and, in contributing largely to the national wealth, it gives regular employment to more than a million and a quarter workers. A century back it was not expected that the Indian tea industry would attain such dimensions and that, long before other industries achieved their stature, this plantation product would prove to be beneficial to the economy in so many ways. Time was when it was difficult to secure even the necessary tea garden labour and protect it from the hardships of a difficult terrain. Working conditions in recent years have, however, vastly changed. Thanks to the improved amenities and the provisions for looking after the health of the estate worker, it is no longer difficult to employ the requisite numbers and step up the output in the desired fashion.

Since 1933 particularly, when the International Tea Agreement was signed, the affairs of this major industry have been well managed and it has been possible through planned production and planned exports to build up a sound financial position and satisfy not only the shareholders, but also earn for the country large sums in foreign exchange. In the war-years, the exportable surplus of the industry was taken over in bulk by Britain and prices were fixed after negotiation and taking into consideration the increase in costs of production. Even after the termination of the bulk purchase agreement and the freedom to sell tea in whatever manner that was considered beneficial, it did not become obligatory on the part of the numerous estates to pursue different policies.

The crisis from which the tea industry is now said to have emerged, may be traced to a curious combination of circumstances. Towards the end of 1951, for the first time in many years, world output of tea exceeded world demand. This coincided with the world slump in all commodity markets following the cessation of stock-piling. At about the same time, by crucial coincidence, the Minimum Wages Act came into force with its inevitable effects on the cost of production. Overseas competition had intensified, exports were down, prices had declined and costs continued to rise. The industry found itself unable to bridge the steadily widening gap between increasing costs and falling prices. To gardens, it meant a struggle for survival. Thus, the year 1952 witnessed the most serious crisis the industry had ever faced.

In 1953, no one could even dream that the situation in the industry would to a great extent be galvanized before the turn of the next

twelve months; and one of the most important factors hastening the surprising recovery of 1953 was the crop regulation programme. The voluntary crop regulation scheme coupled with the curtailment of heavy fertilization ensured that an excessive crop was not harvested and that the standard of production would not decline. Again, the policy of fine plucking introduced in all the districts made possible the manufacture of teas with good, clean leaf appearance. Very few teas of this description were seen on the market during the year; and this had a salubrious effect on the general trend of prices at the Calcutta auctions.

That the industry had definitely turned the corner was amply proved by its excellent performance during the year 1954, and the improvement in its position surpassed the most optimistic expectations. Thus, the transformation, that occurred since those dark days of 1953, was complete. Even allowing for the need to make up for neglect in renewing plant and equipment, replanting, fertilizers, building repairs and other accompaniments of the aftermath of the slump, all the gardens were reported to be doing very well. Among the notable influences contributing to this improvement were the substantial rise in consumption in

overseas countries, especially in the U.K. which is the largest single consumer of Indian tea. The concerted activity of the tea estates to regulate output was also extremely helpful.

On the whole, the demand for all varieties of tea, both for export and internal sales, was strong throughout the year under review, the main inspiration being the keen demand from the UK where prices ruled very firm due to continued acute shortage of tea. Also, the Dock strike in London in October dislocated the flow of tea to the London auctions and inevitably reduced UK stocks in Bonded Warehouses. This naturally had a much greater effect on London prices than those ruling at Calcutta. Meanwhile, the handsome prices that Indian tea had been fetching both at the Calcutta and London auctions did not, however, escape the watchful eye of the Union Finance Ministry. The Government's decision, announced early in October, to increase the export duty on tea from As 4 to As 7 did not come as a surprise. The industry had almost taken it for granted that the Government might at any time step in to mop up a part of the ruling high prices by enhancing the duty. These expectations were prompted, partly by the experience of the jute industry—where the

Government, when raising the duty sharply, made no secret of their intention to share the boom with the industry—and partly by the upward revision of the duty on tea by the Ceylon Government from 45 cents to 60 cents per pound.

It was unfortunate that a handsome slice of this bounty had been allowed to be snatched away by export quota right-holders. The Export Quota prices continued to rise and, at one time, reached the unprecedented level of 360 pies per pound in mid-December from a level of only 27 pies in mid-March. This means, that a price of Rs 1-14 per pound had to be paid for purchasing the mere right of exporting tea out of India. Such a high price for export rights was considered most undesirable by the industry, and genuine exporters were seriously handicapped by the non-availability of export quotas at reasonable prices. It was believed that speculators, not connected with the industry, were holding a large portion of quota in their hands and a section of the industry strongly urged the Government to put an end to such speculation by releasing further export quota.

But, the Government decision, announced in early November, to release another 9 per cent of the export quota had no effect either on auction or export quota prices.

The importance of banking to the COFFEE INDUSTRY

COMMERCIAL cultivation of coffee in India dates from about 1830, and is still almost entirely confined to South India. The yearly crop varies between 20,000 and 30,000 tons, most of which is consumed in India. When a surplus of Indian coffee is available for export, it finds ready buyers in fastidious foreign markets.

Without banking, the growth of the coffee industry would have been impossible. The availability of ready funds when needed, the collection of dues in any part of the country, and the other facilities and guidance offered by a good bank—these are an integral part of the structure of the coffee industry.

We at Palai are proud that so many leading coffee plantations, and indeed important firms in every field of business and industry in South India, employ the complete banking service we offer.

Current Accounts—Demand Drafts—
Telegraphic Transfers—Investment—
Letters of Credit—Bill Collection—
Deposits—Loans & Overdrafts—
Confidential Credit Reports, etc.

If you have business interests in the South, it will pay you to open an account with us. Our 24 branches are strategically located, 22 in important South Indian business centres and two in Delhi and New Delhi; and we have correspondents in all important Indian cities. We offer a fully comprehensive banking service at each office.



Our clients can make deposits at any of our correspondent banks, situated in all important Indian towns, and have the amounts credited to their accounts at any of our branches.



PALAI CENTRAL BANK LTD.

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A LEADING BANK IN SOUTH INDIA

PC-915

Again towards the end of December, the Government decided to release a further 2.5 per cent of the standard export quota. With this final release for the year, the total allowed for export in 1954 came to 131.5 per cent of the standard quota. Though this compared favourably with the total of 125.5 per cent of the standard quota allowed for export last year, it fell short of general expectations. There were also representations to the Government that the maximum permissible quota, viz., 135 per cent of the standard quota, should be allowed in view of the increase in production. But the Government did not release the maximum permissible quota in view of their anxiety to ensure adequate supplies to the domestic market. In the absence of any definite idea regarding internal consumption, they preferred to be a little stringent in making the final release. Moreover, consumption of tea throughout the world was rising, particularly in India where efforts in recent years to improve the general standards of living resulted in a progressive increase in internal consumption. Thus, with increased consumption not only in the UK but also in world markets, except for slight seasonal variations, the primary markets and London were registering a progressive advance in prices. Clean Common Broken Pekoe—the yardstick by which the London market is being assessed for many years—was quoted as high as 6sh. 7½d. per pound—almost double the figure of a year earlier.

Meantime, tea traders in London began to make complaints about the high price level of Indian tea. British consumers believed that the producers in India had formed a ring to maintain the increased price level. It was thought at the time of the last increase in export quota that the entire increase in the export allotment would be exported to London. But this had no bearish effect on the price at the London auctions and, on the other hand, there was a further rise in prices at that centre as there was no notable increase in supplies. It was felt doubtful that even the rest of the export quota permissible under the International Tea Agreement, viz., 13 million pounds, if allowed to be exported to London, would be able to relieve the shortage in the UK. The real fact was that demand went up at quicker rates than the supply.

Fears were also expressed in some quarters that the Government decision to increase further the export quota might create shortages in the domestic market. An analysis of the statistical position of tea did not, however, justify these fears. Total production in North India in 1954 was 508 million pounds, showing an increase of about 23 million pounds over the 1953 figure. Production in South India was about 128½ million pounds. Thus, total production amounted to about 637 million pounds. Deducting the 465 million

pounds so far released for export, the domestic market was left with hardly 172 million pounds. The carry-over of stocks from 1953-54 was substantially higher due to Government's decision, early last year, not to allow automatic carry-over of unutilised export quotas from the previous year. As a result of this decision, about 47 million pounds of teas could not be exported though the Government

granted special licences to the extent of only 11 million pounds. Thus, with the carry-over of 36 million pounds and the balance of 172 million pounds left with the domestic market, there was an available total supply of 208 million pounds which, it was felt, would be sufficient enough for domestic consumption. Thus, any idea of short supplies did not arise during the year.

Despite the increase in production, however, exports of Northern India teas showed a substantial fall to 301.00 million pounds during the period from April to December 1954 from 328.00 million pounds in the corresponding period of 1953. Exports to the UK declined by more than 28 million pounds, while those to the USA, Irish Republic and Australia were slightly higher. The fall in exports was due to many reasons, such as lower shipments in the early months due to scarcity of stocks, transport difficulties as a result of floods and restrictive policy of the Government in order to ensure sufficient quantity of tea for the home market. The following table will show the figures of exports to various countries during the past three years:—

Destination.	1954-55			1953-54			1952-53		
	(In million Pounds)			(In million Pounds)			(In million Pounds)		
Britain	218.1	246.4	275.4	218.1	246.4	275.4	218.1	246.4	275.4
Irish Republic	18.3	17.7	9.0	18.3	17.7	9.0	18.3	17.7	9.0
U.S.A.	17.5	13.4	15.4	17.5	13.4	15.4	17.5	13.4	15.4
Canada	11.2	12.2	12.0	11.2	12.2	12.0	11.2	12.2	12.0
Persian Gulf	6.8	7.7	9.9	6.8	7.7	9.9	6.8	7.7	9.9
Egypt	5.1	7.7	3.7	5.1	7.7	3.7	5.1	7.7	3.7
Australia	5.6	1.1	5.9	5.6	1.1	5.9	5.6	1.1	5.9
Red Sea Ports	5.0	5.8	7.5	5.0	5.8	7.5	5.0	5.8	7.5
Others	13.4	16.0	18.7	13.4	16.0	18.7	13.4	16.0	18.7
Total	301.0	328.0	357.5	301.0	328.0	357.5	301.0	328.0	357.5

As indicated earlier, two factors, which caused an increase in the price of tea, were the falling stocks of tea in the UK and the rising prices of coffee. Now, however, exactly the opposite is happening. Coffee prices are falling, while stocks of tea in the UK are rising. In the circumstances, offtake of tea by the UK is likely to be smaller in the coming season. Again, housewives in the UK are already resisting the present high level of prices of tea there. Moreover, the enhancement of export duty on tea is already having an unsettling effect on the American market. Just when packers are putting up the maximum support to a promotional drive and when the results of the stepped-up campaign are beginning to tell, the rise in tea prices and the increased duty are upsetting it. On the whole, tea in the USA is now facing increasing competition.

It is generally suggested that, in order to avoid fluctuations in prices of export quota and internal tea, the Government should fix their policy early in the next season and pursue it without deviation. Firm decisions should be made as to whether to retain sufficient tea in the country by the restriction of the amount of export quota allotted with a view to providing adequate supplies at a reasonable price; or, to issue the full permissible export quota early in the season, thus avoiding the wide fluctuations and high prices of quota seen this season and letting internal consumers compete with overseas buyers for a large proportion of their requirements. Increased internal consumption is considered useful; but current prices, it is feared, are likely to meet with consumer resistance.

Irregular Movement in Bullion

WHATEVER the merits or demerits of forward trading in bullion and as to whether Government should allow imports of the precious metals and especially of gold, the general public is not concerned with these issues as the lure for the precious metals has remained the same for centuries together. It is very difficult for the social traditional customs to die despite the fact that the economic face of the country is undergoing a slow but imperceptible change for the better. The Government of India are still thinking that it is no use frittering away the precious foreign exchange even on a limited scale for imports of gold; but the people, as a whole, have still the same fancy for gold even when prices are pretty high because of the social customs, the mental make-up of the masses, the usage of gold in dowries as a means of security and investment and as last resource in the days of economic distress to fall back. The ban on bullion imports, which was imposed during the period of the second World War, has been still continued barring a few months during the financial year 1946-47. The demand for bullion in the country, during the last fifteen years, has increased substantially and there has been a big gap between this demand and the available supplies in the country. Production of silver in the country is negligible, while production of gold in 1954 amounted to about 240,000 ozs. This is far below the actual domestic requirements necessitating its imports from foreign countries and hence it is emphasised by a large section of trade that there is no need for the continuance of the ban on the imports. This has resulted in great disparity between the prices of gold in India and those prevailing in the international free markets. This has also encouraged smuggling activity during the last few years despite the vigilance on the part of the authorities.

The parity price for gold works out to about Rs. 63 per tola, while the prevailing price is a little over Rs. 90. Even if imports to the tune of Rs 5 crores annually are permitted, Government will stand to gain. It can collect on these imports a customs duty of Rs 12-8 per tola. Thus, if this duty is added to the parity price of Rs 63 plus Rs 4-8 being the incidental expenses, even then there will be a difference of Rs 10 per tola. If imports are allowed, prices will be brought down and there will be a tendency for Indian prices to fall in parity with world prices.

Coming now to silver, it may be noted that Government have been recovering silver from quaternary coins which will amount to about three lakhs bars. Out of this silver, 228 million ounces are to be returned to USA before 1957 against their loan during war time. Still

Government will have a balance of over 50,000 silver bars with them. This silver will be available when the Alipore Refinery starts working to recover silver from the coins. If this silver is put on the market, silver prices, which are only a shade higher than the world parity prices, can also be brought down. Trade circles rightly feel that Government should seriously consider the issue of imports of gold from all its bearings instead of viewing it from the narrow angle of only foreign exchange.

The banning of bullion imports has created artificial conditions on

the domestic bullion markets as they have been insulated from foreign markets. This has encouraged manipulations as well as certain abuses in forward trading despite several safeguards having been framed. This is mainly due to scarcity of floating stocks.

The price range of spot gold as well as silver during the last ten years tells its own story. With the inflationary prices brought under control, prices have receded; but as the floating stocks are limited, they have prevented any drastic fall in values.

Bank on behalf of the defunct States.

Forward silver, which had stood at Rs 152-6 at the end of 1953, steadily advanced to Rs 173-12 by 10th April 1954. Thereafter, the rate fell steeply to Rs 148 by June 21—the lowest level touched since October 1953. Forward silver, which had stood at Rs 152-14 at the end of June, recovered to Rs 158-11, to finish at Rs 157-7 at the end of September. It rose further to Rs 161-8 in October, but dropped down to Rs 152-13 in December, to finish at Rs 154-14 at the end of the year 1954. It may be here noted that, during the year under review, silver market followed mainly the movements of gold.

Forward gold, which stood at Rs 82-5 at the close of December 1953, advanced to Rs 94-12, but subsequently dropped down to Rs 81-11 in June, to quote at Rs 84-9 at the end of the month. The market further recovered to Rs 90-14 by August 17, to terminate at Rs 87 on 30th September. The rate recorded improvement to Rs 89-4 in early November, to fall to Rs 86-3, to wind up the year around Rs 88.

An event, during the year 1954, was the re-opening of the London gold market for private trading on a restricted basis on March 22 for the first time since 1939. The market price fixed by the leading London brokers on the first day was £12-8-6 per fine ounce, this being 6d higher than the official price of £12-8-0 per ounce fixed in September 1947.

The comparative monthly price range of spot gold and silver, which is given in the following table, gives a picture of the margin trends during the last two years. It may be noted that the price of gold is for one tola and silver price per 100 tolas.

Year.	GOLD		SILVER	
	High	Low	High	Low
	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1945	86 10	62 10	140 3	116 0
1946	111 0	81 14	196 0	127 8
1947	117 10	95 6	183 12	142 14
1948	121 14	103 10	182 0	143 8
1949	119 11	102 10	192 10	148 8
1950	120 1	104 12	192 8	171 7
1951	118 12	104 1	207 4	181 10
1952	106 12	77 5	194 14	140 9
1953	93 6	79 7	172 4	148 10
1954	95 6	81 13	173 14	147 15

(Gold prices are per tola and Silver per 100 tolas weight)

World gold production in 1953 was estimated at 26,500,000 fine ounces including that of Soviet Russia as against 26,563,000 ounces in 1952 and 37,239,000 ounces in the pre-war year 1938. The British Commonwealth's share came to about 71 per cent in relation to total world output. Particulars of production in 1953 were as follows:

(In thousands of fine ozs.)	
I. British Commonwealth	18,922
(a) Australia	1,078
(b) Canada	4,061
(c) Gold Coast	731
(d) Indian Union	223
(e) New Zealand	60
(f) Southern Rhodesia	500
(g) Union of South Africa	11,940
(h) Others	329
II. Latin American Countries:	
(a) Brazil	180
(b) Chile	180
(c) Colombia	430
(d) Mexico	450
(e) Peru	140
III. United States of America	1,990
IV. U.S.S.R. Not actually known	
Total	26,500

Like gold, world silver production has also gone down as compared to pre-war. The latest available figures for 1953 are as under:

(In millions of ounces)	
Mexico	45.0
U.S.A.	35.0
Canada	30.0
Peru	17.5
Bolivia	7.5
Other South and Central American countries	7.5
Total Western Hemisphere	142.5
Outside Western Hemisphere	60.0
India	0.016
Total	202.5

In 1939, world silver output was 265.9 million ounces. The year 1953-1954 was more or less normal for the bullion market though, at times,

	SILVER		1954		1953	
	High	Low	High	Low	High	Low
	Rs. a	Rs. a	Rs. a	Rs. a	Rs. a	Rs. a
January	161 8	151 12	162 1	151 12		
February	166 4	159 7	172 4	160 8		
March	169 2	162 12	169 4	156 12		
April	173 14	165 14	164 15	154 2		
May	171 15	159 13	167 14	157 14		
June	160 6	147 15	164 5	158 4		
July	156 10	150 3	157 3	151 5		
August	157 0	152 1	159 14	153 0		
September	158 2	153 11	161 1	152 12		
October	160 14	156 8	153 15	148 10		
November	160 7	152 12	155 11	151 8		
December	155 15	152 1	154 3	150 14		

	GOLD		1954		1953	
	High	Low	High	Low	High	Low
	Rs. a	Rs. a	Rs. a	Rs. a	Rs. a	Rs. a
January	85 6	81 13	90 0	82 5		
February	89 13	84 14	91 4	87 10		
March	91 5	87 14	89 10	83 5		
April	95 6	90 7	88 8	84 11		
May	94 1	87 15	88 9	85 11		
June	88 2	83 0	93 6	88 1		
July	87 7	83 11	89 8	86 0		
August	90 14	86 0	88 8	86 15		
September	88 14	86 7	88 2	84 14		
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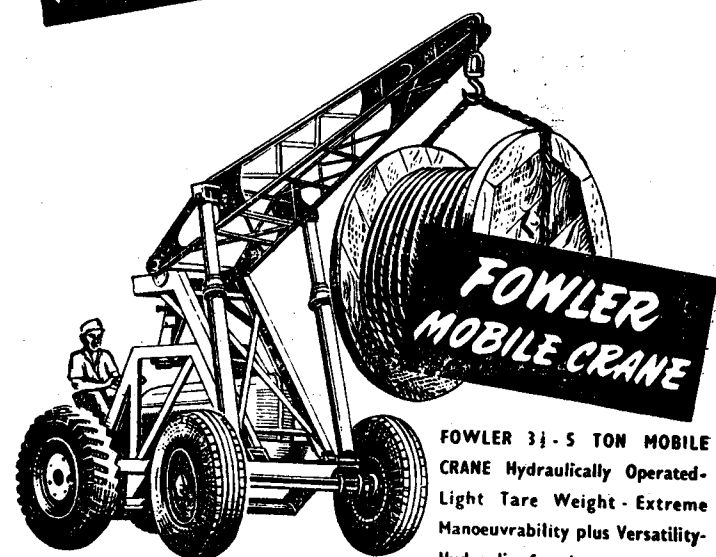
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COFFEE PRODUCTION RISES

THE cultivation of Coffee in India dates back to the seventeenth century when, according to popular legend, a Muslim saint, Bababudun by name, is said to have planted seven seeds on a hill in the Chickmagalur District of the Mysore State; and, to this day, this hill is known after him as the "Bababuduns". The cultivation can be said to have increased to the plantation scale only after 1825. The area planted with coffee in South India is well over 200,000 acres, the principal coffee-growing areas being the States of Mysore and Coorg, the Nilgiri Hills, Wynad, the Shevroy Hills and Palnis and parts of Cochin and Travancore. It is claimed that there are only few hills in the world so well suited to the cultivation of high quality coffee as the hills of Southern India with their sunny slopes and abundant rainfall.

Unlike tea, the coffee crop fluctuates from year to year, depending mostly upon climatic conditions. The average annual production of coffee in South India is about 19,000 to 20,000 tons. Between 1941/42 and 1948-49, there was only one bumper crop in 1945/46 amounting to 25,500 tons, while there were two successive poor crops in 1946/47 and 1947-48 (15,350 tons and 15,800 tons respectively). The following table shows the production of the crop in recent years (figures in tons):—

Year	Total
1949-50	20,063
1950-51	18,101
1951-52	20,700
1952-53	21,000
1953-54	29,400

The consumption of coffee in India represented only about 50 per cent of its production in the country. The foreign market was also dull owing to over-production. When the world war broke out just at this juncture in 1939, the export outlets came to be completely blocked, with the result that the internal market was threatened with a glut of coffee for which there was no market. In December 1940, the Government constituted the Coffee Market Expansion Board by promulgating the Coffee Market Expansion Ordinance 1940. The Board's main object was to stabilise prices at a reasonable level by collecting the

surplus coffee produced in India and marketing it in planned stages so as to prevent a glut in the internal market. To begin with, only estates having an area of 25 acres or more were brought under control and were required to register themselves and deliver their "surplus quota", representing 60 per cent of the production, to be administered by the Board. The balance 40 per cent, which was known as the "internal sale quota", was left with the producer to be disposed of by him in the internal market as he considered best. The coffee delivered to the Pool by each planter was separately assessed both with reference to quantity and quality and released periodically, mainly for exports and occasionally for internal consumption in stipulated quantities with minimum prices fixed for different types and grades. The Pool proceeds were distributed among the growers in instalments with reference to the assessment already made, the final payment being made after full disposal of the season's Pool coffee.

However, the industry, at the outbreak of the war, was faced with entirely different conditions. It saw the disappearance of its foreign markets, and its economic condition was weak, while the growers were near the end of their resources as a result of the long-continued depression. In attempting to relieve the position, the leaders of the industry embarked on a bold experiment in co-operative marketing, embodied in the Indian Coffee Market Expansion Act of 1942. This experiment succeeded beyond all hopes; and the favourable factors in the years following the Act were that crops were never very large and that the internal demand grew amazingly. This growth was partly due to the increased prosperity arising from the war activities and partly to the advent of substantial American forces with whom coffee took the place of tea. As a matter of fact, the supply of coffee fell considerably behind the demand and prices rose sharply, indeed, in 1942.

In general, the industry passed through 1948 to 1951 successfully with good crops and good prices. The main problem in the industry was, however, the smallness of the crop and the consequent inability to meet the demands of the local and foreign markets. As internal

consumption also advanced further, there was left only a nominal quantity for export. Price trends were to go higher or lower according to whether the coffee reserved for export was actually exported or released for internal market. This tendency was particularly evident in 1952. The Indian Coffee Board then adopted a change in the method of sales by auction. By this change, prices were brought down to more reasonable levels. The market ruled generally dull in 1953 when traders were practically off the market, resulting in the accumulation of stocks. The retailers preferred to buy coffee from the auctions rather than from a registered dealer as he was able to get his requirements ready and cheap. After a good deal of agitation by the growers that export alone could save the industry from a crisis, the Government took the decision to allow an export quota of 2,000 tons of the 1952/53 crop.

The industry, however, accomplished a three-fold record in 1954—in production, consumption and export allocations. Production during the 1953/54 season (season ending June) soared up to 29,400 tons—the highest on record. Consumption, at 21,000 tons, showed an increase of 2,593 tons over the previous record of 1952/53, while export allocations of 10,650 tons were nearly double that of the previous best in 1945/46. Also, there was comparative stability in Pool auction prices with only mild range of fluctuations, not exceeding Rs 15 as against Rs 58 in the previous year in the price of Plantation "A" variety. The fact, that coffee prices were being kept at a fairly reasonable level in India in the face of rising labour welfare measures, initiated under the Plantation Labour Act, was a matter for no small congratulation to the industry, particularly in the light of violent fluctuations in the prices of coffee, now noticed outside India.

The increased production was the result of favourable weather conditions combined with extensive use of fertilizers. As in the case of production, coffee exports also recorded a substantial increase despite the decline in export prices. This improvement was possible on account of the liberal policy of the Government, which allowed an export of 9,000 tons during 1954 as compared with only 2,000 tons in 1953. Exporters could not, however, take advantage of the ruling high prices in the international markets due to Government's reluctance to allow the export of the surplus from the 1952/53 and 1953/54 crops; and producers were reported to have lost as much as Rs 9 crores in exports. In this connection, the Indian Coffee Board's handling of coffee was severely criticised by the growers, who blamed the Coffee Board for delayed exports in 1954 and thus missing a chance to sell coffee in the world markets while the prices

were high. They stated that, in the export trade, it was essential to market coffee as soon as possible after curing as "new coffee" and that, to obtain maximum prices in the export markets, it was essential that such coffee should be marketed and exported out of India before the monsoon sets in the West Coast. But the Coffee Board did not follow this principle, so much so that some 5,000 tons of coffee, which could have been sold prior to the monsoon at a high premium, had to be sold on the export market, after the monsoon, at prices in some cases as much as Rs 100 or more per cwt. lower. On the whole, 29,169 tons were received out of the 1953/54 crop in the Coffee Board Pool till the end of December 1954 of which 1,14,952 tons were sold for internal consumption and 9,288 tons for export, allowing 4,919 tons to go forward. The probable disposal of coffee in the home market, during the year, was estimated at 21,000 tons. Taking the two years 1953 and 1954, when coffee marketing fell under the Government control, the yearly average offtake was 18,000 tons, the same as the average of the two previous years.

With a view to expand production further, the Government have now proposed to increase the present acreage by 100,000 acres and the production of small-sized estates from 1½ cwt. to 2½ cwt. per acre. This target is not expected to present any difficulty as about 300,000 acres of virgin land, suitable for cultivation, is available in the Malnad region alone. To improve the methods of cultivation, it is necessary to consolidate the small uneconomic holdings. About two-thirds of the area under coffee consists of acres less than 200 acres. Given the necessary co-operation on the part of the Government, there is an opportunity here for developing an industry that will place the country among the leading coffee producers of the world, bring substantial foreign exchange earnings, increase the volume of employment and the capital investment of the country.

The 1954/55 season crop is estimated around 24,200 tons. The Government have agreed to the export of a quantity equivalent to what was carried over into 1955 and have stated that the auction prices will be more satisfactorily spaced than in 1954. On the whole, the year 1955 will prove to be a satisfactory year. Moreover, the Government's decision to reduce the export duty on coffee from Rs 62-8 per cwt. to Rs 21 per cwt. with effect from the 18th February 1955 will considerably improve the competitive strength of Indian coffee prices in international markets. Thus, with the scope for a widening market both in the country and outside, the industry is destined to play a far important part in the welfare of the country and nation than hitherto.

Oilseeds

Stage

Sharp

Retreat

INDIA is one of the most important producers of Oilseeds in the world and accounts for a production of about 4 million tons out of the estimated 33 million tons produced in the world per annum. A small proportion of the total production of oilseeds goes for direct consumption, exports and as seeds for cultivation. The remaining quantity of oilseeds is being utilised by way of crushing for the extraction of oils by mills and Ghanis, either for human consumption, industrial uses as well as exports. Any development, therefore, envisaged in the field of oil and oilseeds production has to recognise the trends in these three major fields of utilisation. It may, however, be noted that not enough attention was paid to the problem of increasing the output. It is only recently that oilseeds have found increasing importance in the country's economy.

On the basis of edible oil supplies available per annum for the entire

	(Area in thousand Acres) 1952-53	(Area in thousand Acres) 1953-54	(Output in thousand Tons) 1952-53	(Output in thousand Tons) 1953-54
Groundnuts ..	11,850	11,356	2,864*	3,772*
Linseed ..	3,395	3,369	359	355
Castorseed ..	1,337	1,368	106	107
Seasamum ..	5,860	6,132	460	531
Rope and Mustard ..	5,159	5,373	837	826

*In shells.

Several schemes for the improvement of the oilseeds crop in the various States have been chalked out. All these schemes are designed to increase the production of oilseeds in the country. Despite the fact that the Planning Commission's target for additional output of 4 lakhs tons has already been achieved in 1953-54, there is no occasion for an attitude of complacency. The comfortable position is partly due to the result of a good monsoon during the year and the picture could easily change drastically in a period of bad monsoon. The season 1954-55 provides prospects for further increase in production. It may be that the target fixed in the Planning Commission's report for the first Five-Year Plan for increased production of oilseeds in the country was comparatively low.

The requirements of oils both in the country and abroad are increasing and it is estimated that the

population of the country, the average per capita consumption of oil works out to 0.40 ounces per day. This standard of consumption is inadequate compared to international standards and also falls short of the minimum per capita consumption of 2 ounces of the fats as recommended by the Nutritional Advisory Committee. The Planning Commission, therefore, envisaged an increase of 4 lakhs tons in the production of oilseeds over 1950-51 level by 1965. It is, however, gratifying to note that this target has already been achieved. This is, however, not enough and, in view of the growing population, the output needs to be increased considerably. Moreover, in recent years, export trade has also received a setback, mainly due to inadequate supplies. If export markets are to be retained, it is equally essential that production should make further headway.

The oilseeds crop estimates for the last two seasons are as follows:

country should aim at a further increase in the production of oilseeds. The Central Oilseeds Committee has been asked to prepare a second Five-Year Plan for the purpose, and measures are being thought off for the same. In the first Five-Year Plan, no specific oilseeds development programmes had been drawn up by the Government and no allotment of funds for achieving the small target, laid in the Plan, had been made. It might have been expected that the increased production target would be achieved in the natural course. Since, however the production mostly depends on several factors, it is very necessary that definite schemes should be prepared by the Oilseeds Committee in consultation with the State Governments for achieving the target for the Second Plan. It would be in the fitness of things that, as in the case of foodgrains and other cash crops like cotton, jute and sugarcane, adequate provision for

financing these schemes should be made.

The Government of India have recently appointed a Committee to go into the entire question of the oilseeds crushing industry in the country, including crushing both by village ghanis and by mills.

In the first Five-Year Plan, the Planning Commission attached great importance to the development of the village oil industry and suggested inter alia the adoption of a policy of developing the production of edible oils through oil mills. The Committee also recommended that further expansion of the large-scale industry should not ordinarily be permitted in the sphere of food processing industries and that a small cess should be levied on mill oil for the benefit of the village oil industry.

According to its terms of reference the Committee will carry out a rapid survey of the state of the oilseeds industry and recommend the lines on which it should be developed in future. In particular, it will examine and report (a) whether it is necessary to increase or to reduce the existing oilseed crushing capacity of mills; (b) whether it would be desirable to reserve any particular oilseeds for crushing by the village ghanis only, having regard to the effect of such reservation on the efficiency of production of oil and its nutritional value and having regard further to its effect on employment, supply of oil to consuming industries and exports; and (c) whether it is necessary to give any assistance to the village oil crushing industry.

Seeds:	2nd June 1954		High		Low		31st Dec. 1954	
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
Groundnuts ..	34 0	37 0	22 0	22 6				
Linseed ..	29 0	30 4	21 8	22 8				
Castor Madras ..	25 8	26 4	17 0	17 0				
Nigerseeds ..	28 8	30 8	15 6	19 12				
Kardiseeds ..	24 0	25 8	13 10	15 12				
Oils:								
Groundnuts ..	17 10	19 0	11 4	11 6				
Linseed ..	16 10	16 14	12 0	12 8				
Castor Commercial ..	14 4	14 10	9 0	9 1				

Note:—Oilseeds prices are per cwt. and oil per quarter.

In the forward section, castor-seeds May 1954 moved between Rs 12-12 to Rs 101-8; spot 1954 delivery between Rs 126-14 to Rs 93-6 and May 1955 delivery between Rs 105-12 and Rs 88-12 till 31st December 1954.

Prices of groundnut as well as other oils, since the close of the year, were marked down to new low levels after several years following heavy pressure of the new

	1949-50	(In 1,000 tons)	1951-52	1952-53	1953-54
Groundnut kernels ..	126	38	20	13	5
Groundnut oil ..	39	82	21	87	1.5
Linseed ..	72	68	7		
Linseed oil ..	7	6	25	28	3.7
Castor ..	5	79	1	4	N
Castor oil ..	5	25	24	37	19

The value realised by way of exports of groundnuts in 1953-1954 came to Rs 62 lakhs; Groundnut Oil Rs 24 lakhs; Linseed Oil Rs 53 lakhs and Castor Oil Rs 3.15 crores.

Exports, during the current year 1954-55, are likely to be better in view of the comfortable supply position owing to excellent monsoon. It may, however, be pointed

out that India will have to lose her traditional export markets in both oilseeds and vegetable oils if production of oilseeds does not keep pace with the growth of population.

The Forward Markets Commission has recently applied the Forward Contracts (Regulation) Act 1952 to all oilseeds and oils in the country.

Prices trends of oilseeds and oils during 1954 were as follows:

crop arrivals; but, since then, they staged a partial rally on liberal export policy for groundnut oil. Linseed was in limelight on encouraging export business in oil. The outlook for the market appears to be steady as Government are keeping an eye to arrest any further fall in prices.

The trend in exports of oilseeds and vegetable oils for the past five years was as follows:

that India will have to lose her traditional export markets in both oilseeds and vegetable oils if production of oilseeds does not keep pace with the growth of population.

The Forward Markets Commission has recently applied the Forward Contracts (Regulation) Act 1952 to all oilseeds and oils in the country.

Role of Plantation Industries

THE Plantation industry plays an important role in the country's economy since it offers the most rapid possibilities of expansion in employment and production, and earns huge sums of revenue to the Government. It makes the least demand on the import of machinery and can easily utilise the unskilled labour of the country, providing employment to many thousands of people. Over 73 per cent of the entire area under plantation crops, 87½ per cent of coffee, no less than 80 per cent of rubber and 38 per cent of tea are owned by Indians. When all these facts are considered clearly and dispassionately, it may be possible to arrive at the conclusion that the plantation industry is a national asset of the first order; and that nothing should be done to impede its progress or impair its efficiency. The prospect of the industry, thus, depends upon the atmosphere in which the most dynamic factor on the plantation scene will be allowed by the Government to work and produce.

A broad understanding of the place of planting in India's industrial and economic mosaic is necessary if the effect of the present policy towards planting is to be correctly assessed. A plantation crop is usually an introduced crop, introduced in the colonial days to meet the needs of the colonists' home markets. Spices were, however, native to India and were produced largely from peasant holdings and not from plantations. Coffee was grown in India from very early times, but the plantation cultivation began only in the early 19th century after the British took an interest in the crop. Tea and Rubber were introduced crops. The three crops popularly classified as plantation crops are tea, coffee and rubber. The most distinguished feature of plantation crops is that they are grown and exploited on a scale to which modern conceptions of industrial management are applicable. Another aspect of plantation crops, which is of special importance to India, is that these crops are generally grown on the hills where the pressure of population is the least and, therefore, the removal of people to the plantations reduces by that much the pressure in the rural plains and urban centres of the country. If tea, rubber and coffee were grown as pepper or ginger or lemongrass, there would not have been the powerful managerial organisations that are today in these important crops. It is primarily by the cohesion given to the industry by the management that dynamic staff and labour movements have taken body within the plantation industry.

The year just passed witnessed a record export trade in plantation commodities through Cochin Port.

Exports of tea, coffee, cashew, pepper and lemongrass oil were higher during 1954. Rubber shipments created a new record. Cashew exports, during the last three years, were in the order of 27,900 tons in 1954; 23,880 tons in 1953 and 21,334 tons in 1952. USA was by far the chief destination of cashew exports from India. Almost the entire volume of rubber produced in South India passes through the Cochin Port and is shipped to Bombay, Calcutta and other Indian Ports. During 1954, roughly about 21,800 tons of raw rubber went through Cochin and it realised about Rs. 6.35 crores—the highest recorded in quantity and value. Pepper exports jumped upto 270,767 cwts in 1954 as compared with 218,453 cwts in 1953 and 241,786 cwts in 1952. Despite this increase in volume, the earning on that account was lower due to the sharp fall in price. A record volume of 799 tons of lemongrass oil was exported from Cochin and the value realised was the highest since 1950. In the case of ginger, exports at 53,826 cwts were 13,809 cwts lower than the 1953 exports and fell short of 1952 exports by 33,476 cwts. Exports of cardamom were the lowest in several years, the quantity being 2,979 cwts as compared with 3,206 cwts in 1953.

Though the marketing of Tea has not presented any big problem and the rise in prices has helped to offset some of the heavy losses of 1952, other factors—Income Tax on 40 per cent of the profits, Excise Duty, Export Duty, Cess, Licensing Fee and Sales Tax—have intervened and prevented the industry as a whole from obtaining full benefit from the increased price. Coffee seems to be in a peculiar position as compared with tea. From 1945 till 1953, every rise in the cost of production, increases in wages and the increasing cost of stores were allowed in the Pool price. Though wages and costs are still reported to be increasing, prices have been brought down by the Government on the plea that the consumer cannot afford the prices. Moreover, the planters have the added disadvantage of widely varying yield from year to year due to seasonal conditions. In the case of Rubber, factors limiting India's production are many. The life of a rubber tree is about 40 years, of which 10 years are spent in immaturity. As every rubber tree ought to be replaced within four years, the rate of replacement will be 25 per cent. In other words, one quarter of the estate will be in the process of rehabilitation, while the profits from the other three quarters pay for it. With the application of the relief provisions of the Industrial Disputes Act 1953 to plantation labour, the enforcement of the

Plantation Labour Act and the introduction of Agricultural Income-Tax on plantations in Travancore-Cochin and Madras States, the industry has been rendered almost incapable of diverting enough funds for rehabilitation. At this stage, it will be of interest to analyse the production and consumption trends during the past few years.

The causes for the turn-round in the fortunes of the Tea industry are well-known. No one could have expected that the price of Common tea would reach an all-time record figure of 6sh. 6d. per pound, almost double the figure of a year earlier. One of the causes for the recovery in prices was the psychological effect produced by the decision of the North Indian tea producers to reduce their crops, though South Indian producers was not a party to this crop regulation scheme. Production in Northern India in 1954 at 507.97 million pounds shows an increase of 23.08 million pounds as compared with that of 1953, while South Indian production is estimated around 128.50 million pounds. Present estimates of internal tea consumption vary widely between 170 and 200 million pounds. Probably, in the context

of the present high level of prices, consumption in 1954 should have been nearer the former than the latter figure. Even granting that it is not, the ideas of short supply are not warranted. There is now a growing consensus of opinion that the upward trend in tea prices has passed its peak, as there are clear indications of increasing buyers' resistance to higher prices. No precipitate fall in prices is, however, likely as the long-term success of buying policies will depend on a change in the statistical position of tea. As it is, the overall position continues to be one of insufficient supplies in the face of rising world consumption.

Coffee production during the season 1953-54 (season ending June) soared up to 24,900 tons—the highest on record. Consumption, at 21,000 tons, showed an increase of 2,593 tons over the previous record of 1952-53, while export allocations of 10,650 tons were nearly double that of the previous best in 1945-46. The fact, that coffee prices were being kept at a fairly reasonable level in India in the face of rising welfare measures, initiated under the Plantation Labour Act, was a matter for no small congratulation to the industry, particularly in the

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light of violent fluctuations in prices now noticed outside India. Given the necessary co-operation on the part of Government, there is an opportunity for developing an industry that will place the country among the coffee producers of the world and bring substantial foreign exchange.

As for Rubber, the price of this commodity is higher than the world price and this stands in the way of Indian rubber goods manufacturing industry expanding itself and finding a world market for its products. The consumers of rubber, especially those who are catering to world markets, are complaining that they are finding it difficult to retail their markets due to competition with foreign manufacturers who are getting the benefit of low world prices for raw rubber. Thus, the Indian rubber industry is now facing a challenge—a challenge to increase its natural rubber output to meet the increasing demand within the country for the commodity. There was a gap of over 3,000 tons between production and consumption in 1954. As the price incentive was there, local production showed some improvement over the previous year; but it failed to keep pace with the steady advance in consumption which reached the unprecedented level of over 25,000 tons during 1954. There is plenty of scope for increasing production if the present low-yielding areas are replanted with high-yielding strains. In this connection, the substantial increase of Rs. 12 per 100 pounds, in the selling price of raw rubber, is a gift to the industry. That the Government have conceded the request of the industry without waiting for the recommendations of the Plantation Inquiry Committee suggests that the rise in the cost of production has been big enough to warrant an immediate increase in the producers' selling price, which otherwise would have come up for consideration only in October. The price increase is quite substantial and this will enable producers to put by adequate funds for the replanting of rubber, which has to be undertaken on a considerable scale and for new plantings.

Cashew kernels constitute one of the important earners of foreign exchange in India, which is the main source of supply for over 90 per cent of the world demand. Of the balance 10 per cent, the major portion comes from Brazil. Both the area and production in India show a rising trend in recent years; and, with suitable encouragement, the area can be considerably increased without affecting the raising of food crops. Though our supplies of raw nuts from East Africa, the main source, are not likely to be cut off in the near future, we should make early arrangements for reducing India's dependence on these foreign imports by stepping up indigenous production for which there are immense possibilities. Though the

year 1954 did not create a new record in production, it showed marked improvement over 1953. One reason for the change in the cashew situation was the surprise order for one lakh cases from the U.K. Indigenous production in the current season will create a new record, according to present estimates.

Also, Pepper has emerged as a dollar-earner since 1948-49. The excessively high prices commanded by this commodity in the last few years have had their effects; and an examination of these effects is necessary to evaluate the future market for this valuable spice. Under the stimulus of very high prices, the area under pepper has increased not only in India, but also in other producing countries. Although black pepper exports were favourable during past years, there has been a steady decline in exports recently. Poor quality is the reason for this drop, while the rapid increase in Sarawak's pepper exports is evident from earnings from that source. In fact, India's pepper trade with the USA, which had been India's monopoly, is now facing keen competition from Indonesia and Sarawak. With only a few months left for the Indonesian crop to come on the market, pepper exports from this country should have been at a much higher space than they are now. Even the reduction in the export duty from 30 per cent ad valorem to 15 per cent ad valorem, announced towards the end of January 1955, was not adequate enough to restore the confidence of foreign buyers in Indian pepper. In this connection, the Government's decision to establish an Export Promotion Council for pepper and cashewnuts should be welcomed. This Council's main task will be to do propaganda for pepper and cashew in America, explore markets in other countries and maintain price stability. The two countries most concerned with maintaining the price trend at an economic level and of developing the world market for pepper are India and Indonesia; and, between these two countries, there should be much closer understanding and co-ordination for regulating production and exports.

On the whole, if the recommendations of the Spices Enquiry Committee for the development of pepper, cardamom and cashewnuts are implemented by the Government, it will be a source of strength to the plantation economy. Though these are minor products and scattered in very small holdings, they can continue to be big earners of foreign exchange as they have been lately. The general trend of thought in all these industries is towards increasing the role of the producer in the disposal of his produce and in the control of the development of the industry. While there is a general dislike and distrust of legislative interference with industry, there is a growing realisation that some

statutory assistance is essential. Experience has clearly shown that legislation for the control of industry must be more flexible than in the past. The whole industry is so closely knit that, if the big ones close down, the small ones, too, will have to follow suit. During the last 20 years, the industry had been hit by periodical adversities and depressions, and it has to look about for stability, particularly in view of competition from newly-developing areas abroad. What is liable to be overlooked is the important fact that profits in the plantation industry fluctuate so much from product to product and from season to season. If, in such a state of affairs, the industry is to be taxed so heavily it will, no doubt, be doomed to lingering perdition worse than death.

This is the first time that the Government of India have appointed

a Commission of Enquiry to examine comprehensively the economic conditions and problems of these plantation industries. This step is a mark of the Government's recognition of the importance of these industries to the economy of the country. The increasingly important role which plantation products have come to occupy in India's foreign exchange earnings has not received full appreciation. The following figures of export earnings are very revealing from this point of view:

	TWELVE MONTHS ENDED MARCH		
	(In crores of Rs.)		
	1951-52	1952-53	1953-54
Tea ..	98.44	80.18	101.55
Cardamom ..	1.64	1.66	1.34
Cashew Kernels	9.05	12.98	10.53
Pepper ..	23.22	16.06	12.72
U.S. shares of			
Pepper ..	12.21	10.62	7.37

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Cotton Economy on Right Track

THE Cotton economy of the country is on right track after having operated on a subsistence level where production was chasing consumption and consumption, in turn, chasing production after the partition from 1947-48 to 1952-53. However, prospects of supply have showed signs of definite improvement since 1953-54, when control on cotton was relaxed. In the season 1954-55, the supply position has become so comfortable that the Government had to reduce the "floor" prices by Rs 50 per candy; and the remaining controls, such as abolition of zonal system as well as lifting up quota restrictions for purchases by mills, had to be effected to prevent prices from further collapse. Government of India announced on 8th February 1955 their decision to suspend with immediate effect the quota system of allocation of Indian cotton to the mills. Thus mills as well as the trade are now allowed to buy Indian cotton freely. The position will be reviewed again by the Government at the end of May 1955.

The recent setback in cotton prices might, to some extent, adversely affect the cultivation of the cotton crop; but, as prices of all farm products have gone down considerably, there is no likelihood of any serious threat to cotton economy. Mill consumption of Indian cotton is on the increase, while efforts are also being made to grow long-staple cotton as far as possible, so that our dependency on foreign cotton may be gradually reduced. With the early completion of the major river projects, which have been undertaken by the Government, the target of 55 lakhs bales of production by the end of the Second Five-Year Plan is not difficult to be achieved.

What is, however, required is that serious and systematic efforts should be made to raise up the level of the consumption of cloth in the country. This object would be difficult to be achieved unless a rigorous attempt is made to produce cloth to correspond with the changing tastes of the people of this country and at reduced costs. These efforts, coupled with improved marketing techniques, if scientifically pursued, will not only result in expanding the huge yet hitherto untapped domestic market for cloth, but also in helping the country to retain and expand export markets for Indian cloth on a greater scale than in the past. In other words, greater emphasis should be placed on raising the level of domestic consumption of cloth to fully absorb the increase in production of cotton, which is very likely to follow in the course of next few years. Cloth prices, at the moment, are still about 4 to 5 times higher than the pre-war level; but, unless they are brought down to suit the pockets of the masses, the increasing production of cloth will prove to be a drag on the

market. There are limits to export promotion in the face of keen competition in overseas markets. The target of 1,000 million yards, if it can be maintained, can be considered as too good a performance; but, in the year 1955, the maximum export that can be expected of mill-made cloth is about 700 million yards. The Government's vacillating policy on rationalisation comes in the way of reducing the costs. Any way, if the cotton economy of the country is not to be hit, the situation demands that domestic consumption of cloth should keep pace.

The season 1954-55 is half way through and it is possible to assess fairly reasonably the overall supply and distribution prospects of cotton during the season. The estimate is presented below:—

	(In lakh bales of 400 lbs. each)		Indian Foreign Total
Supply:			
Carry-over with mills & trade on 31-8-54	17.43	2.58	20.01
Estimated commercial crop (1954-55 season)	45.00	..	45.00
Estimated Imports during the season	..	6.00	6.00
Total Supply	62.43	8.58	71.01
Distribution:			
Estimated mill consumption during the season	40.00	7.25	47.25
Estimated Exports	2.25	..	2.25
	42.25	7.25	49.50
Estimated carry-over on 31-8-55 with mills & trade	20.18	1.33	21.51
	62.43	8.58	71.01

With a view to maintain export links as well as help the short-staple varieties, Government have been giving small export quotas from year to year. The main emphasis is on Bengal Deshi, which holds a monopolistic position in foreign markets; and a large number of Continental buyers would prefer to try this growth paying even a little higher price, if necessary, in preference to other equivalent foreign growths, such as Pakistan and lower varieties of Brazilian cotton. Since last two years, the acreage under this variety is being diverted to some extent for the growth of long-staple variety.

Exports of cotton to foreign countries from Bombay since the partition of the country in 1947 are as follows:

Year ending	(In bales)	
31st August		
1947-48 ..	..	941,959
1948-49 ..	..	295,171
1949-50 ..	..	219,423
1950-51 ..	..	168,973
1951-52 ..	..	125,691
1952-53 ..	..	327,213
1953-54 ..	..	125,657

For the season 1954-55, the Government of India announced an export quota of one lakh bales consisting of 50,000 bales of Bengal Deshi, 25,000 bales of Oomra Deshi including CP Deshi and 25,000 bales of Mathia, Dholleras and Kala-

gins. The quota of Bengals was subsequently raised up by another 25,000 bales. On 8th February 1955, Government announced further release of export quota of 50,000 bales of cotton (Bengal Deshi, Oomras, Kalagin, Dholleras and Mathias of old or new crop of 11/16" staple and below) of which the quantity of Bengal Deshi should not exceed 25,000 bales. In addition, export of another 25,000 bales of old crop of 1953-54 and earlier years of staple length up to 3/4" has also been allowed. Thus, the overall export quota for the season 1954-55 so far amounts to 2 lakh bales, apart from the unutilised quotas for the previous season.

Since partition, India had to fritter away large foreign exchange for imports of foreign cotton at considerably higher price to augment the small indigenous stocks.

However, since last two years, following the comfortable supply position of local cotton, imports have been on the decline. Imports in India since the partition were as follows:

Year ending	Quantity in tons	Value (in crores of Rs.)
31st March		
1948-49 ..	161,715	64.23
1949-50 ..	158,578	63.22
1950-51 ..	214,886	100.76
1951-52 ..	216,612	138.98
1952-53 ..	138,397	76.67
1953-54 ..	116,205	52.70

The Indian Central Cotton Committee has been doing very useful work for the growth of long-staple cotton which might gradually replace foreign imports. Even the mills are now devoting more attention to the use of more and more of Indian cotton. The comparative consumption figures of cotton by

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mills in India during the past eight years since partition are as follows:

Year ending 31st August	Indian	Foreign	Total
	(In lakhs of bales)		
1946-47	21.44	17.13	38.57
1947-48	28.63	13.47	42.10
1948-49	31.23	11.31	42.54
1949-50	25.44	11.40	36.84
1950-51	25.17	11.05	36.22
1951-52	29.87	10.84	40.71
1952-53	36.11	8.49	44.60
1953-54	38.88	7.19	46.07

It may be here noted that consumption of cotton by mills in India was a record one during the past cotton year in view of the higher output of the textile industry. The following table gives an idea of the progress made on the textile front in the year 1954 as compared with the two previous calendar years:

Year:	Yarn	Production Cloth	Exports
		(In million lbs.)	
1952	1,449	4,599	544
1953	1,505	4,878	652
1954	1,558	5,019	898

Variety-wise, exports of mill-made cloth were as follows:

	1953		1954	
	(In million yards)	(In per cent)	(In million yards)	(In per cent)
Coarse	239	37	187	21
Medium	255	39	615	68
Fine	145	22	73	8.5
Superfine	13	2	23	2.5
Total	652	100	898	100

From an analysis of these figures, it will be seen that there has been a significant drop not only in the coarse counts which is due to export duty of 10 per cent levied on them, but also in the fine and super-fine sections. As some mills adopted mal-practices with a view to evade the duty, the Government have made fresh classification, so that more goods might come under export duty. The fall in exports of fine goods may partly be attributed to mills and exporters offering pseudo-mediums in place of fine varieties due to the circumstances of local excise.

The most important development regarding the cotton market was the application of the Forward Contracts (Regulation) Act 1952 as per the Government of India's notification on 30th July. The control of the market passed into Government of India's hands from the Bombay Government. The Forward Markets Commission directed the East India Cotton Association to amend its bye-laws to make them conform to the requirements of the Act. An agreed list of amendments was finally evolved and, in the meanwhile, the forward market was completely closed from 26th August to 6th October. It is under the amended bye-laws that hedge trading is now taking place, the first contract to function under the new system being I.C.C. February, 1955. Certain bye-laws have been amended, while a new bye-law has been enacted so as to provide for payment of graded margin on net open

position exceeding free limit of 10,000 bales. Partners of firms are debarred from doing business on their individual account.

As the terms of the contract are somewhat bearish, the disparity in spot and forward rates and to fixation of tendering differences in favour of sellers in 1954 May contract led to protracted litigation. Though a settlement was subsequently arrived at, the E.I.C.A. had to give ground. Hence reasonable tendering differences for I.C.C. August 1954 and February 1955 were fixed. The bye-law 55 is being amended; and, in August contract, the tendering differences are to be based on spot prices. The Forward Markets Commission has felt the need for suitable change in the contract and the overall change will be made for the 1955-56 season's contracts.

The trend of cotton prices, after remaining firm, remained downward due to better supply position as well as the reduction in "floor" levels by Rs 50 for the season 1954-55. I.C.C. February 1954, after commencing at Rs 672-8 on 2nd January 1954, moved up to Rs 747 by 13th February, dropped down to Rs 684. Tenders against February contract amounted to 19,450 bales.

The May 1954 contract, which started the year at Rs 672, advanced up to Rs 720-8 by 28th January, to drop sharply to Rs 648-8 in May, to expire at Rs 650 on 25th May. Tenders totalled 13,400 bales.

I.C.C. August 1954, which commenced at Rs 681-8 on 8th March, advanced up to Rs 704-8 by the end

of the month, to touch as low as Rs 631-8 on 22nd June. This jeopardised the settlement and, in the last week of the month, the market remained closed for a few days. When the trading was resumed on 29th June, the rate for I.C.C. August was placed at Rs 645. After fluctuating between Rs 671 to Rs 633, the market shot up to Rs 705 before finally quoting at Rs 702. Tenders against the August contract amounted to 60,350 bales.

Price range in the various contracts since 1953 August are as follows:

	(Per Candy of 784 lbs.)	High	Low
		Rs. a.	Rs. a.
I. C. C.:			
February, 1954	746 8	598 8	
May, 1954	720 8	604 8	
August, 1954	706 8	632 0	
February, 1955	643 8	562 8	
May, 1955*	633 0	562 8	

*Till the 22nd February.

Though there has been a sizeable setback in cotton prices, of late, the market still is somewhat obsessed by the obscure textile outlook. Prices, however, are low enough with I.C.C. May quoting at Rs 580. There is no likelihood, however, of any material setback from the present level.

The question of opening forward markets in upcountry centres is being examined by the Forward Markets Commission. It is considered likely that there will be allowed at least five forward markets in various regions to function.

Rubber Output Just Short of Demand

THE production of raw rubber on a large scale in India commenced about 1900. Though the acreage steadily expanded, there were vicissitudes in the fortunes of the producers. The international market price for rubber, to which the domestic price in India remained closely linked for a long time, was undergoing sharp fluctuations between 1914 and the present time. In recent years, the domestic price has been regulated by the Government of India. In 1910, the price of rubber reached the all-time peak of 12sh. 9d. per pound. At that time the plantations were able to raise stupendous profits. Even when price went down rather irregularly in the subsequent decade, the expansion of rubber cultivation was not halted. Because even at the worst price levels, a comfortable margin of profit was available. It was only with the onset of the great Depression in 1929 when rubber price along with all other prices touched its bottom that the Indian producers had a period of real hardship. In the 1930's the price had to be stimulated and sustained through the mechanism of international agreement providing for the restriction of the crop. In this respect rubber was not alone; many other commodities were also similarly restricted. For India, after a few years of stagnation, the pro-

cess of expansion of acreage again got into stride. When Japan occupied the South East Asian countries, which are the main producers of rubber and thus cut off the bulk of rubber supplies to the Allied Nations, India and Ceylon, the only two countries which Japan could not overrun, were faced with the need to increase the output in as quick a manner as possible. While the Government of India were anxious to offer every incentive to the producers, they were at the same time keen on seeing that the commodity could be had at a reasonable price. Here in, again, we see the background of price control. In 1943, nearly 15,000 acres of land was added to rubber cultivation. And by the end of 1949, the total area reached 170,000 acres. Since then there has been no expansion worth mentioning.

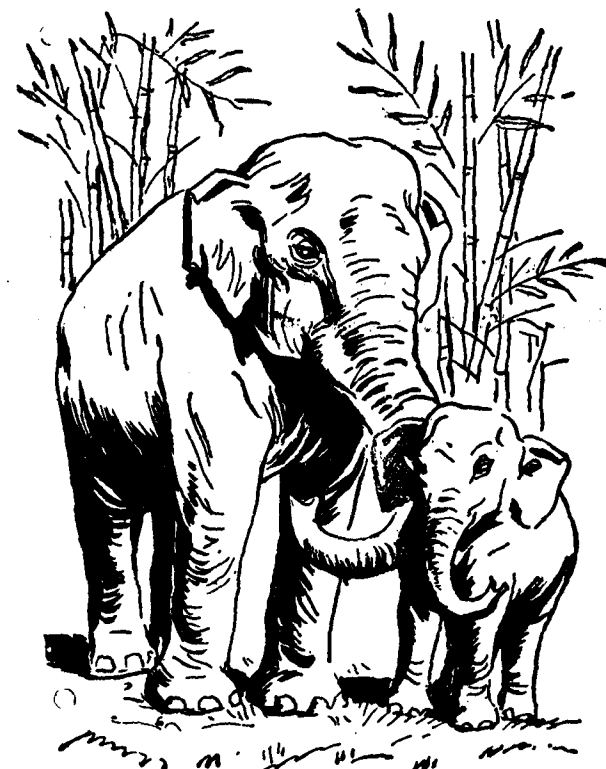
The present output of rubber is of the order of 22,000 tons for year, which is a little less than what the domestic manufacturers require. In another five years, the demand for raw rubber is expected to reach 40,000 tons, according to the estimates made by the Planning Commission. Official policy is now being directed to expand production on a corresponding scale. The industry has several problems. In the official version, there is conflict between the big and small producers and both in the admini-

nistration of the industry and in respect of price it is held, that the small producer is not faring so well as his big neighbours. Nearly 40 per cent of the total acreage in rubber, are in units of less than 100 acres. There are 12,000 holdings below 10 acres. The small holders produce 27.7 per cent of the total domestic production from 40 per cent of the total acreage in will thus be seen that the average of the small holdings is even less than the figure given above.

Adequate production of raw rubber in India could be secured only if the output per acre goes up. This is a problem of both scientific research and proper incentives to the small producers. As regards the first, Mr T. T. Krishnamachari, the Industry and Commerce Minister, announced in Parliament in the last week of November that an expert from Malaya is being invited for purposes of research on improvement in production methods. Replantings on a large scale are considered necessary, in which the Government are prepared to offer assistance wherever it is required. The second, namely the problem of incentives is a broad question. As it mainly touches on price, it is pertinent to recall the major details of the history of price control over rubber. From the abysmal bottom of 2 11/32d reached in 1932, the price

of rubber per pound was rising gradually till about 1946 when it reached 1½sh. Compared to the price of other commodities, rubber price was ruling very low even at that level; and the Government of India were concerned as to how the industry could be protected from incipient competition. Import restrictions and a statutory price were considered complementary means for this purpose. In 1947, the Rubber Production Marketing Act was passed. The Act authorised the Central Government to fix the maximum and the minimum price for the different grades of rubber on consultation with the Price Advisory Committee of the Rubber Board.

Under this provision, the maximum price for grade RMA-1 was fixed at Rs 72-8 per 100 lbs f.o.b. Cochin on December 15, 1947 with suitable variations for other grades. The maximum price for grade RMA-1 was raised to Rs 78.8 on June 7, 1948 and to Rs 90-8 on October 30, 1948. The price schedule was further revised on May 24, 1949 and again on July 25, 1950. Until March 1950, the statutory price for Indian Rubber was appreciably above the world price level. From April 1950, however, owing to the international situation, the world price of rubber became abnormally high. The rubber producers of India therefore, made, a



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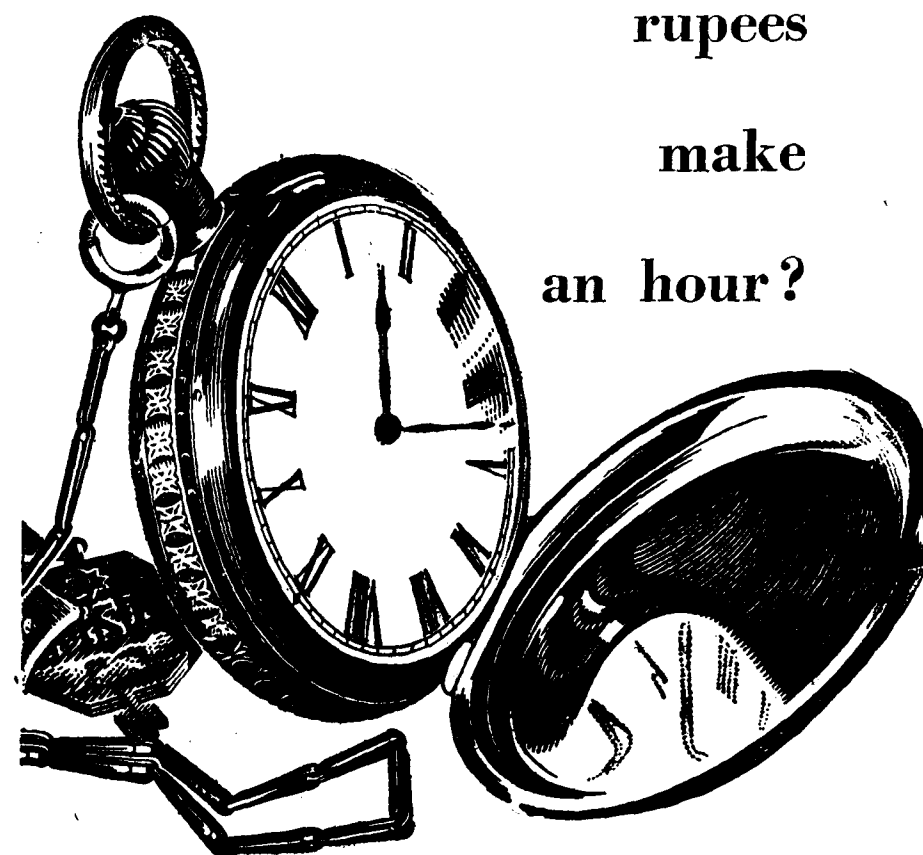
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strong representation that the statutory price of rubber should be increased to an appreciable extent, so as to provide for a higher margin of profits and reserves as well as for the cost of rehabilitation. It was in response to this representation that the Government asked the Tariff Board to make an enquiry into the cost of production and determine a fair and reasonable price for rubber.

New prices came into force from October 28, 1952. The price of RMA-1 fixed at Rs 138 per 100 lbs. f.o.b. Cochin, was found to be Rs 10 per 100 lbs., higher; and these new prices were established for a period of 3 years with the proviso that a revision would be considered in the event of production costs varying up or down by 10 per cent or more. The chief factor responsible for these higher prices was the Minimum Wages Act, which came into force in Travancore-Cochin on June, 30,

1952. According to the Tariff Commission's Report wages had risen, in consequence of this Act, by Rs 16.81 per 100 lbs.

The Tariff Commission undertook to review the position. Meanwhile, the producers are scarcely satisfied. The small producers particularly maintain that they have hardly any marginal profit. During the debate on the Rubber Bill in November, it was determined after a number of investigations that the cost structure of the industry enabled the large producers to secure a comfortable margin of profit. The small ones could be helped only by two ways; the cost of production which on account of the small holdings is comparatively high must go down and that is possible only through new plantations. There is also a suggestion to offer them a higher price through the introduction of a slab system of price which would have the effect of reducing the

difference of profit margins between the bigger and smaller producers.

An amendment to Rubber Production and Marketing Act, passed in November, provides for the re-constitution of the Rubber Board, with an official chairman and a strong proportion of producers' representatives nominated by the Government. The measure has received general support from among the producers. The prospect of establishing a rubber factory in South India, possibly in Travancore is also bright as the Commerce Minister has undertaken to give every facility and encouragement for a proposal in this behalf. In the sphere of manufacture the industry is steadily coming up. The manufacture of tyres absorb roughly 80 per cent of raw rubber. Insulated cables, footwear, toys etc. make up for the rest. The present gap between the demand for raw rubber

and its domestic supply will be seen from the following table:

Year	Pro- duction Tons	Con- sumption Tons	Deficit Tons
1950	15,599	17,735	2,136
1951	17,148	22,427	5,279
1952	19,863	21,061	1,198
1953	21,136	22,373	1,237
1954 (Estimated)	22,100	25,000	2,900

India now manufactures automobile tyres and tubes, bicycle tyres and tubes, footwear, knitted rubber goods and hoses. 1953 production figures for the several lines showed that production varied between 60 to 90 per cent of installed capacity. Out of an installed capacity for 36.5 million pairs of rubber footwear, actual production in 1953 accounted for only 23.1 million. Rubber manufacturers in India have not only produced for the home market; they have built up a sizeable export business as well.

Year	Imports (pairs)	Exports (pairs)
1932	2,489,400	190,700
1953	7,887,400	171,700
1935	4,250,200	660,000
1938	1,183,600	3,758,000
1940	560,500	223,800
1943	25,100	223,800
1947	112,544	1,355,600
1947	20,116	1,082,560
1951	nil	2,398,545
1953	nil	2,760,530

The familiar and unfortunate pattern of India's economy—an exporter of raw materials and importer of manufactured rubber goods—prevailed until 1935-36. From 1928-29 to 1935-36 the value of imported rubber manufactures fell by only 20 per cent, while exports of raw rubber increased. Exports of raw rubber declined by 82 per cent during this period (fall in production made a difference of only 7 per cent), pointing to a very large increase in the internal consumption of this raw material. In the same period, the value of manufactured imports fell by 96 per cent. These figures, it should be noted, include Burma up to 1937. The year 1935-36 marks, therefore, the turning point towards the establishment of self-sufficiency in manufactured rubber goods.

The industrial consumption of raw rubber has risen from 19,000 tons in 1948-49 to 22,500 tons in 1951. There was a setback in 1952 to 21,000 tons; it 1953 it revived to 22,000 tons; the figure for the current year may be estimated a little higher. The manufacturer complains that the production of rubber latex has improved from the point of view of quantity; its quality still lags behind. At the request of Indian Standards Institution, the Association of Rubber Manufacturers in India have formed a technical committee with the object of drawing up minimum specifications for indigenous rubber chemicals. A number of these chemicals are now manufactured in India. The question of training rubber technologists is also under active consideration but as the domestic industry is not sufficiently big to absorb a substantial annual quota of men trained in the higher techniques, the provision of facilities in this kind of education might not be immediately economical.

INDIAN TEA

It is very much interesting to know that an industrial plant has a life in no way less chequered than the average human being. History of the tea plant, some believe, is inextricably linked up with the legend of a country—China. Before 1838, the tea drunk in Europe had come from China and it was the fear that the Chinese Government might close its Ports to the East India Company that first gave an impetus to the cultivation of tea in India. Although the indigenous tea bush had already been discovered in Assam, the Chinese plant was considered essential, so that, in the first experiments conducted under Government auspices in Upper Assam, tea cultivation was carried out not only with Chinese seeds but also with imported Chinese labour.

During the 1840s, the fate of tea cultivation in India hung in the balance; but by 1848 success seemed assured and thereafter expansion was rapid. By 1859, there were more than fifty enterprises engaged in the production of tea, and its cultivation had spread from from Upper Assam into Cachar, Sylhet and Darjeeling in North India and to the Nilgiri and Kanan Devan Hills in South India. This rapid development led to an orgy of speculation which nearly brought the industry to the ruin in the early 1860s; but the larger companies weathered the storm

and, by 1870, confidence had been restored. From then on progress was steady, particularly in North India where tea cultivation spread to the Terai District of North Bengal, to the Western Dooars and later to the Eastern Dooars. In South India, too, new areas were opened, notably in the high range of Travancore. It was not until the present century that most of the South Indian estates, which today produce more than 100 million pounds of tea per year, were planted out.

The predominant position occupied by this country in the tea world will be evident from the fact that nearly 50 per cent of the total output is accounted for by the North and South Indian gardens and that over 70 per cent of the increase in production in the past decade and a half has been due to the Indian estates. While, during the war-years, the bulk purchase scheme brought about a deterioration in the quality of Indian tea and greater emphasis was laid on quantity, it must be admitted that the efforts to step up production were made possible only by the prudent policies pursued throughout by the various estates, particularly since the conclusion of the International Tea Agreement in 1953. The following table affords an analysis of production trends during the past five years (figures in million pounds):—

COUNTRY-WISE PRODUCTION	1950	1951	1952	1953	1954
	508	509½	507	487½	508
North India	508	509½	507	487½	508
South India	88	115	113	120½	128½*
Pakistan	52½	52½	51½	53	53½*
Ceylon	306½	326½	316½	343	...
Indonesia	78	101½	81½	81½	...
East Africa	36½	38	36½	33½*	...
Total	1,078½	1,143½	1,106	1,118½	...

The year 1952 witnessed the most serious crisis the industry has ever faced and, from the above production trends, it is clear that over-production was an important contributory cause to the industry's troubles. As both India and Ceylon were stepping up their output rapidly and there was a recovery in Indonesia and elsewhere, it so happened in 1952 that, with favourable weather conditions and cautious consumption, for the first time in over a decade, demand fell short of supply. Thus, whereas 1952 was a period of slump and unhappiness for the tea producer, 1953 went right to the other extreme. Although it was apparent that 1953 was by no means a vintage year for all quality, all producers, encouraged by the voluntary crop regulation scheme, wisely instituted by the Indian Tea Association and its allied Associations after the 1952 slump, were concentrating on the manufacture

of quality as opposed to quantity. The teas seen on the market were, therefore, better manufactured and freer of stalk and fibre than any that had been seen since pre-war days. As a result, some of the overseas markets, who had previously been favouring teas made in other producing countries owing to their clean leaf appearance and careful manufacture, began to

make their purchases on the Calcutta market. At the same time, buyers began to realise that world consumption generally, and especially in the U.K., was on the increase and also that their stock positions were reaching a dangerously low level. On the whole, three factors—a shortage of crop, a shortage of blenders' stocks and increased world consumption—caused the market to rise and steadily increasing prices were paid for all teas.

The improvement in the industry's position surpassed the most optimistic expectations during the year 1954. The demand for all varieties of tea, both for export and internal sales, was strong throughout the year, the main inspiration being the keen demand from the UK where prices ruled very firm. In general, buyers from the UK, who had been cautious up to the end of August in operating, slowly but steadily were forced to enter the Indian market and buy, with a consequent strengthening of rates for common teas. An important reason for the higher prices obtained after August was that there was strong buying for internal consumption from the export as well as the internal catalogues. To a large extent, the rise in prices was due to reports of floods and bad weather for growth both in the Dooars and to a lesser extent in Assam. As floods disrupted communications in North India, the movement of tea was hindered though the estates themselves did not suffer any damage. Though the repairing of bridges and communications had been carried out quicker than was originally forecast, buyers throughout the world became extremely nervous of the likelihood of a serious shortage of spot tea and prices consequently rose relentlessly. Also, the Dock strike in London, in October, dislocated the flow of tea to the London auctions and inevitably reduced UK stocks in Bonded Warehouses. This naturally had a much greater effect on London prices than those ruling here, forcing that market several annas above Calcutta.

The following tables will reveal the number of chests offered in Export as well as Internal Sales, the average prices realised and the trend of auction prices during the past few seasons (prices per pound):—

TREND OF AUCTION PRICES (PER POUND).

	1953*	1954			1955		
		High	Low	Closing	High	Low	Closing
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Export Sale:							
Clean Back Pekoe	3 11 0†	3 12 6	2 8 6	3 12 5	2 5 0	1 6 0	2 5 0
Clean Common B.P.	3 11 6†	3 9 6	2 2 0	3 9 5	2 1 0	0 14 6	2 1 0
Medium Assam B.P.	3 9 6†	3 11 6	2 3 0	3 11 6	2 2 0	0 15 6	2 2 0
Best CTC Assam B.P.	Unquoted	3 15 6	2 7 0	3 15 6	2 12 0	1 14 0	2 4 6
Dust Sale:							
Medium Dooars	2 11 0	2 10 0	1 12 6	2 0 0	1 13 6	1 6 0	1 13 6
Medium Assam Grainly	2 12 0	2 11 0	1 13 0	2 1 0	1 14 0	1 7 6	1 14 0
Best CTC Assam	3 3 0	2 13 0	2 0 0	2 6 0	2 8 0	1 11 0	2 1 0
Leaf Sale:							
Clean Common B.P.	2 12 6†	2 8 9	1 11 0	2 2 6	Unquoted	Unquoted	Unquoted
Medium Assam B.P.	2 14 6†	2 7 6	1 12 6	2 4 0	Unquoted	Unquoted	Unquoted

*Rates quoted on the 14th February.

†Nominal.

EXPORT

Gardens:	Chests	1953-54*		Average	
		Rs.	A. P.	Rs.	A. P.
Assam	848,823	2	0 9		
Cachar	146,643	1	13 6		
Darjeeling	92,846	2	6 5		
Dooars	450,194	1	14 1		
Terai	79,412	1	14 11		
Tripura	15,835	1	13 7		
All Other Places	36	2	4 0		
Total Leaf and Broken	1,633,789	1	15 10		

Gardens:	Chests	1954-55**		Average	
		Rs.	A. P.	Rs.	A. P.
Assam	744,082	3	3 2		
Cachar	108,693	2	12 9		
Darjeeling	89,085	3	8 3		
Dooars	422,533	2	15 8		
Terai	67,719	3	3 5		
Tripura	16,648	3	0 1		
Total Leaf and Broken	1,448,760	3	1 11		

*Sales closed on the 8th March, 1954.
**Up to the 7th February, 1955.

INTERNAL CONSUMPTION DUSTS AND LEAF GRADES

Gardens:	Chests	1953-54 (b)		Average	
		Rs.	A. P.	Rs.	A. P.
Assam	375,589	1	14 2		
Cachar	52,872	1	11 0		
Darjeeling	10,697	1	14 3		
Dooars	182,512	1	11 6		
Terai	16,067	1	11 10		
Tripura	2,424	1	9 2		
All Other Places	226	1	6 5		
Green	2,558	1	13 0		
Leaf	94,932	1	12 5		
Total	737,907	1	12 8		

Gardens:	Chests	1954-55 (c)		Average	
		Rs.	A. P.	Rs.	A. P.
Assam	328,849	2	7 9		
Cachar	52,503	2	4 8		
Darjeeling	7,509	2	7 5		
Dooars	120,081	2	5 3		
Terai	13,042	2	6 6		
Tripura	2,142	2	4 3		
All Other Places	79	1	6 7		
Green	1,446	2	5 5		
Leaf	360,106	2	4 4		
Total	985,757	2	5 8		

(b) Up to 30th March, 1954.
(c) Up to 8th February, 1955.

Meanwhile, tea traders in London started making complaints about the high price level. It was believed that the successive increases in export quotas—9 per cent announced in November and another 2 per cent in early January—would have the bearish effect on prices at the London auctions. On the other hand, there was a further rise in prices at that centre as there was not any notable in-

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crease in supplies. Also, the ruling higher prices and the stiff attitude of the Calcutta market was causing considerable concern to people connected with the industry in America.

The real fact was that demand went up at quicker rates than the supply. In 1954, the UK alone consumed about 500 million pounds as against nearly 460 million pounds in the previous year. Though representations were made to allow the maximum permissible quota, viz., 135 per cent of the Standard Quota, the Government preferred to be a little stringent in making the final release in the absence of any definite idea regarding internal consumption. Fears were also expressed in some quarters that the Government's

release of a further two per cent export quota in January, 1955 might create shortages in the domestic market; but an analysis of the statistical position of tea did not justify these fears. Tea production in Northern India gardens in 1954 at 508 million pounds showed an increase of about 21 million pounds over the 1953 figure. South Indian production was about 128.5 million pounds, showing an increase of about 8 million pounds. Estimates of internal consumption varied widely between 170 and 200 million pounds.

Also, the carry-over of stocks from 1953 to 1954 was substantially higher than usual, thanks to the Government's decision, early in 1954, not to allow automatic carry-over of unutilised export quotas

from 1953. As a result of this, about 47 million pounds of tea could not be exported, of which the Government later on allowed special licences to the extent of 11 million pounds, which led to a net carry-over on this account alone of 36 million pounds. In the circumstances, it would appear that there is no tea "shortage" as such in the domestic market.

Although we cannot foresee the future clearly, there is a feeling in tea circles that India should produce a little more than at present. Since new tea takes about five years to come into bearing, it is not possible to foretell the future with any amount of certainty. Nevertheless, India is in a position to increase her tea production by two to three per cent more annually

without causing any excess in world supply. This, however, is conditioned by Indonesia not increasing her production which, at present, is most unlikely. Moreover, consumption of tea throughout the world is rising, particularly in India where efforts in recent years to improve the general standards of living have resulted in a progressive increase in internal consumption. Any reduction in tea prices is not, therefore, expected for the first few months of the coming season, though this will depend entirely on the quantity of the crop. Unless the quantity is substantially higher than last year's, there seems to be little chance of any drop in prices. In June/July, the yield will be really heavy and from that time a reduction in prices may be expected.

Bombay Stock Exchange Fares Well

THE Bombay stock market came to its own for the first time in 1954 since the boom of 1945-46. The signs of boomlet, which were germinated in 1953, sprouted slowly but steadily as the year advanced. The rise during the first nine months in equities was spectacular barring Bank shares, which were more or less oppressed under the growing weight of the high operation expenses as a result of the Award. The market moved ahead confidently and the feeling of robust optimism pervaded trading off and on and technical setbacks did materialise by way of correctives; but these proved short-lived giving way to added momentum to the upward trend in prices.

The market became conscious of the deficit financing and worked on expectations of an all-round economic prosperity resulting from the operations of the First Five-Year Plan. With the decontrol of food-grains, the return of normal economic conditions and hopes for cost of living to go down enlivened the feeling. The dismissal of appeal filed by a dissident shareholder of Tata Steel Deferred initiated the upward swing in the latter half of March which later gathered further momentum under the persistent stimulus of higher Calcutta advices which looked for imminent announcement regarding increase in retention prices of steel to Indian Iron and Steel Company. However, the long-awaited increase in retention prices of IISCO, when it materialised, failed to have any bullish effect as the announcement was discounted.

The last day on which Tata Steel Deferred was officially dealt with was 26th March and, from 29th March, Tata Steel Ordinary were dealt ex-conversion, ex-right, around Rs 186. Earlier, apprehensions, that the elimination of Tata Steel Deferred will sound a death knell of all speculative activities in the market, were belied as the bullish tempo was unrestrained despite reported tensions on the borders of French and Portuguese possessions in India. Expectations of a reduction in the Bank Rate, expansion of currency and the reported resumption of stock-piling of strategic raw materials, firmness in gilt-edged market, firmer advices from London and New York Stock Exchanges, were being viewed constructively though, at one stage in April, reference to dividend limitation by the Finance Minister induced some misgivings.

The market remained subdued in May though Tata Steel Ordinary and 3 per cent Conversion Loan made further headway. However, conditions remained generally apathetic till the first week of June. The market thereafter took a turn for the better and a buying spree developed with broad-based

activity. Expectations of early decontrol of Steel, better outlook and hopes for higher profits of industrial concerns led to an orgy of speculative activity. Steels, as usual, remained in the vanguard of the bull movement and several scrips including Hydo-Electrics joined the movement. As one year bull movement was coming to an end by 15th September 1954, the market hovered hesitant due to lack of follow-up, drying up of investment activity, disinvestment by certain holders and the unhealthy technical position. The market showed a drooping tendency and the bears, who had been unnerved all along the line, mustered fresh courage to press sales encouraged by the threat from a prominent indus-

trialist-cum-operator to tender deliveries of Tata Steel Ordinaries in large parcels. The market, after having met with sizable setback, tried to stage feeble rallies; but this could not last long. The month of November saw a veritable landslide in prices. Conditions deteriorated so badly that the market was left conjecturing as to whether the boomlet, generated during the first nine months of the year, was real or imaginary. Regardless of prices, equities were thrown on an unwilling market. Emphasis on the socialistic pattern of economy coupled with rumours of unfavourable recommendations of the Taxation Inquiry Commission virtually broke the backbone of the market. The implications of the Second Five-Year Plan

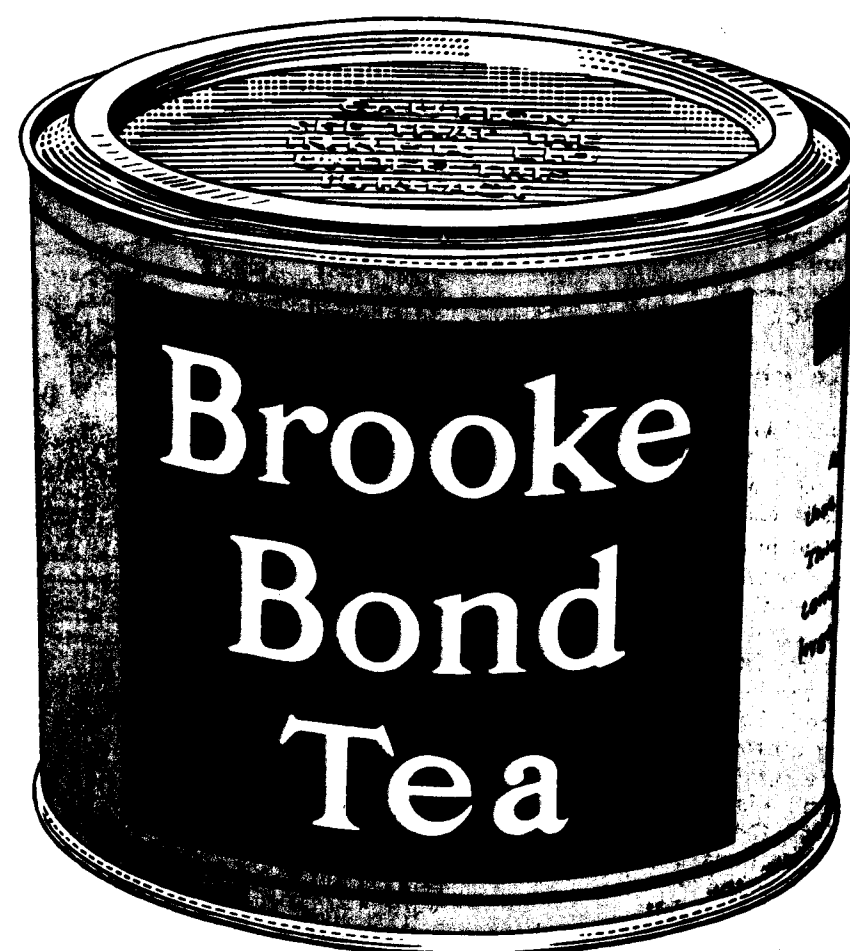
envisaging heavy expenditure on account of the private sector were thrown to winds and the storm, that swept over the market, knocked off values to the extent of about 20 per cent from the peak levels recorded in August-September.

The fundamental outlook had not changed in any way, but the doctrine of socialism produced uneasiness. The move for the nationalisation of the Imperial Bank of India along with other 10 State Banks and the amendment in the Constitution with regard to payment of compensation for acquiring private property by the State induced feelings of some misgivings with regard to Government's motives. The clarification of economic socialist policy at

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Avadi Congress has, however, tried to do away with certain misunderstandings. This has, no doubt, proved to be a stabilising factor; but more than anything else the Budget proposals framed, as a result of the recommendations of the Taxation Inquiry Commission, will make or mar the investment prospects. If the private sector as expected is to play its useful role in the overall economic development of the country, it may be expected that the Finance Minister will try to follow a realistic policy. The outlook for the stock market depends on this policy.

Though the dated-Loans have fared generally well, the Gilt-edged market remained in doldrums, mainly due to the flotation of 3½ per cent National Plan Loan 1964 in April. This loan was on tap for six months and an aggregate amount of Rs 156 crores was raised thereunder. The response can be said to be encouraging in view of the better investment climate.

Bank shares were generally friendless and the year-end shock, provided to Imperial Bank by a definite move for nationalisation, resulted in a landslide in prices of these shares.

Insurance shares were, on the whole, better being helped by better dividends. New India was outstanding, to rise to Rs 65 from Rs 40 to terminate the year at Rs 64. Oriental recorded sharp movements on mutualisation hopes and despairs.

Hydro-electric shares gained considerable ground on active investment buying as well as speculative support. The Bombay Government's permission for erection of two thermal stations at Trombay induced a feeling of optimism.

Cotton Textile shares advanced steadily in consonance with the strength in Steel shares, but subsequently dropped sharply on discouraging results of the Tata group as well as the postponement of consideration of rationalisation issue by the Government. The general feeling in this section is not friendlier in view of the fresh burdens as well as the industry finding it difficult to dispose off the output at reasonable margin of profit. The sharp recession in commodity markets has adversely affected the offtake of cloth.

Tata Steel Ordinaries assumed the leadership of the market after the elimination of Deferreds as a result of the successful implementation of the conversion scheme in the ratio of one to six Ordinaries as recommended by the Mediator in 1953. After the conversion, a bonus issue of one Ordinary for every Ordinary was given to the shareholders. With the result, for every one Deferred share, the investor received 12 Ordinaries. Tata Steel Ordinary started the year 1954 at Rs 345 and advanced up to Rs 374 c.r. by the end of March. When trading was resumed on x.r. basis on 29th March, the shares were placed around Rs 186, which advanced up to Rs 254-12

by mid-September. Thereafter the market declined to Rs 211, to recover to Rs 227-12, to close the year at Rs 224-12. The modernisation and the expansion programme of the Tata Iron and Steel Co., will begin yielding results from the new account year of 1955-56. Meanwhile, further expansion in the capacity of the Works is under consideration.

In the Miscellaneous section, Chemicals, Engineerings, Automobiles, Sugar and Cement shares did very well and the investors had every cause for gratification from the sharp appreciation in values

though, towards the close of the year, these counters also received a setback. National Rayon and Bombay Burmah shot up on corporate news, while Scindia Steams after early rise received a drastic fall due to discouraging results.

The Index of the Varitable Dividend Industrial Securities for Bombay (1949-50=100), which stood at 106 at the commencement of the year 1954, forged ahead to 127.9 by 25th September, to stand finally at 117.5 at the close of the year.

The monthly price range in a few selected counters, during 1954, was as follows:

1954:	Tata Steel (Ord.)		Bombay Dyeing		A.C.C.	
	High	Low	High	Low	High	Low
January	Rs a 361 0	Rs a 334 0	Rs a 425 0	Rs a 386 14	Rs a 187 0	Rs a 173 12
February	367 8	356 4	441 4	415 10	179 0*	147 8†
March	476 0*	186 0†	427 8	405 0	158 8	150 0
April	189 8†	187 0	448 12	410 0	161 0	155 0
May	200 4	161 4	438 2	415 0	158 0	153 8
June	216 8	194 0	478 2	416 4	165 0	157 0
July	222 8	207 8	490 10	457 8	169 4	157 8
August	244 8	220 4	522 8	480 0	181 8	164 12
September	254 12	235 8	551 4	488 12	192 8	182 8
October	238 8	217 12	519 6	486 14	185 0	176 12
November	230 8	212 4	518 12	452 8	185 0	171 8
December	227 4	211 4	487 8	450 0	180 8	173 8

1954:	National Rayon		Scindia		Tata Chemicals	
	High	Low	High	Low	High	Low
January	Rs a 152 0	Rs a 133 0	Rs a 17 0	Rs a 15 4	Rs a 12 0	Rs a 11 2
February	173 0	148 8	18 14	16 14	14 14	11 5
March	164 8	148 8	18 5	16 15	14 11	12 12
April	174 12	151 8	18 13	17 10	15 10	13 14
May	166 8	155 8	18 10	17 7	15 5	14 0
June	194 0	162 8	19 12	17 7	17 7	14 14
July	196 8	180 8	22 4	18 13	19 3	16 6
August	209 8	187 0	22 9	20 2	20 12	18 4
September	223 8	209 8	21 12	20 0	20 10	19 4
October	218 4	193 0	19 15	17 9	20 1	18 8
November	211 8	179 8	18 4	14 3	19 11*	15 6†
December	199 0	180 0	15 8	14 6	17 3	15 6

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Calcutta Stock Exchange

1954—A Year of Encouraging Performance

THE year 1954 was an eventful one in regard to the industrial and economic progress of the country. Equity prices on the Calcutta Stock Exchange soared up due to the good progress being made in working out of the Five-Year Plan. There was a boom in Tea and Jute shares due to the good prospects of these industries, while the Engineering group looked bright due to great financial help being made by the Government on heavy development projects undertaken by the industry. Increased industrial and agricultural output with the anticipation of better prospects in future had a good repercussion on the markets which showed remarkable appreciation in values in active trading. Though there was a sizeable decline in values from the peak levels, the outlook for the next year was considered good in view of speedy expansion of industrial activities under the Five-Year Plan.

The year's best levels were seen in the August-September period, though these could not be sustained till the close of the year due to restricted trading. During the period from January to April, the market remained rather dull and dispirited and operators were found to be cautious in their dealings due to a growing sense of disappointment and despondency. The inhibiting influences seemed to be the anxiety over the US-Pakistani military aid negotiations, the persistent talk of an imminent US recession, the disappointment over the sanctioning of an increase of only Rs 59 per ton in the steel retention price as against an expectation of Rs 65 per ton, the Finance Minister's statement in Parliament in reference to dividend limitation, fears entertained regarding the possible squeeze in the money market as result of the contributions to the National Plan Loan and the anxiety over the recommendations of the Jute Enquiry Commission. Also, a good deal of speculative dealings in Indian Irons acted as a brake to good investment activity.

However, a distinct change in market sentiment took place in the third week of May. Two main factors—the proposal by the Calcutta Stock Exchange Committee to include more investment scrips in the forward list and the renewed activity in Tea shares—imparted a bullish tendency. It was generally felt that, by extending the forward list, speculative and investment interest could be broadened, thereby curtailing some of the speculative activity in Indian Irons. Thus, actual trading in the three forward scrips, viz., National Jte, Burrakur Coal and Orient Paper, commenced

with effect from July 9. Apart from the fact that impressive working results of the tea companies which continued to be a stimulating factor for both investors and speculators in tea shares, other factors responsible for hectic trading in the market were the IJMA's decision to increase the mills' working hours from 42½ to 45 hours per week with effect from the 12th July, the favourable outlook for various industries and the Government announcement to close the subscription list for the New Loan from September 16. Thus, during the period from the third week of May to the end of September, conditions akin to a boom were witnessed and prices touched the highest levels for the year during August-September.

The market remained closed for the Puja holidays from the 2nd to the 12th October; and it reopened, after the holidays, on a weak note with prices receding around and turnover showing a marked contraction. The decline in share values just before the holidays gave the market circles the impression that it was the usual pre-Puja slackness and that the shake-out would help the investors to enter the market. But, in contrary to such expectations, the decline in prices was carried a stage further even after the holidays, resulting in a diminution in the volume of business. The decline in prices was steady and sharp, with the result investors took the opportunity to book profits. Apart from technical factors, there were a number of other bearish points responsible for the market's malaise. These included the speculation over the probable nature of the recommendations of the Taxation Inquiry Commission, the announcement of the increase in the export duty on tea and the weaker advices from some of the commodity markets.

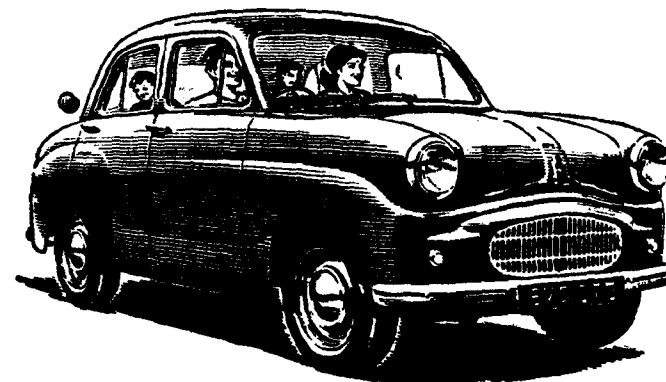
In general, the market, during the last quarter of the year, was overshadowed by economic considerations including doubts about the recommendations of the Taxation Inquiry Commission, the directive of the Lok Sabha to Government for a socialistic pattern of society, the amendment of Article 31 of the Constitution, possible legislation against the Managing Agency system and the move to nationalise the Imperial Bank of India. With the result, trading remained restricted and there was a general fall in prices.

Doubts were expected in certain circles as to whether the definite change in the economic policy for eventual establishment of a socialist State would help the country's

economic progress which had been uninterrupted during the last two years due to helpful policy of the Government. The majority view in the stock market was that the change in policy would not prove beneficial and whatever expansion schemes were envisaged in the private industrial sector would receive a setback due to apprehensions that the compensation in the event of nationalisation would not be equitable despite all assurances given by the Ministers in the Lok Sabha. The general feeling was, that much harm would be done to the morale of the investment market by the change in policy and the mode of fixation of compensation.

Market circles were also in two minds to gauge the repercussions of the announcement of the nationalisation of the Imperial Bank, pending the details of the terms on which the Imperial Bank and certain other banks were proposed to be taken over. They

were, for instance, anxious to know whether, for purposes of compensation, the break-up value of the banks concerned would be taken, or the average of the share quotations for the three years preceding the date of nationalisation, as was done in the case of the Reserve Bank of India shares, would be adopted. If the latter procedure was adopted, it was feared, shareholders might press for a revision of the terms and might even go to Court, since, even after the proposed amendment to Article 31 of the Constitution, this would appear to remain justifiable issue. They also anticipated a number of complicated issues to arise when the proposal would start to be implemented, such as the relation between the Central Bank and the new institution and the remaining joint stock banks. But for the above factors, the year might well have closed on a more confident note. The only relieving feature in trading, towards the closing



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stages of the year, was the slight improvement in sentiment as a result of the statement by a leading industrialist about the implications of the Parliament debate on economic policy. The market wound up the year's trading in a fairly encouraging fashion.

On balance, the market appears inclined to take a fairly constructive view about the future, notwithstanding certain fundamental uncertainties. After a considerable period, the genuine investor, as contrasted with the speculator, seems again to be taking an active part in share markets. Speculative activity there was and still is, but there has been an unmistakable increase in dealings that represent real investment. The extent of the transformation in market conditions is seen in the number of new issues that have been successfully absorbed in spite of the relatively huge sums that were siphoned off the market through floatation of Government loans. The ideal condition in the stock markets, from the national point of view, is one in which share values keep tending to rise; but, in fact, do not rise too far because new issues of ordinary shares claim part of the accrued savings. Savings are, no doubt, on the increase and a growing part of them is still finding its way to the stock exchanges.

Of all the industries, none presented shareholders with greater cause for cheerfulness than Tea. With the persistence of the rising trend in Calcutta and London auction prices, a spate of company reports showing excellent working result for 1953 the announcement of bonus issues by certain companies and the brighter prospects for 1954, Tea shares enjoyed near-boom conditions and the rise in prices surpassed the most optimistic expectations.

Next to tea, Jute shares registered an enlarged turnover during the year as it was felt that the industry was in a better position than a year ago. A remarkable improvement in share values was noticed, especially from the middle of the year when there was a broadening of enquiry following the announcement of the increase in working hours from 42½ hours to 45 hours per week with effect from the 12th July and from 45 to 48 hours per week from the 18th October. As the statistical position of Sacking goods—which constituted the bulk of mills' production—since the beginning of the year was most reassuring, it was expected that the improvement would contribute substantially to the prosperity of the industry.

As for Indian Irons, the course of this counter was, for the most part of the year, dominated by purely speculative considerations. In brief, this scrip sat like an incubus over the whole market and was subject to alternate bouts of buying and selling, resulting in a lot of speculative dealings. These, in turn, acted as a brake to general investment activity in other scrips.

Except for a mild spurt in sympathy with the general trend of the market during the boom period, Textile shares came in for limited buying during the year.

Sugar shares, after ruling quietly steady during the major part of the year, turned firm towards the close on expectation of better working results in the 1954/55 season.

Coal shares remained generally dull in spite of the progress in the various sections of the market. This was mainly due to the obscure outlook for the industry. The reduction of dividends by almost all companies, during the year, also acted as a damper.

Miscellaneous shares, being largely dependent on internal development, improved steadily with the general climate of optimism.

Except for a slightly firmer tendency in prices noted during the third quarter of the year, gilt-edged securities ruled generally quiet in the remaining period.

Though Bank shares moved in sympathy with the securities market, buyers had been scarce in this section, primarily due to the money market conditions. There was also considerable uncertainty about the final outcome of the Rajadhyaksha inquiry.

The market started 1955 in the happy circumstance of renewed support for Jute shares—the most important of the equity groups. Prices rose mainly, because evidence continued to flow in that jute mills had done better during the half-year ended September 1954 than in the previous half-year. There was also buoyancy in Tea shares and the increasing interest in this section was demonstrated by the long list of transactions done from day-to-day. Moreover, the Government decision to release another two per cent of the export quota was in line with market expectations; and the good interim dividends announced by some tea companies for 1954 helped to maintain the buoyancy in shares. Engineering shares received increasing attention and concerns, which were mainly engaged in construction, structural and fabricating jobs, were mostly favoured. This was due to the fact that many order books were well filled. There was also a good deal of optimism about the prospects considering that the Government proposed to begin the work of electrification of the railways around Calcutta at an early date. The Ganga Bridge project and the installation of new steel producing units and the possibility of the present steel companies increasing the installed capacity were expected to give adequate work to several engineering units. In general, market sentiment remained cheerful throughout January and the technical position was decidedly healthier.

In February, however, conditions turned a shade quieter and

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the market was unwilling to absorb even the small offerings in view of the Budget uncertainties. There were fears that the Budget would be unfavourable to investment and business. With the result there was absolutely no investment buying; but, at the same time, there was no nervous selling even in the speculative Indian Irons. When the Budget proposals were announced, they met with a good reception. The increase in direct taxation for higher middle-class people as well as the imposition of excise duties on cloth, sugar and paper had no depressing effect on sentiment since the market circles expected these to balance the deficit Budget. The first reaction to the Budget proposals was not, therefore, so bad as it was expected to be, though a section of the operators preferred to await clarifications. Amidst this uncertainty, most of them took the easy line of concentrating on shares that were clearly not affected by the proposals; and this produced a sharp rise in the prices of Tea shares. Market circles were also enthused over the announcement of the 25 per cent Development Rebate on new plant and machinery. Moreover, the provision for carrying forward losses indefinitely as well as the inflationary potential of deficit financing to the extent of Rs 318 crores imparted further strength to the market.

The stock market has, by now, properly assessed the implications

of the Budget proposals and has attuned its trend to the same. The grant of a Development Rebate of 25 per cent on new plant and machinery, the removal of limitation for the carry-forward of losses and the reduction of the export duties on cloth and tea are all indicative of the Government's new way of thinking in regard to development and expansion under the auspices of the Second Five-Year Plan. It is indeed realisation of this changed way of thinking on the part of the Government which has galvanized sentiment in stock markets.

The feeling that the grant of a Development Rebate will considerably improve the position of the jute industry, the satisfactory statistical position of jute goods, comfortable supply position of raw jute and the easier tendency in raw material prices—all these factors have been imparting strength to the Jute section. Though higher levels could not be sustained in the case of Tea shares due to general profit-taking on reports of the steady fall in the prices obtained at the various auction centres, operators continue to lend good support for selected scrips on the feeling that the setback in tea prices will prove to be beneficial to the industry since the demand from consumers will gradually increase due to lower prices and thereby yield more profits. It is no wonder that bull operators in Indian Irons have

taken advantage of the improved sentiment that has resulted from the 25 per cent Development Rebate on new plant and machinery. The company, having large development and expansion programmes, will stand to benefit considerably as a result of this incentive for deduction of Development Rebate in respect of new plant and machinery installed after 31st March, 1954. In other words, this company stands to get 125 per cent

of Depreciation allowance on new capital expenditure.

Taking a long-term view of equity values, there seems to be no cause for any pessimism. The working of many important industries has, in recent months, been very impressive. The food problem has disappeared and is no longer a drag on development. With the Second Five-Year Plan taking its shape, its greater emphasis on industry will increase the scope for enterprise.

PRICE TRENDS

	3% 1986		United		Elgin Mills		Bengal Coal		Burrakur Coal	
	High	Low	High	Low	High	Low	High	Low	High	Low
Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1952	85 0	79 12	49 8	37 4	21 4	14 10	647 0	518 0	18 1	13 12
1953	83 7	81 8	47 12	34 4	18 1	16 7	543 0	429 0	11 12	8 8
1954:										
Jan.	82 12	82 2	46 8	41 4	17 9	15 12	506 0	501 8	8 12	8 4
Feb.	83 4	82 6	42 8	41 0	16 0	15 13	520 0	512 0	9 6	8 8
Mar.	83 0	82 6	41 8	38 12	15 14	13 12	520 0	512 0	8 14	8 7
Apr.	83 4	81 6	43 12	40 8	15 8	14 12	514 0	502 0	9 5	8 7
May	81 15	81 2	47 8	43 8	15 4	14 10	501 0	479 0	10 3	8 10
June	82 8	81 14	45 8	44 0	17 0	15 4	517 0	478 0	11 12	9 13
July	83 9	82 5	47 0	45 12	17 4	16 11	518 0	508 0	11 10	11 1
Aug.	83 6	82 10	46 8	45 0	18 5	17 6	535 0	509 0	14 2	11 4
Sept.	83 2	81 12	45 10	44 2	19 3	17 15	537 0	524 0	14 5	12 13
Oct.	81 12	80 4	44 0	42 8	18 10	17 2	514 0	502 0	12 12	10 7
Nov.	81 6	80 7	44 0	41 0	18 4	17 12	517 0	495 0	12 1	10 15
Dec.	81 6	80 6	42 4	40 4	19 6	18 3	507 0	493 0	11 11	11 4
1955:										
Jan.	81 8	80 14	47 0	42 8	17 4	17 0	511 0	498 0	12 14	11 4
Feby.	81 5	80 12	46 8	44 12	16 15	16 10	520 0	500 0	12 7	11 13

	Anglo-India Jute		Barnagore Jute		Howrah Jute		Cawnpore Sugar		Bishnauth Tea	
	High	Low	High	Low	High	Low	High	Low	High	Low
Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1952	322 0	232 0	210 0	151 0	32 7	23 8	41 0	28 2	41 0	19 12
1953	239 0	104 0	175 8	136 0	26 0	22 2	37 0	24 8	34 10	20 0
1954:										
Jan.	201 0	196 0	148 8	144 0	24 8	23 4	39 4	35 12	34 10	34 2
Feb.	215 0	196 0	161 0	149 8	26 2	24 0	40 0	39 2	34 6	33 6
Mar.	204 0	187 0	160 0	145 0	25 12	24 0	40 0	38 4	34 0	33 4
Apr.	204 0	196 0	154 0	141 8	25 8	24 5	38 12	38 12	35 6	35
May	199 0	195 0	142 0	139 0	24 10	23 8			36 8	33 8
June	231 0	195 0	154 0	140 0	26 4	24 4	37 2	36 14	38 4	37 0
July	230 8	211 0	153 0	137 8	26 3	24 14	22 8*	20 12*	44 0	38 9
Aug.	255 0	230 0	177 0	144 0	30 8	25 14	22 6	21 8	50 12	43 4
Sept.	274 0	246 0	188 0	169 0	35 0	30 3	22 4	20 3	49 12	46 14
Oct.	242 0	233 0	168 0	161 0	32 1	29 8	20 10	19 7	48 12	46 8
Nov.	237 0	226 0	167 0	151 0	31 4	29 1	20 6	19 13	50 8	47 4
Dec.	255 0	229 0	193 0	153 0	31 4	29 10	19 10	19 4	51 2	48 12

1955:										
Jan.	242 0	222 0	186 0	177 0	30 13	29 15	20 12	18 8	50 8	50 2
Feby.	226 0	212 0	177 0	170 0	29 9	28 7	18 10	18 2	51 0	48 0

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1952	29 6	20 8			11 5	8 11	39 4	31 14		
1953	27 2	21 11			9 13	8 1	37 6	33 8	7 13	6 9
1954:										
Jan.	28 1	25 0	10 0	9 0	9 4	8 13	37 12	35 0	7 8	8 15
Feb.	30 8	28 0	11 0	9 7	9 14	8 14	39 2	37 8	9 4	7 7
Mar.	30 3	28 2	11 5	10 3	9 9	8 5	39 6	36 14	8 15	8 0
Apr.	31 13	29 5	12 1	11 3	8 8	8 3	42 6	39 5	8 10	8 9
May	31 10	29 6	11 14	10 13	8 5	7 15	41 3	39 2	8 9	8 3
June	33 8	30 5	12 8	11 6	8 8	7 15	42 4	41 0	9 9	8 7
July	34 7	31 15	15 6	12 4	8 9	8 2	42 6	39 7	10 7	8 15
Aug.	35 13	34 1	15 8	14 9	9 9	8 7	45 14	42 4	10 7	9 14
Sept.	36 4	34 3	15 4	14 10	9 13	8 1	45 0	42 6	10 8	9 0
Oct.	35 9	33 0	14 10	13 5	9 12	9 8	44 8	40 11	9 3	8 7
Nov.	35 10	32 0	14 2	12 13	9 9	8 11	44 1	39 12	8 14	7 3
Dec.	33 5	32 0	14 12	13 10	9 1	8 10	41 11	39 11	7 14	7 5

1955:										
Jan.	33 15	32 2	16 11	14 7	9 1	8 9	42 6	40 4	8 6	7 11
Feby.	34 12	32 5	16 1	15 4	9 0	7 3	45 2	41 2	7 15	7 8

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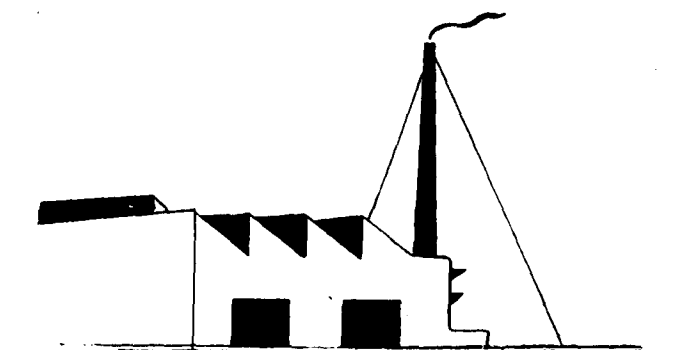
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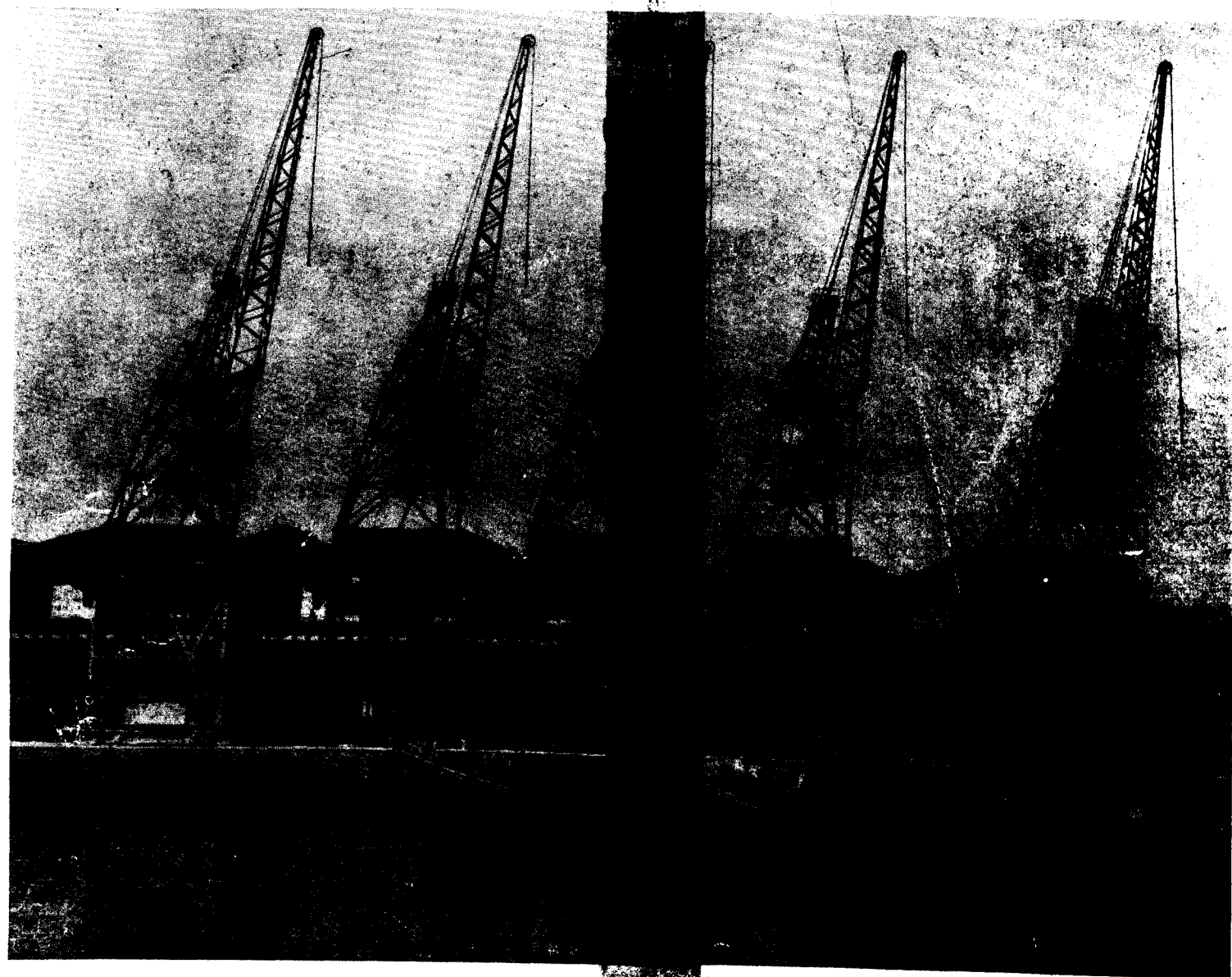
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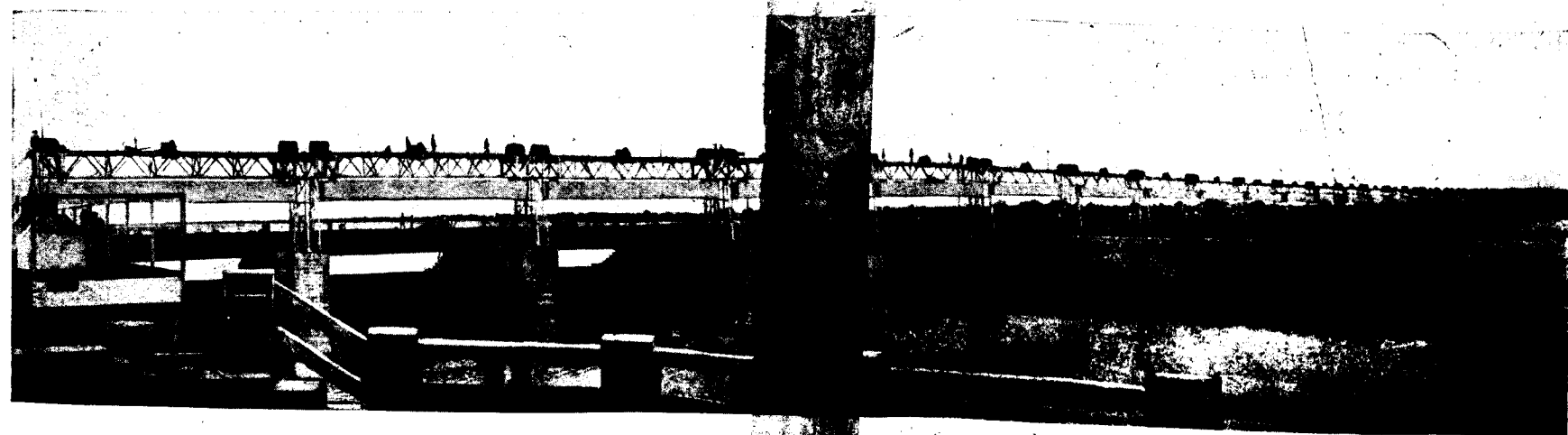


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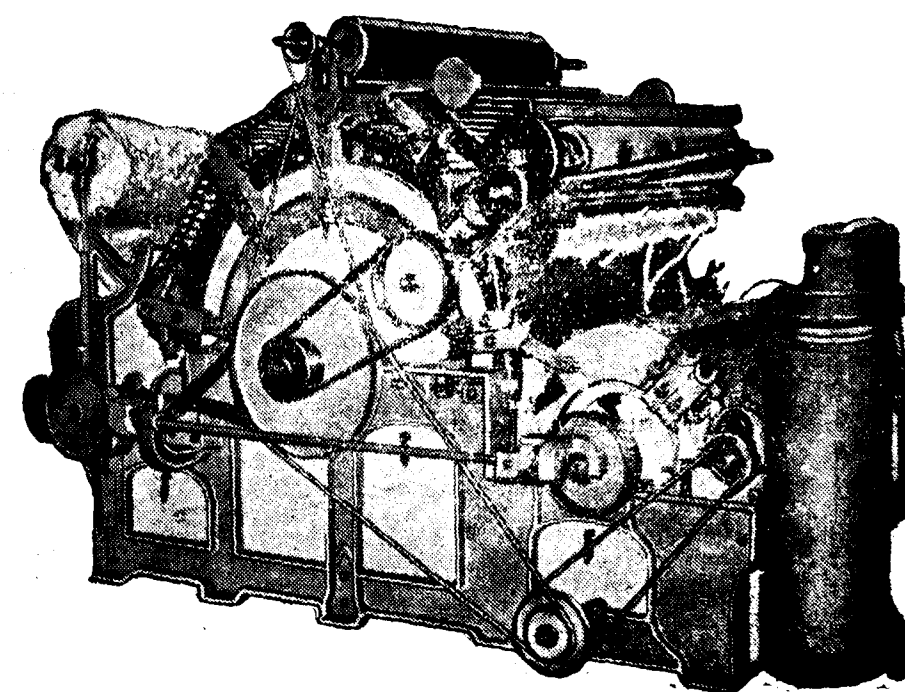


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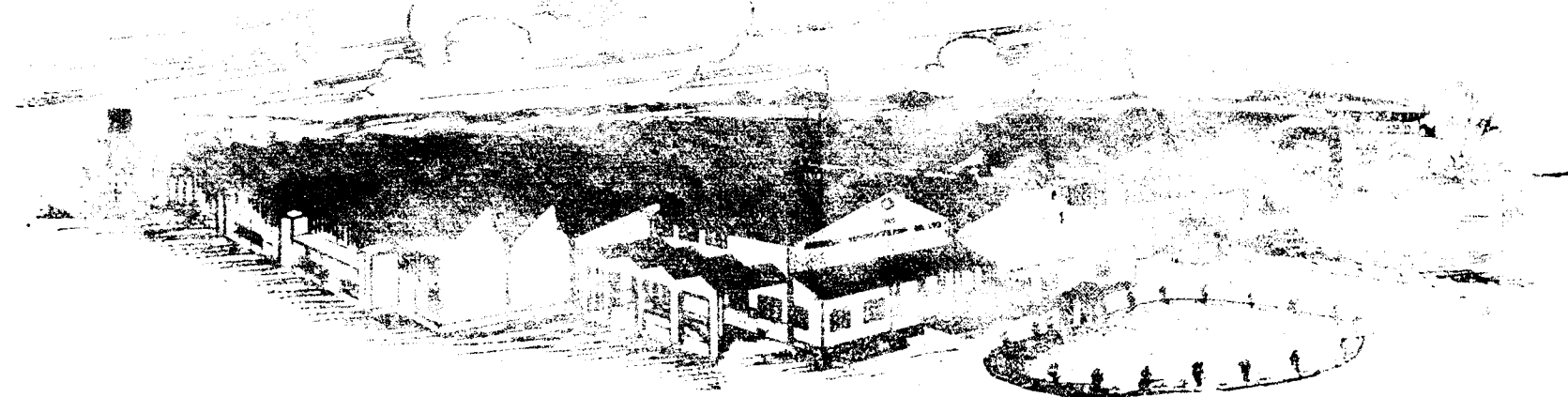
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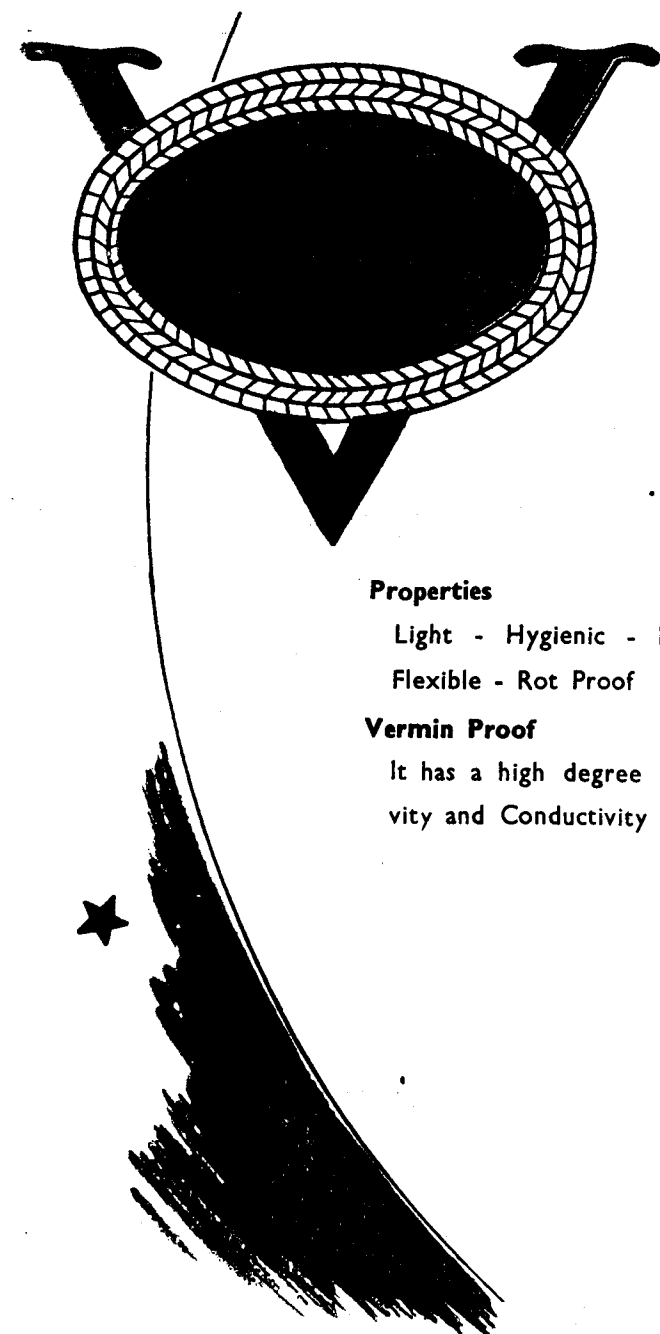
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Annual & Year-Book 1955-56

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A flexible publication date has always characterised the special supplements issued by Indian Finance. Our reason for this policy has been, not only that a publication should not be artificially speeded up, but that we should, as far as possible, wait for such expected events as will present a full picture of any specialised study we undertake. But I am afraid we have succumbed to the temptation of being a trifle over-flexible about the current year-book, thanks to the important developments about the Second Plan! While, normally, the year-book is published around March-April, the knowledge that the Second Plan would be released in May emboldened us to wait for it before finalising the year-book. In order that we may withstand such temptation in the future, we have decided that year-books henceforth are to be made available to readers in the first week of January each year; and, for the delayed publication of this year-book, we crave the reader's indulgence.

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Indian Finance

ANNUAL AND YEAR-BOOK 1955-56

The Beginning of a New Era

The First Plan: Ground-work for Development

The Second Plan: Planning for Prosperity

Democratic Attainment of Socialistic Pattern

analysis of economic conditions and prospects in other countries, such has been the trend of economic conditions that, today, the important developments in the domestic sphere overshadow any significance that news from abroad might have. Nevertheless, it might be proper to take note of two facts in the world economy as they impinge upon future prospects.

In America, almost every sector of industry was able to attain new records of achievement. Mainly, the steel industry and the automobile industry were both able to reach phenomenal levels of production. There has been hardly any economic thought with a pessimistic tinge to it. Year-end surveys disclosed that an assessment of prospects for 1956 possessed the same confidence. In Western Europe generally, business conditions continued to be as favourable as in the year previous. It must, however, be recorded that the "odd year crisis" once again affected Britain, and its then Chancellor of the Exchequer, Mr. R. A. Butler, felt it necessary to issue a supplemental autumn budget which, not surprisingly, was unpopularly received. But Britain's crisis was peculiar to that country. For, it is now known that the countries of Western Europe are today scarcely in a position to accept any orders, for delivery in the near future, for capital goods. German industry has resurgently asserted itself, and such has been its salesmanship that it is not now able to think in terms of expanding capital exports in the next two years or so.

The second noteworthy event of 1955 was the entry of Soviet Russia into the lists of nations which are making available surpluses for aid to under-developed countries. The cold war, thus, entered a new phase, with Russia vying with the West to proffer technical assistance and aid of other sorts to the needy regions of the East. Although the significance of Russia emerging as a source of foreign aid was, as it related to 1955, limited in its repercussions on economy in that year, its impact may be greater in 1956 and the other years to come. For, battle has impliedly been joined on the field of foreign aid. The change in emphasis from military assistance to economic aid is likely to be accentuated in 1956. In the result, it may be that under-developed areas of South-East Asia may find their tasks of industrialisation greatly facilitated by the competition in economic aid as between the West and Soviet Russia.

But neither the American prosperity of 1955 nor the emergence of Soviet Russia in a new role had its immediate significance for India. 1955 marked an important year in India's contemporary history. It was the last year of the First Plan, and it was also the time during which thoughts were increasingly turned to the for-

OSTERITY will judge whether March 1956 is as important a date in modern India's history as we contemporaneously think it to be. In the recent past, such has been the plan consciousness within the country that, almost imperceptibly, the impression has been gathering strength that India's First Five-Year Plan has been blessed with a record of satisfactory, if not quite triumphant, implementation. And yet, if we were to disabuse our mind of any sense of complacency. First of all, the primary achievements last five years, there is much that should disabuse our mind of any sense of complacency. First of all, the primary achievements under the First Plan fall into the category of a substantial improvement in foodgrains production and in the output of some of the commercial crops. It is true that the index of industrial production has, over the period, also showed an impressive rise. But both these increases in production have to be set against the fact of millions added to our population, with the result that the statistical improvements registered in production, offset partially as they are, merely appear to be more impressive than they in actual fact are. Secondly, while we do not belittle the efforts made by Government and by leaders of industry in the country to give direction, meaning and momentum to planned endeavours, we would be wise to remember that, for such success as the First Plan has been fortunate to achieve, not a little credit is due to the bounty that we have reaped from a quinquennium of weather favourable to crops. It is, therefore, even possible to suggest that, in terms of material achievement, the contribution of the First Plan to the Indian economy is of no significant proportions. But what the First Plan can take real credit for is the plan consciousness that it has been able to impart to the mass of our people by appearing to be much more a triumph and a success than the economists can record it to be.

Before, however, we set about this assessment of the real significance of the First Plan, and before we move on to a study of the considerations upon which must rest the Second Plan and its targets, it is proper that we should appraise ourselves of the state of the Indian economy in the last year of the First Plan.

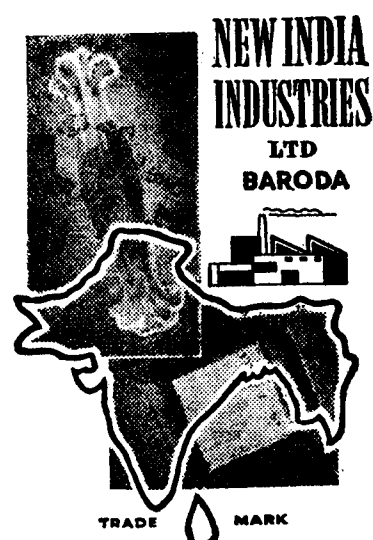
CONFIDENT expectations that 1955 would prove to be a prosperous year were not belied by actual performance of both industry and business. If, last year, it appeared useful to undertake an

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The bulk of the contents of this year-book was printed by March, 1956, the publication having been delayed by the Second Plan. As such some of the advertisement material was also printed off by that date. The New Company Law, in force since April, 1956, requires private limited companies suitably to indicate such a fact in their style and name. We draw particular attention to the following advertisements, all of which companies are, in terms of the New Law, to be styled private limited companies.

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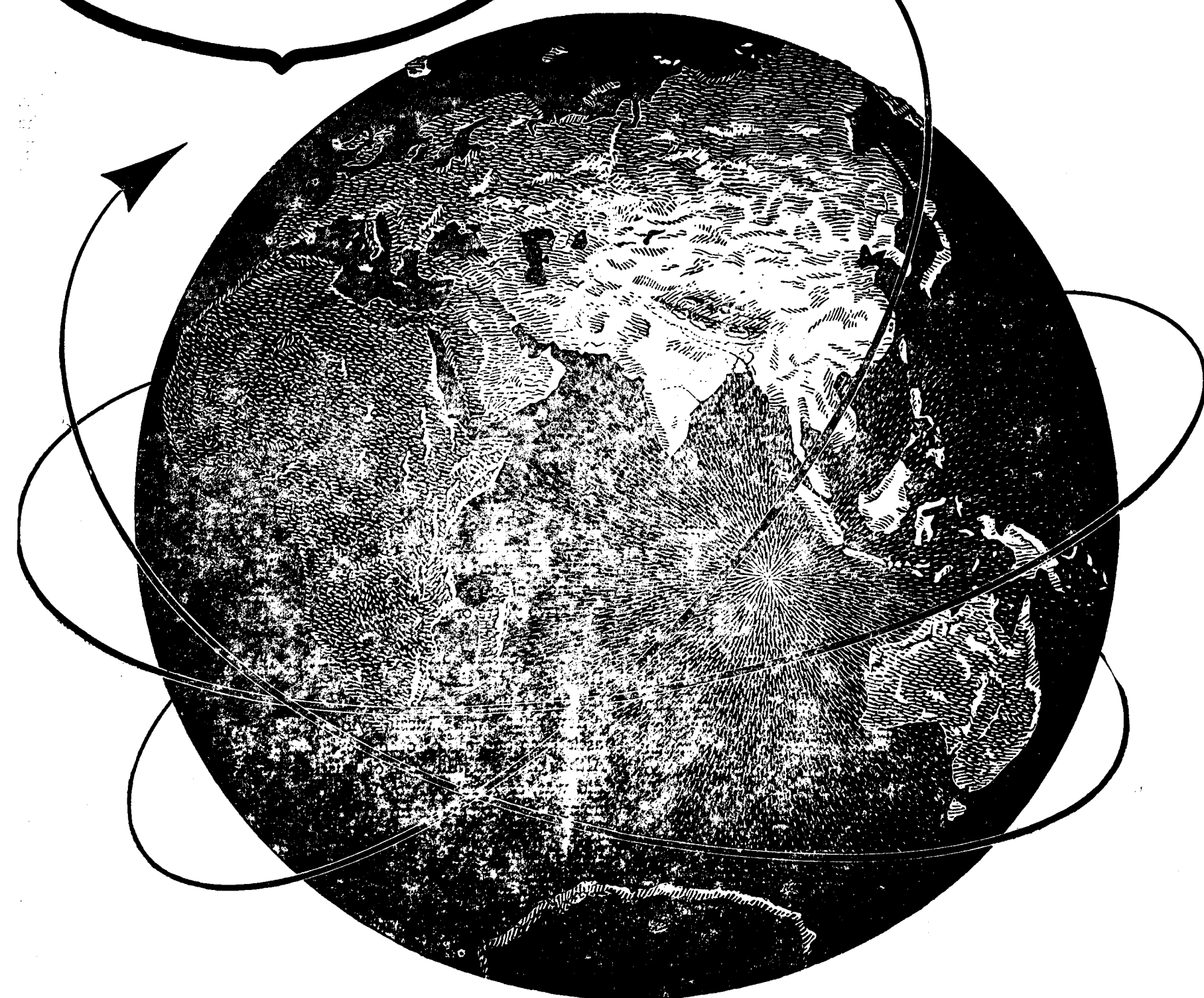
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mulation of the Second Plan. It is not intended, at the moment, to undertake an analysis of the Second Plan, or to make an assessment of the resources that will be available for implementing that Plan. In this review of 1955-1956, it is sufficient if we are able to see the conclusions clear that the consolidation of achievements and signs of an expansionist economy are both fully reflected in the various Indian economic indices.

III

IN 1954, the achievements in Indian economy that could be pin-pointed were largely limited to the contributions represented by improved exports in jute goods and tea and the savings accruing from achievement of near self-sufficiency in a number of our agricultural products. The indices for 1955, however, are not thus restricted in scope or significance. A much broader picture of the consolidation and attainments of the First Plan is now available. Moreover, we repeat, each index suggests that an expansionist economy is today at work in India. It is from these two viewpoints that the Indian economic indices should be studied.

The statutory statement of the Reserve Bank of India is, in this context, of primary importance. The fact that the tempo of economic activity has generally risen is indicated by the rise in notes in circulation by a figure of Rs 175 crores to Rs 1,466.64 crores. Since 1955-56 represented the last lap of the First Plan, it is hardly surprising that Government disbursements should have contributed, in large measure, to this heightened tempo. As between the end of 1953 and 1954, the Central Government's deposits with the Reserve Bank show hardly any change. In the meanwhile, the Centre took recourse to deficit financing for replenishment of its resources. Rupee securities in the Issue Department have risen by Rs 145 crores to Rs 678.82 crores.

Thus, the expansion in note circulation has largely been effected against an increase in rupee securities. But some part of the expansion, to the tune of Rs 29.44 crores, has been effected against foreign securities. As regards India's foreign balances, this rise in holdings in the Issue Department has been offset to the extent of Rs 7 crores in balances held abroad as shown in the Banking Department. In the result, it is to be observed that, although 1955-56 entailed heavy imports, India's foreign balances, far from having been run down, actually showed some improvement.

Investments held by the Reserve Bank of India stand reduced by Rs 24.80 crores at Rs 50.54 crores at the end of 1955. This also suggests that, with competent handling of open market operations by the Central Banking authority, the amounts realised from the Central and State Government loans were supplemented by the sale of gilt-edged by the Reserve Bank. Finally, the Reserve Bank's facilities were availed of in greater measure by Indian Scheduled Banks in 1955. Advances against usance bills, a facility that was not accorded immediate popularity, are shown to have totalled Rs 225.44 crores in 1955 as against Rs 147.52 crores in the previous year. In the first place, this indicates that the new method (introduced early in 1952) by which banks could replenish their resources, was fully utilised in 1955. Secondly, it also suggests that banks were called upon to play their due role in the increased industrial and business activity.

The statement of the position of Scheduled Banks also confirms the expansionist forces at work in the Indian economy during 1955. The demand liabilities of Scheduled Banks rose by Rs 31.70 crores to Rs 606.68 crores, and time liabilities increased by Rs 53.02 crores to Rs 420.28 crores. Also, Scheduled Banks increased borrowings from the Reserve Bank by Rs 16.26 crores and from the State Bank by Rs 4.35 crores. Thus, the resources of Scheduled Banks rose by approximately Rs 105 crores in 1955. These were utilised for making available to constituents Rs 85.08 crores more by way of advances and loans, the relevant figure having risen from Rs 537.14 crores to Rs 622.22 crores; secondly, for adding to the investment portfolio by Rs 39 crores to Rs 387.93 crores. At the same time, balances with the Reserve Bank declined by Rs 9.93 crores to

Rs 55.70 crores, and money at call and short notice also fell by Rs 10.39 crores to Rs 12.00 crores.

Apprehensions that bouts of deficit financing might be productive of inflationary tendencies have been proved false. Prices largely remained stable. The general index of wholesale price rose only by 0.8 to 367.4 over the year. This stability in prices could possibly be attributed to the smart rises registered in industrial production. The index of industrial production in selected sectors, with the base year as 1946, indicates that the advances, in some cases, are hearteningly remarkable. (All figures relate to the end of December 1955 as compared to the end of December 1954). Jute goods production rose by 3.6 points to 105.1 points. That, in an industry in which India has faced untold difficulties and problems, we should actually have been able to increase production, is a sign and symbol of the general improvement in industrial activity. Production of chemicals rose from the interim index figure of 718.8 to 741.2 in November 1955. The Aluminium index went up sharply from 177.6 to 235.4; and the figure for copper rose from 119.7 to 131.3. Steel production is marked higher, bicycle production has risen enormously from 1,563.3 to 2,325.1. The total for General Engineering and Electrical Engineering marked a rise of over 40 points by November 1955.

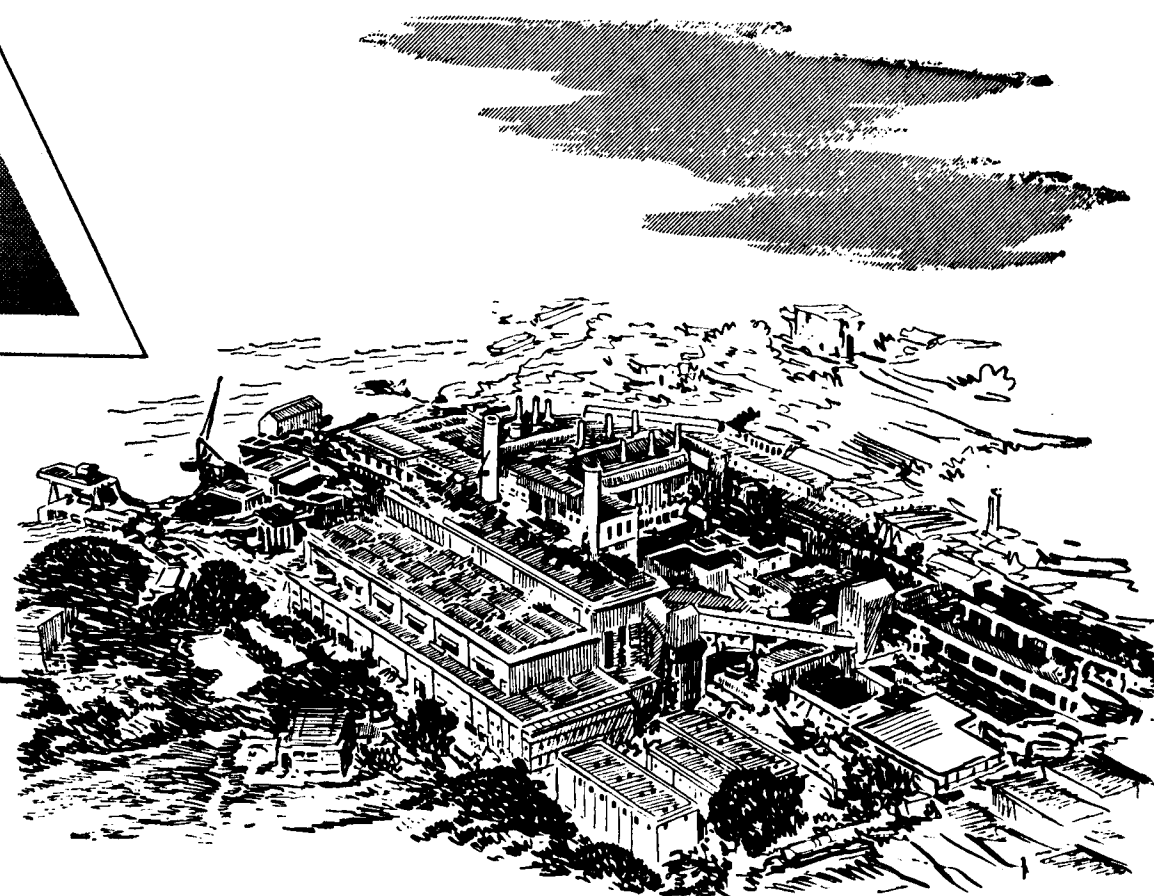
Thus, it will be seen that the fifth year of the First Plan witnessed generally a quickening in the tempo of activity in all facets of the economy. Concurrent with the expansionist tendencies in the economy, economic thinking in the country has been in the process of re-orienting its attitude in relation to new needs. A new philosophy was being evolved, as a natural consequence of the emergence of plan consciousness; and this was based on, firstly, the Avadi resolution proclaiming India's intention to work for the achievement of a socialistic pattern of society and, secondly, on the working formulas that have been suggested in this behalf by Dr Matthai's Taxation Enquiry Commission.

IV

THUS, we have seen, that, on the whole, conditions as they prevailed at the end of the First Plan are most promising indeed for the success of endeavours in respect of the Second Plan. It would appear, however, that thoughts on the Second Plan and its successful implementation are to be conditioned, not merely by purely economic considerations, but by the dictates of political policy as well. In this light, the last year has thrown up a number of provocative questions whose total impact has been to cast some doubt on our ability to secure a sufficiency of men, materials and money to make a success of the Second Plan. The first ground for controversy was provided by the size of the Plan as it was announced by Professor Mahalanobis in his Draft Plan-Frame. This Plan-Frame evoked considerable criticism on a number of important and, what seemed at that time, crucial points of disagreement.

In the first place, it was thought in certain circles that India might be deciding upon taking up a Second Plan so vastly ambitious as to render it doubtful of successful fruition. Secondly, the criticism was also levelled at the Plan that the targets of production and expenditure were arrived at without regard to available resources. The argument was that the aim of raising national income by 25 per cent over the Second Plan period was decided upon merely to enable the securing of revenues of sufficient size to finance the Second Plan. Thirdly, the method of raising the revenue was considered, on the one hand, impracticable and, on the other hand, dangerous as well. It was seriously doubted whether the additional revenue under taxation and under foreign aid would be forthcoming. In the second place, it was also suggested that reliance on deficit financing for one quarter of the quantum of expenditure was so lop-sidedly heavy as was bound to conjure up inflationary tendencies in the course of the Second Plan. Fourthly, grave misgivings were expressed about the allocations as between the public and the private sectors. The decision to invest the State with the larger share of the responsibility in the industrialisation

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of the country in terms of the Second Plan was interpreted by some to mean that the scope for progress and development left to the private sector would be pitifully small. Finally, there appeared to be a substantial amount of diffidence about the ability of the country to produce administrators and technicians in sufficient number to meet the requirements in this regard that would be posed by the schemes envisaged for the Second Plan.

It is clear, therefore, that the so-called thinking period on the Second Plan produced many expressions of doubt and diffidence. At one stage, if one were to be guided by public comment, one would have reached the conclusion that the Second Plan was foredoomed to failure. Fortunately, in the months since the Draft-Frame was published, constructive suggestions and considered reappraisals have both been abundantly in evidence. Each one of the several points on which there has been controversy has, by virtue of the discussion and constructive thought bestowed upon it, crystallised in such terms as enables a clearer understanding of the tasks that we shall face and of the manner in which we shall have to tackle them.

It is now admitted that, if anything, the Second Plan does not go far enough: by no means is it today suggested that India will be biting off much more than it can chew or digest. It is recognised that, to seek to achieve less in terms of raising the standard of living may have been a more practicable plan in that it would have been less difficult to fulfil; unfortunately, and few doubt this, a Plan of a smaller size and moderated ambitions would have been self-defeating. India, as the Prime Minister pointed out some months ago, is hard pressed for time. Unless we succeed in achieving a certain minimum as far as raising the standard of living is concerned, India's future would undoubtedly be endangered. Indeed, in this view, we may suggest that, far from being too ambitious, the Second Plan has set for itself targets and objectives of the very minimum order that we can afford to undertake.

V

IN the matter of resources, controversy has yet to die down. It is known that there will be a gap in our foreign exchange resources; and, certainly, foreign exchange will be one of the vital aspects of financing the Second Plan. At the same time, however, we are of the view that, although we should guard against complacency, we must also avoid the other extreme of being unduly pessimistic about our ability to secure the needed amount of foreign exchange. In this regard, it appears to us that there is reasonable hope of securing larger amounts of foreign exchange under the two heads that comprise this branch of revenue. It is true that the Plan takes into account an expansion in foreign exchange earnings by dint of a more vigorous export policy. Nevertheless, the expansion now being planned would seem to us to be timid in its approach. We see no reason why, firstly, limits should be placed upon cotton textile production by the mill sector; while the fostering of the handloom industry is conceded as being important for the employment opportunities that we expect it to offer in the course of the Second Plan, we should urge that, to the extent that the organised textile industry is able to set in motion a vigorous drive for exports, the production of this sector should not be restricted. India has the substantial advantages inherent in the indigenous availability of low priced cotton: we are fortunate enough in having succeeded to no inconsiderable degree in the modernisation of mill machinery; and, finally, it is also a point in our favour that labour costs are, by and large, at such reasonable levels as to enable Indian textiles to compete in world markets. For these reasons, and bearing in mind the possibility that the emphasis on a general improvement in living standards in this part of the world will increase the demand for such a basic commodity as cotton textiles, we repeat once more our view that it may be possible to increase our foreign exchange earnings in substantial manner from cotton textiles. Incidentally, in this context, an increase in production by the organised industry is sure to be facilitated if, as reports suggest, America were to make available to us its surplus cotton on easy terms.

Secondly, we do not share the general diffidence about the weaker position of tea and jute goods as exchange earners. Demand for neither commodity is on the wane; on the contrary, there is every reasonable ground to believe that consumer demand will steadily be on the increase. In our view, consequently, we need not fear that our export earnings under jute goods and tea will show some shrinkage; on the other hand, we may be able to count on these two commodities to be more potent earners of foreign exchange in the quinquennium. We may bear it in mind that the new market of America is just opening up for tea, and a market of imponderable size is also in the process of being available to us in respect of jute goods by virtue of Communist interest in intensifying trade with this country.

Thirdly, we would like to take this opportunity of stressing that great efforts should be made to bring about a sharp increase in exports of iron ore. Iron ore is in durable demand and many are the countries which are willing to invest some capital in India, if by so doing they could be sure of a steady supply of iron ore. For our part, Indian resources of iron ore are so rich and so large as to enable us without the least care to spare all such quantities that it may be possible to extract and to export. Under each of these three heads, we are confident that, if suitable steps are taken, we shall be able to secure for ourselves a considerable improvement in foreign exchange earnings.

The second head under which some diffidence is entertained is the quantum of foreign aid which will be available to us. We shall not belabour the point; our view is that foreign aid of sufficient dimensions is vouchsafed to us by virtue of the cold war now embracing this genre of competition for winning nations and influencing countries.

VI

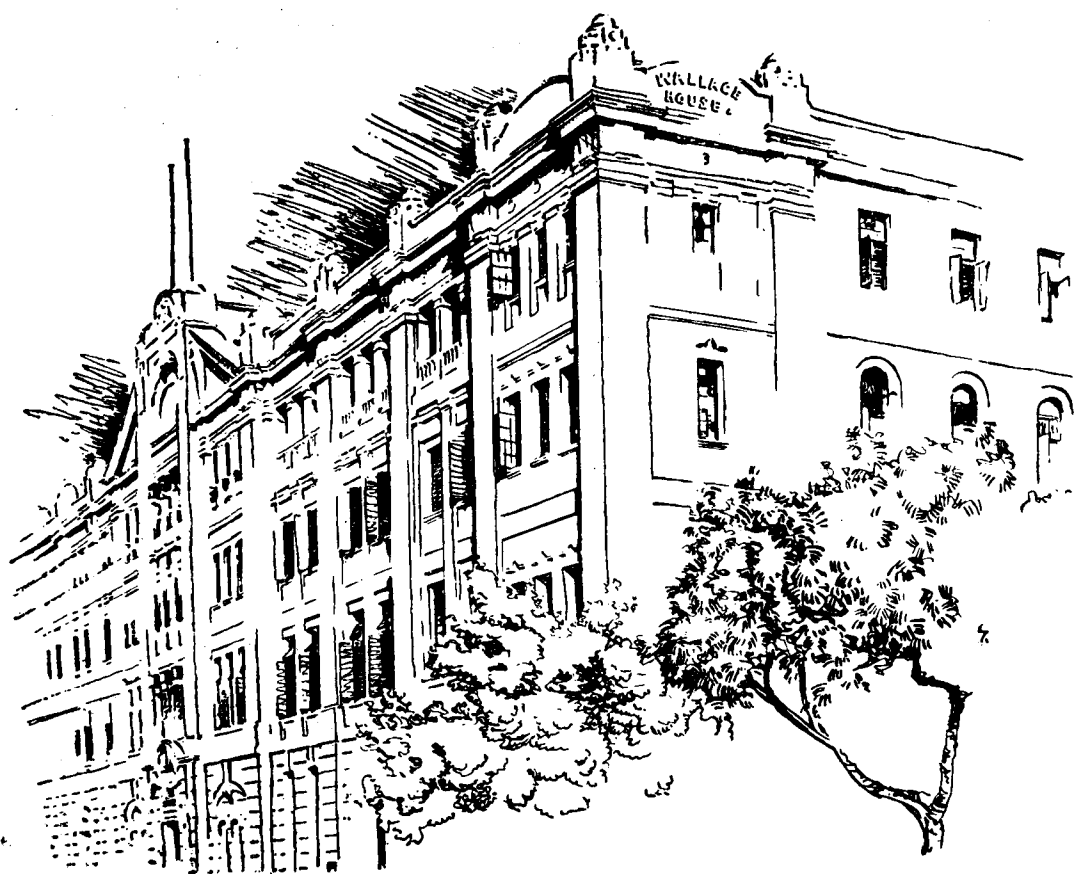
IN the second place, in the matter of resources, we are of the view that we can count with confidence on raising a much larger amount by way of borrowings than is being planned. It may be recalled that, during the war years, India was able to raise Rs 250 crores a year from the capital market for a war that was not ours. The Second Plan can surely be likened to a war, a war against poverty and abysmally low standards of living. For that war, which is surely ours, we should undoubtedly be able to raise an equal, if not a larger, amount by way of borrowings.

We should also like to take this opportunity of reiterating our belief that the task of raising the overall resources and the foreign exchange requirements would be lightened by the scheme that was mooted in the columns of Indian Finance last year. That scheme envisaged an issue of gold bearer bonds to lure what is now a national waste productive of nothing useful. Dehoarding of gold will be fostered if Government were to issue bearer bonds which promise to repay to bearer the quantities of gold which would go to the payment of the bonds at specified dates.

The last two heads under which we have to examine the financial resources aspect of the Second Plan relate to additional taxation revenue and deficit financing. If the experience of the first quinquennium may be said to be a reliable guide, we can count on Sir Chintaman Deshmukh being so conservative in his estimate on revenues that budgets, although envisaging deficits, will actually produce revenue surpluses. We do not doubt that the expansionist economy that has been built up slowly in the course of the past five years will be in evidence in a more intensified tempo in the next five years. Thus, it would appear to us that we are underestimating the additional revenue that will accrue merely on the basis of present rates of taxation, thanks to the beneficent influences of an expansionist economy.

VII

THE second facet of resources by way of taxation relates to fresh imposts. Last year, it was suggested that Government would have to raise taxation rates to crippling and dis-incentive levels if the target of Rs 45 crores in each of the five years of the Second



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The Draft Outline, we repeat, is a substantial improvement on the Plan-Frame. As such, it was not subject to the flood of criticism that seemed almost to overwhelm the Plan-Frame. This fact, coupled with the unexpectedly lenient Budget proposals for 1956-57, may be said to have created a climate in which more vigour and energy can be anticipated in the implementation, by the various interests concerned, of the Second Plan.

We have too long allowed ourselves to be guided by the evidence of dark clouds; and, in so doing, we have been apt to overlook the existence of what are undoubtedly silver linings.

Finally, however, with the publication of the Second Plan, it would appear that we have been able to rid ourselves of what most certainly has been a pessimistic complex. The Second Plan, as a document, has gone a step further than the Draft Outline, and abounds in a realistic and at the same time an ambitious outlook toward the second quinquennium of sustained industrial development. Moreover, expressed reaction and comment, on the publication of the Plan, have been of the variety that ensures that effort will not be found wanting for and in its implementation. Even the controversy over the greater or lesser emphasis on cottage (or hand) industry is perceptibly toned down. Nationalisation jitters have been largely laid at rest by Government's revised industrial policy statement. Anxieties about taxation have been mitigated by, we repeat, the Budget proposals for 1956-57. And confidence about the future has been stridently strengthened by substantial improvement in industrial production.

Plan for the Centre was to be attained. In this regard, the first budget of the Second Plan is a significant eye-opener. Without fuss, without stress and without strain, Sir Chintaman's Budget for 1956-57 has succeeded in creating new and additional tax revenues to the extent of Rs 35 crores. This would suggest that the fresh imposts in the remaining four years of the Plan, on the part of the Centre, would aggregate no more than Rs 50 crores. If the Finance Minister was able so easily to raise Rs 35 crores of fresh revenue, we do not think that he will have to adopt unduly harsh measures in order to secure an additional Rs 12½ crores a year over the four remaining years of the Second Plan. In our view, therefore, our expectation of revenue from taxes can safely be revised by dint of, firstly, the improved contribution enabled by an expansionist economy and, secondly, the relatively simpler task implied in the raising of no more than Rs 50 crores in four years of the Second Plan.

Deficit financing, the last of the important heads of revenue for the Second Plan, has been subjected to much academic discussion. It is undeniable that a Plan that relies for 25 per cent of its revenue on deficit financing has in it the seedlings of possible inflation. But it has been conceded in all these academic discussions that the risk of inflation would be less likely in a country such as India, with its concentrated endeavours on raising production. The risks of inflation are likely to be felt, not in the year of large scale deficit financing, but in a period some time later. For, there is a time lag between the release of money and its availability for consumption purposes. If, in the interim, there is sufficient improvement in production, the evil propensities of the inflation implicit in deficit financing can largely be offset. Thus, in India's case, provided we do not lag in our efforts at increasing production, it would appear that even a level of deficit financing of the order of Rs 1,200 crores can be taken on hand without too great a risk of harmful consequences.

In this manner, then, the problems as they impinge upon financing the Second Plan have been discussed; and, in this matter, there is now a greater degree of confidence that the Second Plan will not fail for the reason that financial resources will prove to be inadequate.

VIII

BUT this is not to suggest that all controversy on the Second Plan has died down. On the contrary, the debate continues whether the Second Plan can possibly prove a success, in view of the discouragement that is likely in the wake of taxation measures which are harsher; and the anxiety in this context was sharpened by a spate of rumour immediately preceding the Budget for 1956-57 whose insinuation was that the achievement of a socialistic pattern of society would be predicated on measures seeking to reduce inequality, in earnings and in wealth, primarily by setting ceilings on income and by levying a capital tax on wealth. These fears were, of course, belied in the Budget for 1956-57; also to some extent, the Draft Outline of the Second Plan put at rest misgivings about inelasticity in planning as implied in the Draft-Frame and the first set of papers relating to the plan.

It is not possible to suggest where exactly the Draft Outline differs from the Draft-Frame. Nevertheless, there is to be discerned in the former document a greater emphasis on the need for flexibility in planning. It may be that the terse character of the Plan-Frame was suggestive of a rigidity which was by no means intended by Professor Mahalanobis. Indeed, the Professor was at pains to point out that his papers constituted a skeletal plan the targets of which would necessarily have to be revised: and this is not a too rigid approach to planning. It hardly needs to be said that, in a plan of the magnitude that we are undertaking and in a plan the financial resources for which are in some doubt, not to say a plan which places reliance to the extent of 25 per cent of revenue on deficit financing, targets of production and allocations as between sectors will continually need to be revised.

IX

O judge whether the Second Plan has been framed on correct lines, and therefore in order to assess whether we may expect its implementation largely to be successful, we should address to ourselves this question: Will the development envisaged and sought be sufficient to impress the mass of our people; and, consequently, will the Indian people continue to withstand the blandishments of a Communist-like progress such as China is achieving? For, in the final analysis, even the Second Plan is a fight for time, a battle that seeks to prepare India to deal with what will prove to be the rival claims of diametrically opposite ideologies and mental attitudes. Today, the average Indian is no longer a political have-not, since independence has been won, but he continues to be an economic have-not. It would be a serious error of judgment if we were to think that the rival ideology would, with the utmost of consideration, desist from reiterating that their's is a quicker path to economic equality. If India has decided upon the achievement of a socialistic pattern of society, and if, besides, that goal is to be gained through and by means of a democratic approach to planned endeavour, it is important that the individual should know what the significance is to him of this fact. Firstly, economic equality is no simple matter of depriving the haves of their wealth; on the other hand, the latent wealth of men and materials has to be brought out into the open, and it is this wealth which must improve the lot of the have-nots. Secondly, there must be no pretence that the fulfilment of the Second Plan will at the end of it give place to a millenium.

Indeed, the objective of the Second Plan may be said to be very limited: In the first place, time has to be bought. In the second place, we must work toward economic equality by underscoring what we shall achieve, in material terms, for the average Indian. In the third place, and most important of all, we must emphasise that economic equality, by means of raising the standard of living, is a goal that can be achieved by a democratic approach to planning. The success of the Second Plan depends not so much on financial resources or on foreign aid or even on administrative ability: the co-operation of the mass of our peoples counts the greatest, and this can be ensured only if the message inherent in the three objectives is adequately carried to and impressed upon the million country-men in the villages.

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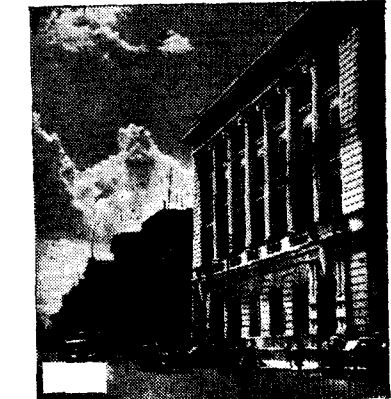
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THE COMPANIES ACT, 1956

COMPANY Law is more than one hundred years old in India, the first enactment on the subject having been made in 1850. That was followed by fresh enactments in 1856, 1866, 1882 and 1913. This last has held the field for the last forty years and more, and is shortly to be replaced by the Act of 1956. Thus the law with which company managers or secretaries have been familiar for so long will soon disappear, and one that is much more stringent and regulates even matters of minute detail is soon going to take its place. It is necessary that all who have anything to do with companies should get thoroughly acquainted with the provisions of the new statute: this may appear to be the caution of an alarmist, but a scrutiny of some of the provisions of the Act will show that this is not so. For instance, a person might have advanced a loan to the company: to entrench himself he might even have made sure that the directors had passed a unanimous resolution for the borrowing; nevertheless, he may find that the loan was neither valid nor effectual: [Section 283(5)]: To quote another instance, a person may find that he has suddenly rendered himself liable to six months' imprisonment by reason of a marriage: if he has given a loan to a company, and that loan has been guaranteed by another company, and he has married the daughter of the managing agent of that other company, this situation may arise (Section 368). If a peon fails to post the dividend warrant on the day he was asked to do so, all the directors will go to jail for seven days (Section 207): There are many more provisions like this, in the new Act, and hence the importance of getting to know its provisions can never be over-emphasized. The principal features of the new Act are that company management is now hedged in with numerous restrictions, that completely new procedures are set up for the exercise of various managerial functions, that onerous responsibilities are thrown upon directors, and that the most stringent penalties are prescribed for various contraventions of the new provision.

The Act consists of 658 sections and 12 schedules, and is the biggest legislative measure that our country has ever known: even the Indian Penal Code does not contain so many sections. The task of getting to know the provisions of this statute is thus rendered more difficult, because of its size. In the following paragraphs an attempt is made to make a brief survey of the new Act.

The first ten sections of the Act deal with preliminary matters. There are other matters worthy of mention, in these sections. The first is that certain persons are defined as 'Associates of Managing Agents', and in the course of later

provisions the Act places various disabilities on such associates. Among the more important of such disabilities are that the associates cannot be appointed as buying agent or selling agent (for the managed companies) within India; they cannot be given any loan or financial assistance by the managed companies; nor can they be appointed as directors of the managed companies without a special resolution of which 'special notice' as required by the Act should have been given. Secondly, if the directors of a company are accused to act in accordance with the directions or instructions of any particular person, that person will be deemed to be a director of the company for certain purposes mentioned in the Act. Thirdly, except in regard to the winding up of companies with a paid up capital of Rs 1 lakh or more, the appointment of inspectors to investigate the affairs of companies, and the enquiry into complaints of oppression or mismanagement, in regard to all other matters it is permissible for the Central Government to vest jurisdiction in District Courts.

Matters in regard to Memorandum of Association, Articles of Association, and incorporation generally are dealt with in Sections 11 to 54. Among the more important changes effected in these sections may be mentioned the following. In the case of all private companies, both existing companies and those registered in future, instead of "limited" the words "private limited" should be added after the name of the company. In the 1913 Act some of the regulations in Table 'A' were compulsory: in the new Act none of the regulations are compulsory. Under the new Act, it is not permissible for a subsidiary company to be member of its holding company, except as legal representative of a deceased member or as a trustee: existing cases of such membership are however allowed to continue, but without the voting rights. Section 49 requires that all investments made by a company on its own behalf should be made and held by it in its own name. Deposits of securities with company's bankers for collection of interest or dividend, holding of qualification shares of directors nominated by a company to the Board of subsidiaries and other companies, earnest deposit in connection with contracts etc. are however permitted to be held in others names.

Matters relating to the prospectus and statement in lieu of prospectus are dealt with in Sections 55 to 68. The information required to be disclosed in the prospectus is much more extensive than under the 1913 Act. For misstatements in the prospectus, statements of imprisonment up to two years and/or fine up to five thousand

rupees is prescribed in addition to civil liability.

Sections 69 to 75 relate to allotment. Under the new Act allotment should not be made until the beginning of the fifth day after the issue of the prospectus, nor can an applicant withdraw his application until the fifth day thereafter. If a prospectus says that application will be made to a stock exchange for having the shares quoted, then such application should be made within ten days, failing which the application moneys should be refunded. If the minimum subscription is not subscribed within 120 days then also the moneys will have to be refunded.

Sections 76 to 81 deal with commissions and discounts on issue of shares and debentures, issue of shares at a premium or discount, issue of redeemable preference shares, and fresh issues of share capital. Three changes worthy of mention here are, (i) that the rate of the commission should not exceed five per cent, and the rate of the discount ten per cent; (ii) that share premium moneys can be utilised only for the purposes specified in Section 78, and (iii) that redeemable preference shares cannot be redeemed out of the sale proceeds of property.

Sections 82 to 107 deal with the kinds of shares that may be issued and some miscellaneous matters relating to share capital. In future, all issues of share capital can be only of two kinds, i.e., Equity Capital and Preference Capital, meaning by the former all non-preference shares. The voting rights on all shares are to be proportionate to the amount paid up. Preference shareholders will have voting rights only when their dividends are in arrears or when any resolution is proposed directly affecting their rights. Deferred shares are prohibited, and in the case of existing shares carrying disproportionate rights in regard to voting, dividend, repayment of capital etc. companies are required to bring such rights into conformity with the provisions of the new Act within one year.

Transfer of shares, issue of bearer shares and certain other matters are dealt with in Sections 108 to 116. Where the directors refuse to register a transfer of any shares, whether fully paid or partly paid, a right of appeal to the Central Government, is provided under the new Act. Bearer shares cannot be issued without the consent of the Central Government.

Some special provisions relating to debentures are contained in Sections 117 to 123. The issue of debentures with voting rights is absolutely prohibited by the new Act.

Sections 124 to 145 relate to mortgages and their registration. Three new kinds of charges are now required to be registered, in

addition to all the categories set out in Section 109 of the 1913 Act: these are mortgages or charges on unpaid calls, on ships, and on patents, copyrights, trade marks etc. Any such charges existing at the commencement of the Act should also be registered within 21 days after the commencement of the Act.

Provisions relating to the registered office, commencement of business, register of members and debenture-holders, and annual returns are contained in Sections 146 to 164. An important change to be noted here is that the consent of the shareholders by special resolution is required for removal of the registered office outside the limits of the city, town or village where it is located.

Sections 165 to 197 deal with company meetings. The procedure relating to company meetings is now laid down in greater detail. Twenty one days' notice is required for all general meetings. The category of 'Extraordinary Resolutions' is abolished. In respect of some matters resolutions may be given only by special notice, meaning thereby that 28 days' notice of the resolution should be given to the company, and the company should give the usual notice of the meeting to its members. The majority required for a special resolution under the new Act is that the number of votes cast in favour of the resolution should be three times the number cast against it. Under another provision shareholders are given the right to use the administrative machinery of the company to circulate intended resolutions, or brief statements in regard to any resolution coming up for consideration at the meeting. Two significant changes in regard to proxies and voting are that a proxy need not be a member and that a member need not on a poll use all his votes, nor cast all his votes one way.

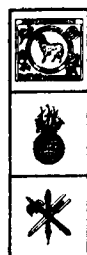
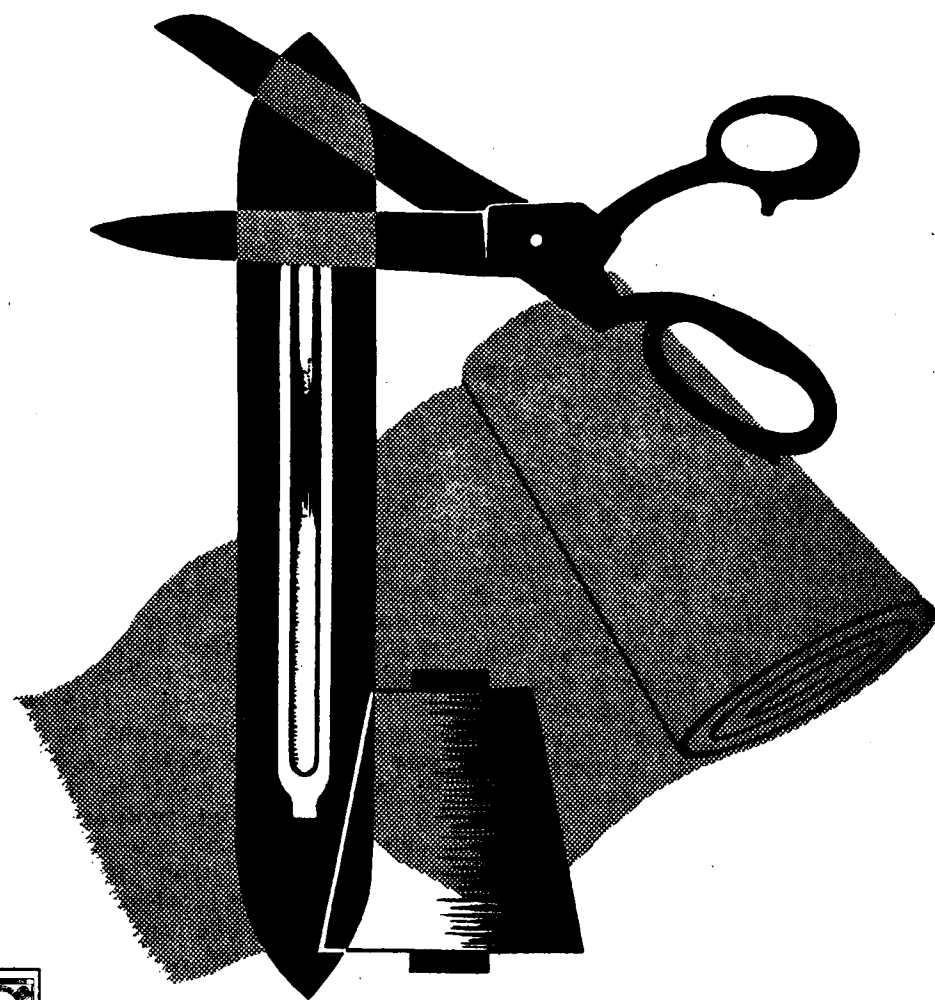
The Act has fixed an over-all maximum for managerial remuneration: under Section 198, a ceiling of eleven per cent of the net profits is prescribed for the total outgo from a company on account of remuneration of managing agents, Secretaries and Treasurers, managers, and directors. In the absence or inadequacy of profits, the "minimum remuneration" should not exceed Rs 50,000 a year for all of them together. The practice of paying tax-free remuneration is prohibited by Section 199. The appointment of a firm or company to places of profit for periods exceeding five years at a time is prohibited by Section 204. Under Section 207, if dividends are not distributed within three months of declaration, the directors are liable to be jailed for seven days.

Sections 209 to 223 relate to accounts. Balance Sheets of holding companies are required to disclose considerably more information than before. The balance sheets (but not the profit and loss accounts) of private companies are

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also required to be filled with the Registrar.

Sections 224 to 233 deal with audit. Limited companies, persons indebted to the company, and certain others cannot be appointed as auditors. Even the accounts of private companies will have to be audited by qualified auditors. Similarly the accounts of branch offices will also have to be audited by qualified auditors, failing which the Head office auditor will be entitled to audit the branch accounts also, except in the case of overseas branches of banking companies. Instead of a "true and correct" view, the auditor has in future to report whether the accounts present a "true and fair" view.

Sections 234 to 246 relate to inspection of companies. The circumstances under which an inspector may be appointed as also the powers of inspectors have been widened. In the case of companies having a share capital an inspector may be appointed by Government on the application of 200 shareholders. The Central Government may also appoint inspectors suo motto. No firm or company could be appointed as an inspector. The inspector may, with the consent of Government inspect also the affairs of other connected companies.

Under Sections 247 to 251 Government has taken power to investigate at its discretion the ownership of any company, and also the question whether any individual, firm or company is an 'associate' of any particular managing agent. These provisions are based on similar provisions in the English law, where, of course, there is no question of any 'associate'.

The provisions relating to directors are contained in Sections 252 to 323. The minimum number of directors is fixed at three for public companies and two for private companies. Only an individual may be appointed as a director, and not a firm, association or company. Any member is to be eligible for appointment as a director, and not merely a retiring director. The persons listed in Section 261 of the Act are not to be appointed as rotational directors except by a special resolution of which special notice as required by the Act should have been given: this is in the case of companies managed by managing agents who have nominated their directors to the Board. Several directors cannot be clubbed together under one resolution for election of directors, unless the company decides otherwise by a unanimous vote. If a person other than a retiring director is to be elected, his consent should have been filed with the Registrar first. The statute provides that any company may, at its option, adopt a system of proportional representation in connection with the election of its directors. Amendment of any provisions relating to managing directors and whole-time directors requires Governments' consent. All directors who are to

hold qualification shares should, within two months, file with the respective companies particulars of the qualification shares held by them. Subject to certain exceptions, no person who has attained the age of 65 may be a director unless the company specifically resolves otherwise in the case of any particular person. The Act requires that meetings of the Board of Directors should be held at least once every quarter. Further, certain matters cannot be dealt with except at Board meetings. Another feature of the Act is that it prescribes that certain matters can be dealt with only by the Directors, and certain other matters cannot be dealt with by the Board except with the consent of the company in general meeting. The power to make calls or to issue debentures are in the former category: the power to sell or lease the undertaking, to invest otherwise than in trust securities the proceeds of State acquisition of the undertaking, to borrow beyond the subscribed capital plus free reserves of the company, or to contribute to charities in excess of Rs 25,000 or 5 per cent of average profits, in any year, are in the latter category. Appointments of sole selling agents by the Board should be confirmed by the company in general meeting within six months, otherwise they will cease to be valid. The restrictions in regard to loans to directors, contained in the 1913 Act have been extended to cover the cases of public companies in which directors of the lending company have a controlling interest: but loans to directors are now permissible with the consent of the Central Government. The Board's consent is now required for contracts in which relations of directors are interested. In the English law there is a provision that all companies should maintain a Register of Directors' shareholdings: this has now been adapted into our law also. If any director who is not a managing director or whole-time director is to be remunerated on the basis of a commission on profits, consent of the company by special resolution is required. Under other sections the Act has prescribed ceilings for remunerating managerial personnel by a commission on profits. The limits are 10 per cent for managing agents, 7½ per cent for Secretaries and Treasurers, 5 per cent for managing directors, and whole-time directors, and 3 per cent for other directors: these represent the maximum: but there are several other restrictions in this regard. Central Government's consent is necessary for any increase in the remuneration of directors. Managing Directors cannot be appointed for more than five years at a time. Further, no person may be managing director of more than two companies at the same time. These restrictions apply also to managers.

The provisions relating to managing agents are contained in Sec-

tions 324 to 376 of the Act. The most important change here is contained in Section 324 which vests in Government the power to notify at any time that particular industries or classes of business shall not be managed by a managing agent. Another important change is that after 15th August 1960 no managing agent may hold that office simultaneously in more than ten companies. Under the Act the initial term for a managing agent is to be fifteen years, while subsequent appointments should be for not more than ten years at a time. In the new Act, provisions have been incorporated for the removal of a managing agent on his becoming insolvent, or on his conviction for a criminal offence; a managing agent may also be removed for fraud, breach of trust, gross negligence or gross mismanagement. Without the consent of the Central Government a managing agency cannot devolve by succession, nor can it be transferred. Central Government's approval is also necessary for changes in the constitution of any managing agency firm or company. The remuneration of a managing agent should not exceed 10 per cent of the net profits, and for additional remuneration consent of the company by special resolution and also of the Central Government is necessary. Loans to managing agents and their associates are absolutely prohibited. A limit of Rs 20,000 is fixed for current accounts of managing agents-managing agents and their associates can be appointed as buying agents or selling agents for the managed company, only for places outside India, and that too only if certain conditions are fulfilled. Consent of the company in general meeting and of the Central Government is required for inter-company investments beyond certain limits: the Board's powers in this regard have been severely circumscribed. A managing agent may appoint to the Board of the managed company only one director, unless that Board consists for more than five directors, in which case he can appoint two directors.

Sections 378 to 383 give statutory recognition to the system of Secretaries and Treasurers already prevalent in our country. Secretaries and Treasurers will be subject to the same restrictions as are applicable to managing agents, but they cannot appoint directors to the Board of the managed company, nor can they buy or sell on behalf of the managed company. Their remuneration, moreover should not exceed 7½% of the net profits.

Sections 384 to 388 deal with managers: these provisions are on a par with those applicable to managing directors.

The provisions relating to arbitration, compromise etc., are contained in Sections 389 to 393. On the lines of a similar provision in the English law, power to acquire the shares of dissenting shareholders, subject to Court's sanction, is now provided in the statute.

Central Government is also empowered to amalgamate companies compulsorily in the national interest.

Sections 397 to 409 contain provisions enabling shareholders to apply to the Court for relief where the management is oppressive or prejudicial to the interests of the company as a whole. Two provisions worthy of separate mention in this connection are the power given to the Central Government to appoint directors under certain circumstances, and a similar power to prevent changes in the Board taking place under certain circumstances.

The Act empowers the Central Government to constitute an Advisory Commission to advise it in regard to various matters. Sections 410 to 415 deal with this subject.

Sections 416 to 424 contain some miscellaneous provisions relating to contracts where a company is undisclosed principal, the manner of dealing with employees securities and provident fund moneys, and some provisions relating to receivers and managers.

Sections 425 to 564 relate to winding up. Here an important change is that the scope of the provisions relating to public examination, and misfeasance proceedings have been widened.

Sections 565 to 581 deal with companies authorised to register under the Act, while Sections 582 to 590 deal with the winding up of unregistered companies.

Sections 591 to 608 deal with foreign companies. The principal changes here are that documents will have to be filed both with the Registrar of the State in which the company's principal place of business is situate; that the balance sheet etc. of foreign companies should also be on lines similar to those of Indian companies; and that the provisions relating to prospectus in regard to foreign companies will similarly be the same as are applicable to Indian companies.

Various matter of a miscellaneous nature are dealt with in the rest of the sections. Under one of the provisions, the Central Government has taken power to direct companies to furnish statistical and other information. Under another provision Government is empowered to exempt from all or any of the provisions of the Act companies in which 51 per cent or more of the share capital is held by Government.

It is necessary that every company should examine the provisions of the Act from its own point of view. While it is likely that in day to day working the provisions of the Act may be found to be somewhat irksome, it is to be hoped that the sympathetic administration of the Act by the new Department of Company Law at the Centre will help to iron out the difficulties. So far as company managements are concerned there is no doubt that they will give the new Act a fair trial.

A Review of the Recommendations of the Taxation Enquiry Commission

FOR several years past, the business community had been urging upon Government the need to constitute a high-power Commission to enquire into the tax structure of the country. The last occasion when such an enquiry was held was in 1925. Almost thirty years had passed since then, and during this period the modus of finding the resources to meet the country's fiscal requirements had undergone many changes. It was the complaint of the business community that these changes had taken place in a haphazard manner with the result that the burden of taxation was unevenly distributed over the different sections of the community: the income tax, in particular, was falling heavily on a small section of the people. This had the effect of retarding capital formation required for the large development programmes which had to be undertaken for rapidly improving the economic condition of the masses. It was therefore necessary to have the incidence of taxation examined.

The first announcement of Government's intention to hold such an enquiry was made in 1949, but it was almost four years before that was translated into action: the Taxation Enquiry Commission was appointed on 1st April 1953. It consisted of Dr. John Matthai as Chairman and five other members. The terms of reference of the Commission were wide enough to cover every aspect of taxation. The Commission submitted their report to Government in November 1954, and it was released along with the Budget on 28th February, 1955. All taxation is of vital importance to commercial interests. Hence, so far as the business community is concerned, the Taxation Enquiry Commission's Report is probably the most significant event in 1955. Only the new Company Law can be of anywhere near importance to them.

A critical survey of all the recommendations of the Commission is beyond the scope of this article, in which considerations of space have necessarily to predominate. Instead, some of the more significant among the various recommendations of the Commission are noted here together with comments of a desultory nature.

The Commission noted that between 1939-40 and 1950-51, both Central and Provincial expenditure had expanded rapidly, by about four times, and they said that there is need for the utmost restraint on the growth of non-developmental expenditure. They recommended a thorough and careful enquiry into the whole question of public expenditure by one or more suffi-

ciently high-powered bodies. So far there has been no indication that Government intends to launch upon such an enquiry, nor does there appear to be any attempt on the part of Government to effect economies in such expenditure.

The Commission recommended that a Committee consisting of officials of the Railway and other Ministries and of the Planning Commission be constituted to consider the formulation of an adequate freight rates policy, having regard to the interests of industrial and economic development and the resources required for railway development. Accordingly under a resolution dated the 29th June 1955, Government have constituted a Committee under the Chairmanship of Dr. A. Ramaswami Mudaliar M.P., to review the present railway freight rate structure and to examine certain connected matters. The present freight rate structure for transport by goods trains has been in force since 1st October 1948. Many far-reaching changes have taken place in the economic activity in the country since then and many more of such changes are expected under the Second Five-Year Plan. This enquiry has therefore come none too soon. In this connection it is pertinent to mention that there have been many complaints that there is effective utilisation of wagons only for five hours out of every twenty-four. If it is so, and the Committee, it is hoped will make a finding on this—it is necessary that the scope for improving upon this position should be explored as it would be of advantage both to the railways and to the business community for better movement of their goods.

The Taxation Enquiry Commission expressed themselves in favour of an extension of excise duties even to the extent of taxing goods commonly classed as necessities including several items of goods listed in the Essential Goods Act. In the context of this, it would appear that the Commission's finding that a tax on salt cannot be justified is probably based on grounds more political than economic. Even a modest duty on salt would easily yield about ten crores of rupees to the public exchequer, and its incidence on the individual would be negligible. The Commission were divided in their opinion on prohibition.

On the question of 'State trading' the Commission said that as a source of revenue no spectacular results could be expected to be achieved by 'State trading'. They pointed out that 'State trading' would require personnel with specialised experience of business and

that at present governmental machinery is inadequate for the task. Past experience has been that trading activities undertaken by the State have resulted in huge losses, as for instance in the case of food. Recently, it has been said that Government intend to venture upon a certain measure of 'State trading' in the sphere of foreign trade. The Commission observed that the scope for increasing revenue by enlarging State activity in the sphere of foreign trade seemed to be limited. It is to be hoped that before Government launches upon any such venture, past experience in regard to 'State trading' and the restricted scope for raising appreciable revenue therefrom would be duly considered. Normal private trade channels have been rendering quite satisfactory service in regard to the country's foreign trade, and there does not appear to be any sound reason for upsetting them or competing with them.

An interesting suggestion made by the Commission is with regard to fiscal monopolies. They have recommended fiscal monopolies, as an alternative to excise duties, for increasing revenues, and have sug-

gested an appropriate expert enquiry to be held early to explore the possibilities of setting up such monopolies. Though they have not specifically said so, the Commission appear to have had in mind in connection with such monopolies, tobacco products, matches and sugar. It is however not clear what kind of monopoly the Commission contemplated. There could be a monopoly of manufacture, leaving the distribution to private channels; or a monopoly of distribution, leaving the manufacture to the private sector; or there could be a monopoly of both manufacture and of distribution. It would have been better if the Commission had stated at greater length their idea of a fiscal monopoly. The tobacco monopoly in France is the most outstanding instance of a fiscal monopoly: there the State has a monopoly both of manufacture and of distribution. In India also, a fiscal monopoly is not unknown seeing that there is already a State monopoly in regard to opium. However, it would be well to bear in mind that before the concept of a fiscal monopoly is extended to cover other commodities, the question of effecting radical

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economies in the running of State enterprises should receive prior attention. Chittaranjan, Sindri, and other State enterprises—it is doubtful whether these would show any phenomenal profits if commercial methods of accounting were adopted. It will not be worthwhile to the taxpayer if these aspects of the matter are not considered before fresh incursions by the State in the field of manufacture or trade.

On the views expressed by the Commission in regard to credit creation to finance the country's development programmes, there has been some divergence of opinion. The Commission have said that from the long term point of view the place which deficit financing can occupy in a programme of planned development cannot be of significant magnitude in a country like India. In an advanced industrial economy deficit financing to promote productive activity results in an increased output of consumer goods in a short time as supplies of complementary pro-

ductive factors are in good array. But in a country like India, with its large reserves of idle labour, credit creation to finance development should add to the supplies of goods and services, but the time lag is liable to be longer and the increase in output small, as other necessary resources are not available in a similar degree. The limits of deficit financing which is not to result in inflation are therefore likely to be reached earlier in India than in an advanced economy. On these grounds, the Commission have underlined the need for the utmost endeavour to enlarge the role of taxation and borrowing for financing the development programme of the public sector and to minimise the role of deficit financing. The Commission have, at the same time, stated that in the light of the immediate trends in the country a moderate measure of deficit financing would not inflict any injury on the economy. For obvious reasons, these views of the Commission have not been well-received in authoritative quarters in the Private Sector.

The Private Sector is vitally concerned in the means adopted for financing development in the Public Sector. Attempts to hold down deficit financing through increased taxation and borrowings would result in a shrinkage of capital funds available to the Private Sector for its development. On the other hand resort to deficit financing (rather than taxation, particularly direct taxation on individual and corporate business) would maintain buoyancy of conditions in the Private Sector. As the country expects a considerably greater volume of industrial activity from the Private Sector in the years immediately ahead, representative opinion in our industrial circles has been in favour of a liberal measure of deficit financing. During the few years he has been in office, the policies adopted by our Finance Minister have helped to strengthen and stabilize the national economy, and it is no exaggeration to say that the country can safely rely upon his judgment in regard to this important question of deficit financing.

Indian Finance

A very far-reaching suggestion made by the Commission is that a ceiling should be fixed for personal incomes. The ceiling should be a multiple of the per capita or per family national income. It should be on net personal income after tax. And according to the Commission the net personal income after tax should not exceed approximately thirty times the prevailing average per family income in the country. This "average per family income" has been computed in different ways by different persons, and has been generally estimated at somewhere between Rs. 30,000/- to Rs. 45,000/- a year. It is hardly necessary to point out that any such ceiling is bound to work as a disincentive to increased efforts to work and save.

Another equally far-reaching proposal made by the Commission is their scheme of a "sur-charge-cum-compulsory deposit." The two main features of this scheme are (a) the levy of a special surcharge of tax on all incomes over Rs 25,000 at rates varying between 0.25% of the income and 5.60%, subject to the condition that the assessee will be entitled to have from Government a long-term loan for about 45 years at a nominal rate of interest, of an equivalent amount for being invested in any manner approved by Government; and (b) in addition to the above, the collection from each assessee with an income of over Rs 25,000, of a compulsory deposit at similar rates (i.e., 0.25% to 5.60%) subject to the condition that it will be refunded to him only on the expiry of twenty years, with interest at nominal rates, and even then, only in the form of Government bonds which will be encashable only after the expiry of twenty-five years thereafter.

The Commission's proposals mentioned in the two immediately preceding paragraphs, are almost expropriatory in character. They also deny to the assessee the fruits of his labours. When the business community urged the appointment of a Commission to enquire into the tax structure they hardly bargained for anything like this.

Another recommendation of the Commission, which though much less important, is probably equally unwelcome is their suggestion that it should be made obligatory for assessee to submit 'net worth' statements once every three years along with the return of income. The 'net worth' statement should according to their suggestion include also stridhan and the value of jewellery in possession of the assessee's wife and other members of the family. Again, at present, income from house properties constructed between 1st April 1946 and 31st March 1956 is now exempt from income-tax for a period of two years. The Commission have recommended that this concession should be withdrawn.

The Commission have made a number of recommendations re-

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garding income-tax, several of which have already been implemented. The following are some of the more important ones in this category: (a) Under the old Section 23-A, if companies to which the section applied had not distributed at least 60% of their assessable profits, then the entire distributable profits of the company were deemed to have been distributed and were charged to tax in the hands of the shareholders. The section had caused considerable hardship, more so in cases where the assessment of individual shareholders was re-opened for assessing them to tax on 'deemed' dividends. The Commission recommended that the procedure of assessing the shareholders of the company in respect of the company's undistributed profits should be abandoned and that instead, the company itself should be assessed to super tax at a flat rate of four annas in the rupee on the undistributed balance of the total income. This recommendation has been implemented by the Finance Act 1955 by substituting a new Section 23-A in place of the old one, on the lines suggested by the Commission; (b) The Commission had recommended the grant of a development rebate on all specific acts of investment in plant and machinery in selected industries. The form of the rebate, according to the Commission, should be that in the year of installation of fixed assets by an assessee, 25% of the cost of the assets should be charged to revenue, in lieu of the initial allowance of depreciation. This recommendation also has been implemented by the Finance Act, 1955, by the addition of a new clause (vi-b) to Section 10(2) of the Income-tax Act, which provides that in respect of new machinery or plant installed after the 31st March 1954, which is wholly used for the purposes of the business carried on by the assessee, a sum by way of development rebate in respect of the year of installation, equivalent to twenty-five per cent of the actual cost of such machinery or plant to the assessee should be allowed; (c) The Commission had recommended that the following receipts, among others, should be brought to charge, that is to say, compensation received for termination of managing agencies, or in connection with termination of employment, loans and advances by Section 23-A companies to directors and shareholders, and perquisites. The Finance Act, 1955, effected the necessary amendments to the Income-tax Act for this purpose.

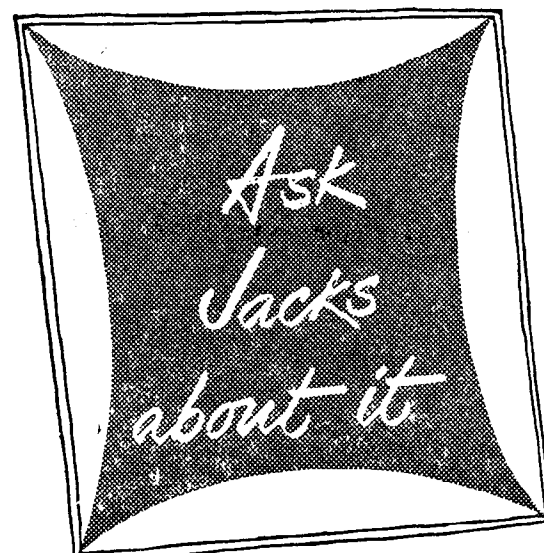
Among the concessions recommended by the Commission to income-tax assessee were: (i) that expenditure up to Rs 500 per year incurred by salaried employees on the purchase of books and periodicals of a technical nature which are of use to the employee in providing the service which he is required to give to his employer should be allowed; that in regard to income from interest on securi-

ties, the assessee himself, should be admissible; that in regard to business incomes, loss should be allowed to be carried forward indefinitely until fully absorbed; and, that the interest on advance payments of tax should be raised to 4%. All these have been implemented by the Finance Act, 1955. The Commission had also recommended that a regular system of family allowances should be introduced immediately and that a complete scheme in this regard should be in operation within three years. In partial implementation of this, the Finance Act, 1955 prescribed differential rates of income-tax for married persons and single individuals respectively. The next step in this direction should be an

allowance for children and dependents.

A very welcome suggestion made by the Commission is in connection with incentives for the development of productive enterprises. The expansion and development of productive enterprise may be specifically assisted not only by tax relief in respect of new investments in fixed assets, but also by exempting from tax or charging to a reduced rate of tax taxable profits, for a specific period. In this connection, the Commission have examined how the provisions of Section 15-C have worked in practice. The initial and additional depreciation allowance make up nearly 80 to 85% of the cost of fixed assets within the

first five years of a concern. As these depreciation allowances have to be deducted first before computing profits for purposes of income-tax, it has not been possible for any appreciable number of new concerns to claim the benefits conferred under Section 15-C. The provisions of that Section have thus, in practice become almost ineffective though the principle embodied in it could constitute a powerful incentive for the formation of new industrial concerns provided it did lead to some actual exemption of profits from tax. For these reasons, the Commission have recommended a complete exemption from tax (what they have called a "tax holiday") for the first period of six years for all new



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ties, the cost of collecting the interest, where the same is done by concerns engaged in some selected industries of national importance. This recommendation of the Commission has been acclaimed by all concerned as a highly practical suggestion, eminently suited to the present needs of the country, and its non-implementation so far has been a matter for regret.

The Commission have said that Government should exercise control over the issue of bonus shares in such a way as to ensure that there is no over-capitalisation and that there is no misuse of the facility regarding bonus issues. The Commission have also, after a careful examination of all aspects of the question, reached the conclusion that bonus shares cannot, in any sense, be treated as income for purpose of income-tax. Nevertheless, Sir Chintaman Deshmukh has levied a tax of two annas on bonus issues in his Budget proposals for 1956-57. Says Sir Chintaman: "I have taken due notice of the recommendation of the Taxation Enquiry Commission that there should not be any tax on bonus shares. I consider, however, that there is adequate justification for imposing such a tax and, in any case, such tax is an integral part of the scheme I have proposed."

In the light of the above it is felt desirable to draw attention to a finding of the Royal Commission on the Taxation of Profits and Income in the U.K. against the taxation of bonus shares. In paras 796 and 797 of their report the Royal Commission said: "It is useful to analyse precisely what such an operation (the operation of bonus issues) involves. For simplicity we assume a capitalisation in which the general reserve, formed out of profits made in earlier years is used to create new ordinary shares in the company, credited as fully paid up, on the basis of one new share to each ordinary shareholder for each existing share of that kind that he holds. To begin with, the company's assets are unaffected by the transaction: they are neither larger nor smaller than they were before. The shareholder's position has been changed to this extent, that the reserve of profits which up to that time might have been drawn upon for several purposes of which payment of dividends was one has now been extinguished or reduced by the amount involved in the capitalisation: on the other hand he has become the owner of additional shares in the company which are treated as fully paid-up though, since they have been paid up in his name out of the reserve

of profits he has not had to find any additional money himself to subscribe the capital. The profits that might become his income have now become his capital. Though he owns twice as many ordinary shares as he did before, the act of creating them has done nothing to increase his wealth, for it has added nothing to the assets of the company and the doubling of the issued ordinary share capital means no more than that whatever profits the company does decide to distribute in the future will have to be distributed over the larger number of shareholdings, with half as much paid out to each as there would have been had the capitalisation not taken place. We find it impossible to detect in this any benefit accruing to the shareholder in the nature of income.... What seems to us the important thing, when the shareholder's tax position is considered, is that at no time does he have any right to have paid out into his hands the money which the resolution effecting the capitalisation causes to be transferred to his share account: and the new share certificate represents, as we have shown, no increment at all in his wealth."

As stated earlier, it is outside the scope of a brief article of this nature to make a reference to all the recommendations of the Mat-

thai Commission: indeed it is not possible to refer to even all the important recommendations, due to considerations of time and space. However, it would be dealing with the subject in an incomplete way if no mention is made of the Commission's very practical suggestions regarding sales tax, particularly sales tax on inter-State transactions. As is generally known, the levy of sales tax on 'outside State' dealers in respect of their inter-State deliveries has been causing considerable hardship to the business community. The Commission suggested that inter-State sales tax should be regulated by Central legislation administered by State Governments, that the rate of the tax should be low, and that in respect of certain goods of special importance like coal, jute, iron and steel, cotton, oilseeds and hides and skins the States' power of taxation should be curtailed. The Commission further recommended that until such Central legislation was undertaken, State Governments should be requested not to levy tax on 'outside State' dealers. This latter proposal has been distasteful to some State Governments, as many would know. But fortunately, the recent judgment of the Supreme Court in the Bengal Immunity Company's case has come to the rescue.

The Prospects Before the Private Sector

IN dealing with this subject, it is necessary first to state briefly the contents of the Industrial Policy Resolution of the Government of India presented in the Dominion Parliament on the 6th April, 1948. That Resolution stated that the immediate objective is to promote a rapid rise in the standard of living of the people by exploiting the latent resources of the country, by increasing production, and by offering opportunities to all for employment in the service of the community; that for this purpose careful planning and integrated effort over the whole field of national activity are necessary; that a dynamic national policy must be directed to a continuous increase in production by all possible means; that in the present state of the nation's economy, when the mass of the people are below the subsistence level, the emphasis should be on the expansion of production and in particular on the production of capital equipment, of goods satisfying the basic needs of the people, and of commodities the export of which will increase earnings of foreign exchange. That while there can be no doubt that the State must play a progressively active role in the development of industries, the ability to achieve the main objectives should determine the immediate extent of State responsibility and the limits of private enterprise: that for sometime to come the State could contribute more quickly to the increase of national wealth by expanding its present activities wherever it is already operating and concentrating on new units of production in other fields, rather than on acquiring and running existing units; that meanwhile, private enterprise, properly directed and regulated has a valuable role to play; that on the above considerations, Government have decided:—

- (i) that the manufacture of arms and ammunition, production and control of atomic energy, ownership and management of railway transport should be the exclusive monopoly of the Central Government;
- (ii) that in regard to Coal, Iron and Steel, Aircraft manufacture, Shipbuilding, manufacture of telephones etc., and Mineral Oils, the State will be exclusively responsible for the establishment of new undertakings, except where, in the national interest, the State itself finds it necessary to secure the co-operation of private enterprise;
- (iii) that existing undertakings in these fields will be allowed to develop for a period of ten years without State acquisition, and the position reviewed at the end of that period; and

(iv) that the rest of the industrial field will normally be open to private enterprise, but that the State will also progressively participate in this field and that in regard to certain basic industries of importance there will be planning and regulation by the Centre.

Such was the Industrial Policy Resolution adopted by Government in 1948.

Before passing on, it is necessary to draw attention to three important points in the resolution. Firstly, the resolution recognised the imperative necessity to increase production by all possible means, as is evidenced by the use of the following expressions in the body of the resolution: "that a dynamic national policy must be directed to a continuous increase in production by all possible means", "the emphasis should be on the expansion of production" etc. Secondly, the resolution recognised that the private sector has a valuable contribution to make in the effort for increased production and fuller employment; and thirdly, Government guaranteed, so to say, 'no nationalisation for ten years'. The resolution in short conceived of a "mixed economy" consisting of the Public Sector and a Private Sector with both of them making a conjoint effort towards the attainment of the national objectives.

After the adoption of the Industrial Policy Resolution in 1948, all went well for some years thereafter. The Private Sector felt it knew where it stood under the Resolution, was happy at the recognition of its valuable role, and went ahead with its programme of increasing production all round. Its no mean achievement in this direction is borne out by the following index figures of industrial production:

Index of Industrial production.	
(Base: 1946=100)	
1950 ..	105.0
1951 ..	117.2
1952 ..	128.9
1953 ..	135.3
1954 ..	146.4

But recently, there has been a series of important occurrences, which are set out below. Taken singly, each of them by itself does not amount to much: but taken together, they attain a special significance, the cumulative effect of which is to make the Private Sector pause and reflect as to where it stands and whither all this is leading.

NATIONALISATION OF AIR-LINES.

The first in the series is the nationalisation of air-lines. Several airlines had been operating in India expected to develop them into aegis of the Private Sector. These were all pioneering efforts, and

were mostly working at a loss, but in due course the private operators expected to develop them into profitable enterprises. From the Industrial Policy Resolution as summarised in para 1, it will be seen that air-lines were covered by sub-para (iv) therein i.e., their development was left to the Private Sector, with planning and regulation by the State. In 1949, the Air Transport Licensing Board gave ten-year licences to the operators and on the strength thereof the Private operators went ahead with plans for building up the air-lines into profitable ventures. But suddenly, sometime towards the end of 1952, Government decided to nationalise the air-lines and it became effective from 15th June, 1953 with the coming into being of the two statutory corporations, the Air-India International and the Indian Air-lines Corporation.

The compensation given by the State to the private operators for the acquisition of their rights and assets gave room for considerable doubts as to whether compensation for state acquisition would be given on a "fair and just" basis. The assurance of "no nationalisation for ten years" under the Industrial Policy Resolution had also thus become empty. Further, the industry nationalised, was not in the sphere reserved for the Public Sector under the 1948 Resolution. In the light of this, the question arose whether the Private Sector could venture upon expensive programmes of expansion or development, in view of the possibility of nationalisation of any industry at any time. The knowledge that if there were nationalisation, it might be with compensation at rates wholly unrelated to the pioneering efforts aggravated the situation. The subsequent experience of the nationalised industry with its mounting losses (running into crores) every year, raised the further doubt as to whether the avoidance of wasteful effort, which was implicit in the Industrial Policy Resolution, and which the State, of all persons, was bound to observe most scrupulously, can be relied upon as any guiding principle in future. The air-transport nationalisation gave the Private Sector a rude jolt.

STATE CONTROL OF IMPERIAL BANK

In 1954, about a year after the nationalisation of the air-lines, three events occurred, one after the other, in quick succession, which bewildered the Private Sector. Government announced the taking over of the Imperial Bank with effect from a date soon thereafter. This came as a great surprise to the business community. In 1948, there had been a talk of nationalising the Imperial Bank, but subsequently it had not been pursued, and it was presumed that in view of the objections that had been voiced by business interests

the idea had been abandoned. The Imperial Bank was the single most important source of finance for the Private Sector, and State control over it meant a sort of freezing of this source. Though three were many assurances by Government that the commercial character of the Bank would be maintained, they were not of much value, for State control meant scrutiny by Parliament, and scrutiny by Parliament meant the blare of publicity, as is evidenced by the instance of the Industrial Finance Corporation: if the borrowers from that corporation had known that their borrowings would receive much undue publicity, they would not have entered into those transactions at all. That a similar fate might overtake the borrowers from the Imperial Bank was the least of the apprehensions of the business community, who were sure that as a result of State control transactions with that Bank were going to become more difficult.

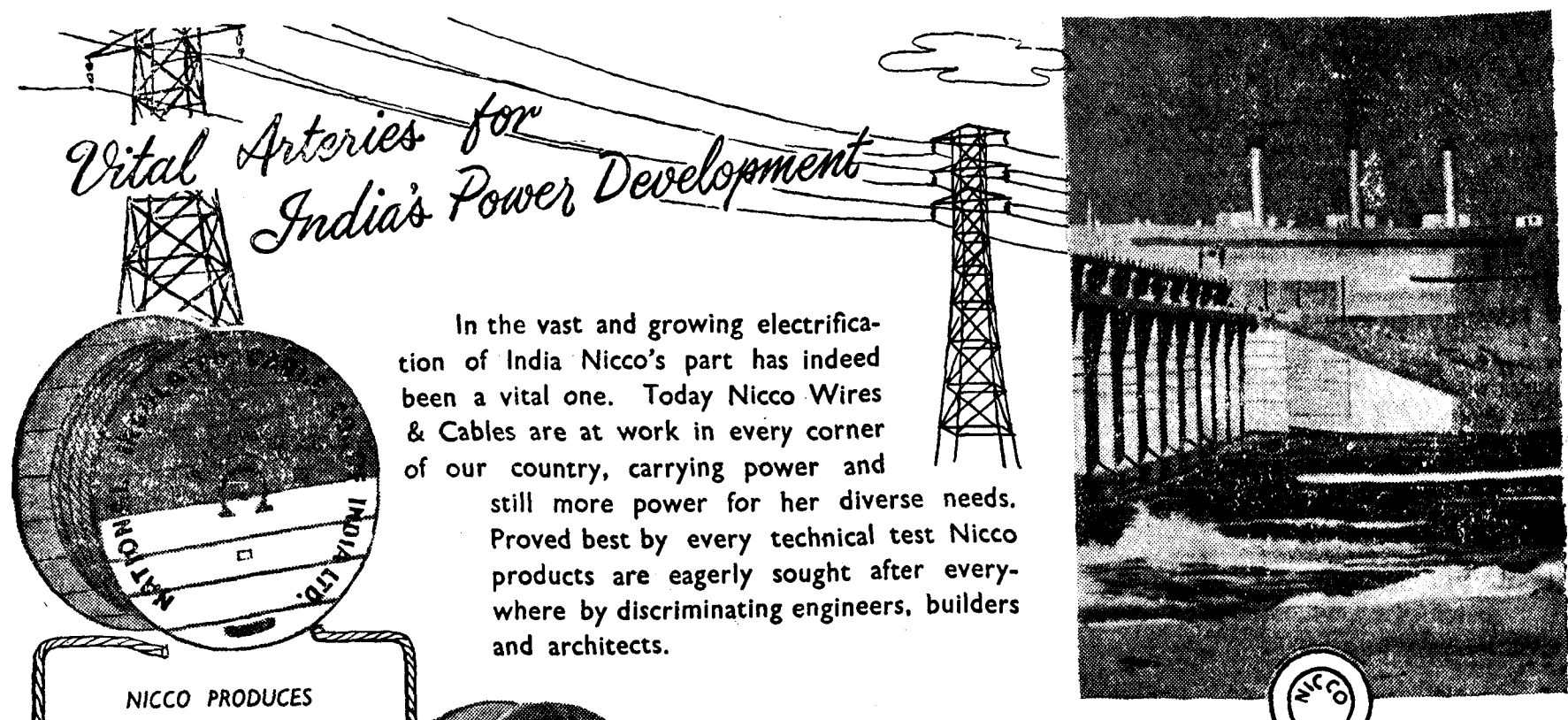
FOURTH AMENDMENT TO THE CONSTITUTION

Next came the Fourth Amendment to the Constitution. Under this amendment the State took wide powers of acquisition, but the main point in the amendment was that the compensation payable for such acquisitions was no longer a justiciable issue. This denial of the right of the citizen to have recourse to the Court of Law whenever his right to property was infringed was fundamental, especially in a professedly democratic constitution like ours. In the face of this amendment, industrialists and investors could no longer have any assurance that their undertakings would be properly paid for in the event of acquisition by the State. Though Government have given repeated assurances that there would be fair and just compensation for all State acquisitions—and there is no reason to doubt the bona fides of our present Government in this regard—the business community (particularly Industry) have to take a long term view and visualise the possibility of a future Government not so wedded to democratic principles, abusing this new wide power.

THE AVADI CONGRESS AND SOCIALISTIC PATTERN OF SOCIETY

Then came the Avadi Congress and the adoption of the Resolution on the 'Socialistic Pattern of Society'. It was not clear as to what exactly was meant by this 'Socialistic Pattern'. It might mean extensive State Control in several spheres of economic activity—or it might not. It might mean the bullock-cart economy in preference to the highly developed fast moving modern economies—or it might mean a pleasing blend of both. Whatever it might or might not mean, one thing was certain: the 'Socialistic Pattern' meant that production based on the incentive of profit should give place to production based on selfless activity.

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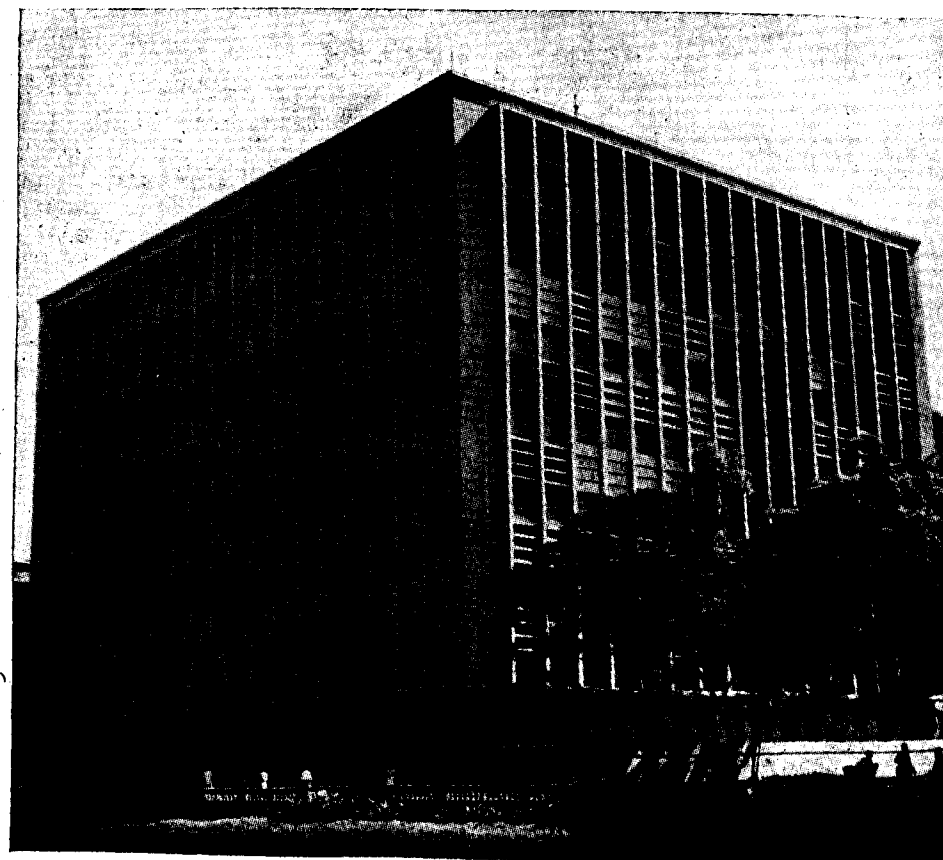
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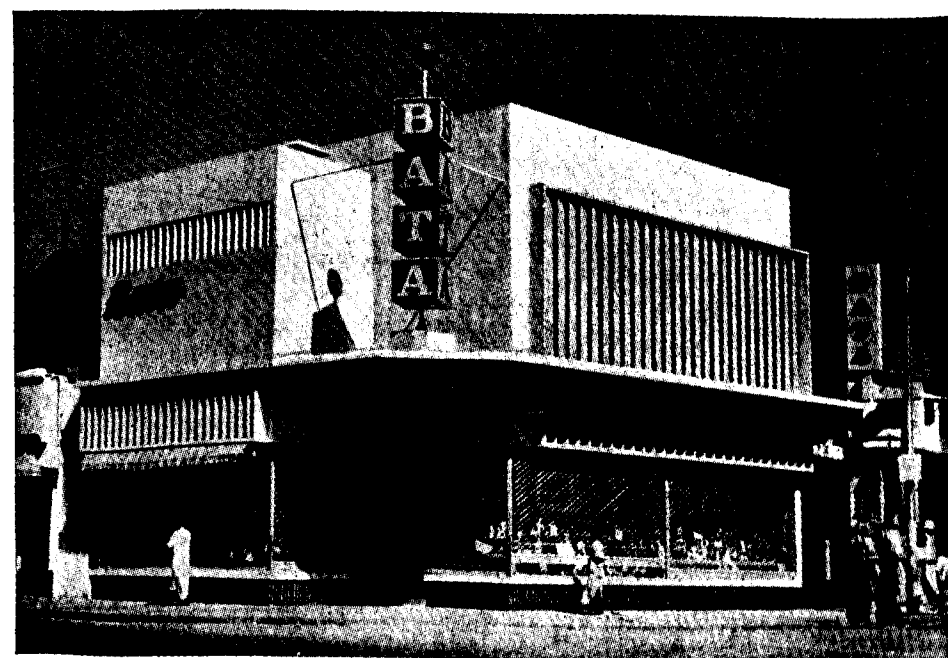
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That the latter can never attain success anywhere as much as the former, human nature being what it is, would be apparent to all who view the matter dispassionately. It is problematical whether this is fully realised by the protagonists of this notion, wedded as they are to doctrinaire concepts of the village economy and a strong prejudice in favour of small-scale and cottage industries.

REJECTION OF THE BIRLA STEEL PLANT

That on doctrinaire grounds the powers that be are willing to reject even propositions that are genuinely in the best interests of the country is fully borne out by Government's rejection of the offer of Birlas' for setting up a steel plant in collaboration with British manufacturers. A nation is as strong as its steel. That our country could do with more steel and even more steel, there can be no doubt. In the Industrial Policy Resolution the emphasis is on increasing production by all possible means: the end was thus subordinated to the means. If the Birla steel offer had been availed of, there would have been a substantial addition to our steel output which is very much needed now. The rejection of that offer on doctrinaire considerations is, to say the least of it, of questionable wisdom. This incident has made it clear that expansion of industrial activity by the Private Sector was going to be difficult, in the future.

RECOMMENDATIONS OF THE
TAXATION ENQUIRY
COMMISSION

Another significant event occurred on 28th February, 1955: on that day, the recommendations of the Taxation Enquiry Commission were made public. Some of the proposals of the Commission were of a startling nature: for the present purposes, it is enough to refer to four of them. The Commission proposed that a ceiling should be fixed for personal incomes and that these should not exceed "thirty times the average per family national income", which meant that nobody should have a net after-tax income exceeding about thirty thousand rupees a year: that this would have blotted out the main incentive to more and more effort appeared to be of no significance. Another far-reaching proposal of the Commission was their scheme of a surcharge-sum-compulsory deposit in respect of higher incomes; this involved the levy of a special sur-charge of tax on all incomes over Rs 25,000/- at a graduated scale varying between annas four to rupees five per hundred rupees of income, and in addition the collection from each assessee with an income of over Rs 25,000/- of a compulsory deposit on a similar graduated scale. This scheme if implemented would be a further disincentive to greater effort. Thus in the case of higher

incomes, this scheme meant the taking away of 10 per cent of the income in addition to the 70 per cent already taken away by income-tax and super-tax. The Commission's recommendation for amendment of Section 23-A of the Indian Income-tax Act were equally startling: they proposed that loans and advances to shareholders should be taxed as dividends: this suggestion has since been implemented, and it has not yet been possible to visualise the many directions in which this change is going to cause difficulties even to normal business practices. That such difficulties will arise, there is no doubt. The abnormally high rates of super-tax on individual incomes, which the Commission recommended (and which have since been implemented) are also a disincentive to productive effort. These and other similar recommendations of the Taxation Enquiry Commission, made in the name of reducing inequalities of income and wealth have been particularly unwelcome to the business community, who have now to wonder whether productive effort is worth while, beyond a certain point.

COMPANY LAW AMENDMENT

The reform of the Company Law has been in the air since 1950. The Bhabha Committee which submitted its report to Government in 1952 had recommended a new company law incorporating various changes based on the law of advanced foreign countries: the one major recommendation of that Committee, however, was that the country can usefully continue to rely upon the managing agency system, which should be retained but shorn of its abuses. The Companies Bill presented to the Union Parliament in September 1953 contained provisions based on the recommendations of the Bhabha Committee. And beyond pointing out a few modifications which they considered necessary so as to remove practical difficulties, the business community was willing to accept most of the proposed law. The Joint Select Committee of Parliament whose report on the Bill was published in May, 1955, however, made a number of changes of great significance. By one clause they vested in Government the power to terminate managing agencies in any industry at any time, by notification, thus opening the door for the progressive elimination of managing agencies, referred to in the Statement of Objects and Reasons of the Constitution (Fourth Amendment) Bill. By another clause they proposed that no managing agent may manage more than ten companies. And under another clause they fixed a ceiling (at 11 per cent of the net profits) to the overall remuneration of managing agents and directors. That the managing agency system had been mainly instrumental in building up the key industries of the country like Iron & Steel, Coal, Jute, Cotton Textiles, Tea, etc., and

that the system had an equally important contribution to make in the future industrialisation of the country did not appear to be of any importance: the economies and numerous other benefits resulting from group management were thrown overboard; the principle of adequate remuneration to managerial personnel for productive effort was sacrificed to the dogma of equalising incomes. The business community to whom the Company Law is of vital importance—seeing that it constitutes the very foundation of their activities—can hardly be expected to reconcile themselves with equanimity to such startling changes.

NATIONALISATION OF LIFE INSURANCE

To add to all this, Government have recently nationalised Life insurance. The surplus funds of insurance companies have always constituted an important source for the supply of a moderate amount of risk capital to the Private Sector. The nationalisation of the insurance industry, is tantamount to the denial of this source to the Private Sector. State control of the Imperial Bank, nationalisation of insurance, the new Section 23-A, the heavy incidence of direct taxes on the higher incomes, the recommendation of the Taxation Enquiry Commission for a ceiling on the net after-tax personal incomes, the floatation of huge loans by the Central and

State Governments in connection with their development project—in the face of these severe handicaps, it is going to be extremely difficult for the Private Sector to obtain in future the necessary finance for its operations: the numerous restrictions proposed under the new company law are going to hamper its activities: the nebulous concept of a 'Socialistic Pattern of Society' is going to act as a deterrent to further industrialisation under the aegis of the Private Sector.

In this state of doubt and uncertainty, the Private Sector pauses in perturbation, and wonders what is going to happen to it in the future. As stated by Shri B. M. Birla in his Presidential address at the 28th annual session of the Federation of Indian Chambers of Commerce and Industry held at New Delhi in March, 1955: "Even if there is some uncertainty businessmen are not generally troubled for, some uncertainty is, if I may say so, their occupational hazard. . . . But now and then, businessmen also, being human, feel perplexed and somewhat overwhelmed by some proposals of Government". The Private Sector can and will contribute a great deal to the economic regeneration of our country. But, first, it needs to be reassured on certain facets of Government's economic policy which have an element of uncertainty.

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STATEMENT OF ACCOUNTS AS ON 30-6-55

LIABILITIES

(i) Paid-up Capital	Rs.	87,50,000
(ii) Reserve Fund	Rs.	92,50,000
(iii) Deposits	Rs.	86,12,49,473
(iv) Other liabilities consisting of acceptances, endorsements, bills payable, bills for collection, etc.	Rs.	16,94,01,920

Total ..	Rs. 1,04,86,51,393
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ASSETS

(i) Cash and balances with Bankers	Rs.	8,05,75,142
(ii) Investments:—		
(a) Investment in G. P. Notes, Municipal Loans and shares guaranteed by the Central and State Governments	Rs. 39,92,74,144	
(b) Other investments	Rs. 1,24,87,023	Rs. 41,17,61,167
(iii) Loans and Advances	Rs.	42,30,76,802
(iv) Other Assets including bills receivable etc.	Rs.	13,32,38,282

Total	..	..	Rs. 1,04,86,51,393
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Unemployment Insurance

The Scope of Unemployment Insurance

ADAPTATION to changes in demand, and exploitation of new techniques and inventions are inherent characteristics of the manufacturing industries. Such adaptation or exploitation necessarily cause periodical variations in the quantum of employment. A certain amount of unemployment is, therefore, inevitable and perennial in all industrialised countries. But this is not a disquieting feature, for a moderate-sized army of unemployed is necessary as a reserve of labour from which industry could draw at will.

Broadly speaking, society has a general responsibility for affording every individual a reasonable opportunity to earn a living, or in default thereof to maintain him. But it is not with a view to fulfill this responsibility of society that unemployment insurance schemes have come into being. Unemployment insurance accepts a more limited liability: it applies only to persons in employment and covers only the risk of their becoming temporarily unemployed where such unemployment is not caused or continued by their own fault.

UNEMPLOYMENT INSURANCE SCHEMES IN FOREIGN COUNTRIES

The following are the general features of unemployment insurance schemes in foreign countries. The scope of compulsory unemployment insurance embraces persons employed in industry and commerce; agriculture is almost everywhere excluded, save in Great Britain. Strict qualifying conditions are imposed for the grant of benefits. In the first place, a claimant must show that he is a person whose normal occupation is the exercise of an insurable employment, and that during the preceding period of a prescribed duration he has contributed a prescribed minimum number of weekly contributions. Secondly, the claimant must not have lost his job by misconduct, or left it voluntarily or in consequence of a trade dispute. Thirdly, he must be able and willing to perform some kind of work which he has a reasonable expectation of obtaining, ordinarily his usual work, at the current wage. All unemployment insurance schemes impose a waiting period of non-compensable unemployment which must elapse before benefit can be claimed: 7 days is the usual figure, but in America periods of two or three weeks are the rule. The maximum duration of unemployment benefit is, in most schemes, less than 26 weeks. While in receipt of the benefit the recipient should attend at the employment exchanges at frequent intervals, and accept any suitable employment offered by the exchange. -Almost all unemployment insurance schemes are maintained by contributions from workers,

employers and in some cases, also by the State. Generally, their shares are equal. Despite the restriction of the duration of benefit in proportion to the duration of previous insurance, in unemployment insurance schemes it is not possible to forecast with any precision the quantum of the outgo from the fund. Nevertheless, a forecast is made on some reasonable hypothesis, and the contribution is set at a rate which is intended to leave a margin for the accumulation of a reserve. In several cases the contribution rate may be varied by a summary procedure without recourse to legislation, and in case of urgent need loans or even non-repayable subsidies may be granted by the State.

The above are the broad features of the unemployment insurance schemes of most countries. We may now proceed to note the unemployment insurance schemes of some specific countries.

UNEMPLOYMENT INSURANCE SCHEME IN NORWAY.

In Norway, under the amended Unemployment Insurance Act which came into force on 3rd October, 1949, the unemployment insurance scheme excludes from its purview all employees engaged in agriculture, hotel workers, hospital workers and domestic workers. The scheme is further open only to those workers as are liable to participate in sickness insurance. The benefits under the unemployment insurance scheme consists of a daily pecuniary benefit varying between two to six Kroners a day (depending on the class of the employee) in addition to a maintenance supplement of four Kroners a week in respect of a dependent spouse and each dependent child under sixteen. The daily pecuniary benefit is not however to exceed in the aggregate nine Kroners a day or 90% of the worker's emoluments in his last employment. In order to obtain the daily pecuniary benefit, the worker must fulfil the following conditions:—

- he must be capable of working;
- he must be unemployed through no fault of his own;
- he must be registered as an applicant for employment;
- he must have been unemployed for at least six of the preceding nine days excluding Sundays;

(e) in the course of the previous four years he must have contributed to the unemployment insurance fund for not less than forty-five weeks. The daily pecuniary benefit will be paid for not more than fifteen weeks in the course of twelve months; but the number of benefit weeks is not to exceed one-third of the number of weeks for which the worker has contributed to the un-

employment insurance fund during the preceding four years. A worker will not be entitled to the unemployment benefit under the following conditions:—

- if he is involved in a strike, lock-out or other labour dispute; or
- if he has become unemployed on account of misconduct; or
- if he has resigned his post or stopped work without good reasons; or
- if he refuses to accept other suitable work offered to him.

Every employee and employer is to pay weekly contributions ranging between one-third to one Kroner, in the proportion of half by the employer and half by the worker. The employer is to pay the whole contribution, and is entitled to deduct the worker's share from his wages. The contributions are to be paid into a local unemployment fund from which all payments will be made. If the moneys of any local unemployment fund amount to more than five times the average expenditure of the fund during the preceding seven years the Crown may order a part of the surplus to be paid into the National Reserve Fund. The National Reserve Fund will also render assistance to such local unemployment funds as have not enough to pay out the benefits. The unemployment insurance fund will be administered by the Labour Directorate, assisted by local unemployment committees.

UNEMPLOYMENT INSURANCE SCHEME IN GREECE.

In Greece, under the Unemployment Insurance Act of 1945 as amended in October, 1949, every person who performs work or services for remuneration shall be liable to insurance with the Unemployment Fund. Every employee insured with the Unemployment Fund shall be entitled to insurance benefit if he worked for 180 days in the course of the 18 preceding

months. In the case of seasonal undertakings a worker will be entitled to the benefit if he worked for 75 days in the course of the 12 preceding months. The maximum time during which benefits will be made available is 182 days, and in the case of seasonal workers 52 days. The quantum of the unemployment benefit will be 50% of the salary in the case of salaried employees and 40% in the case of wage-earners. The quantum of the benefit will be increased by 10% for every member of the unemployed person's family supported by him, but the total amount of the benefit, including that for dependents is not to exceed 70% of the average daily wage. The Unemployment Insurance Fund shall also pay the cost of transporting unemployed persons from their place of domicile to another district for the purpose of obtaining employment. The contributions to the fund will be as fixed by the Minister of Labour. The Unemployment Insurance Fund is managed by a governing body of eleven members comprised of one expert in social policy, four representatives of employers, four representatives of workers, one senior official of the Ministry of Finance, and one senior official of the Ministry of Labour, and their term of office will be two years.

UNEMPLOYMENT INSURANCE SCHEME IN THE UNION OF SOUTH AFRICA.

The following details are taken from the Unemployment Insurance Amendment Act of 1949 of the Union of South Africa. In the Union, contributions are paid to an unemployment insurance fund by employers and workers at the rates given in Table I below: in addition, the State makes an annual contribution to the fund of an amount equal to fifty per cent of the total contributions paid into the fund during the year by the employers and workers. The rate of the unemployment benefit payable to unemployed workers from the fund is as per Table II below. There is also a ceiling to the duration of the benefit: the benefits which may be paid to a contributor are not to exceed one week's benefit for each four weekly contributions.

TABLE I.
Rate of Contribution by Employers and Workers.

Class of Worker.	Contribution per week.	
	By employer.	By worker.
I. Annual earnings not exceeding £78	9 pence	3 pence
II. Between £78 and £130	1 shilling	8 pence
III. " £130 and £182	1 shilling	1 shilling
IV. " £182 and £234	1 sh. 3d.	1 sh. 3d.
V. " £234 and £286	1 sh. 6d.	1 sh. 6d.
VI. " £286 and £338	1 sh. 9d.	1 sh. 9d.
VII. " £338 and £390	1 sh. 10d.	1 sh. 10d.
VIII. " £390 and £442	1 sh. 11d.	1 sh. 11d.
IX. " £442 and £750	2 shillings	2 shillings

TABLE II.
Rate of Benefits.

Class of Workers.	Rate of benefit.
I. " " " "	Sh. 20 per calendar week or 75% of weekly earnings whichever is less.
II. " " " "	Sh. 25 per calendar week or 75% of weekly earnings whichever is less.
III. " " " "	Sh. 30 per calendar week.
IV. " " " "	Sh. 36 -do-
V. " " " "	Sh. 44 -do-
VI. " " " "	Sh. 52 -do-
VII. " " " "	Sh. 60 -do-
VIII. " " " "	Sh. 68 -do-
IX. " " " "	Sh. 76 -do-

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● Kashmir	6,000 KW
● Jogindarnagar	48,000 KW
● Greater Calcutta	1,61,000 KW
● Madras (Basin Bridge)	
● Pykara, Mettur,	2,15,450 KW
● Papanasam and Moyar	
● Mysore (Jog)	48,000 KW
● Travancore	22,500 KW
● U. P. (Harduaganj)	
● Bahadrad, Bhola,	40,600 KW
● Sumera and Muhammadpur	

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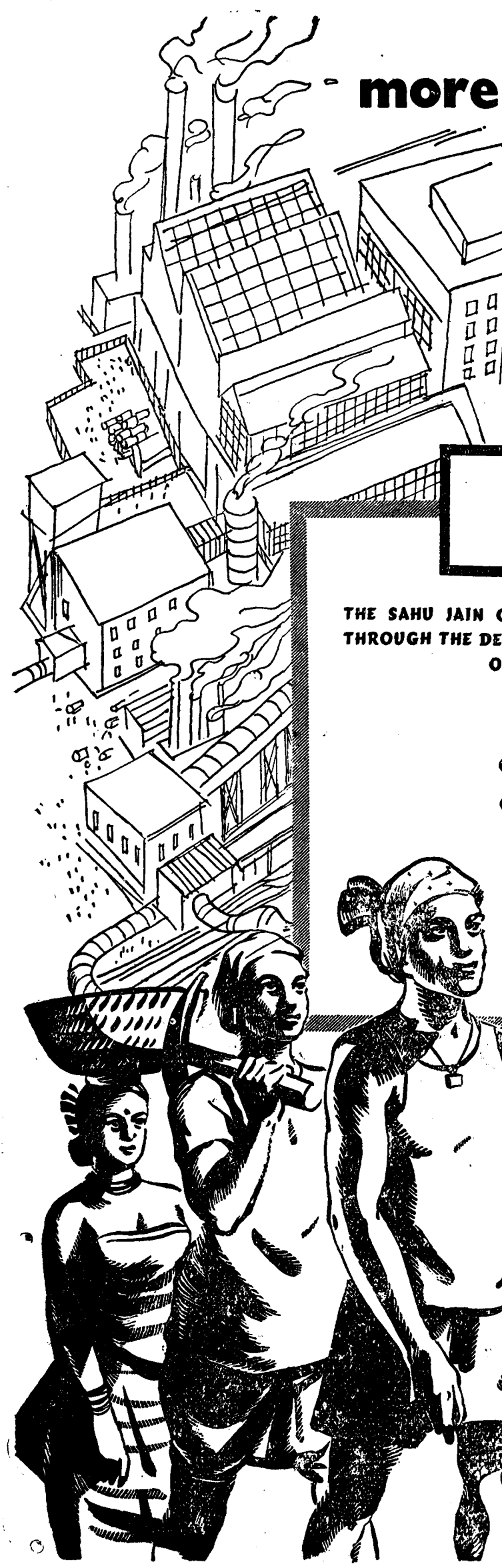
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UNEMPLOYMENT INSURANCE IN JAPAN

In Japan, in addition to the scheme of unemployment insurance applicable to all workers generally under the Unemployment Insurance Law No. 146 of 1947 (which follows the usual pattern), a special scheme for day labourers was introduced by an amendment made in 1949. This special scheme applies to workers who are employed day by day, and workers who are employed for a specific term of less than 30 days in a month, but does not apply to such workers who have been employed by the same employer for eighteen or more days in each of the preceding two months or for a total of sixty days or more during the preceding six months. If a worker to whom the special scheme is appreciable becomes unemployed when insurance premiums for a total of thirty-two or more days have been paid for him during the two months immediately preceding the month in which he is unemployed, then the worker is entitled to receive the insurance benefit. The daily amount of the insurance benefit will be 140 yen for workers whose pay is 160 or more yens per day and 90 yen for those whose pay is less than 160 yen per day. The period for which the benefit will be paid is thirteen days in the case of those for whom premiums have been paid for 32 days within the preceding two months; and an additional one day's benefit for each additional four days for which premiums have been paid, subject to a ceiling of seventeen days of benefit. The benefit shall not be payable until there has been unemployment for five days within a period of seven days. If the worker refuses to accept a job offered to him he will not be eligible for the benefit. The premium for this special scheme of unemployment insurance is,

- (a) six yen per day for workers whose pay is 160 or more yen per day; of this three yen shall be payable by the worker, and three by the employer; and
- (b) five yen per day for workers whose pay is less than 160 yen per day; of this two yen

shall be payable by the worker and three by the employee.

The employer is responsible to deduct the worker's premiums from their wages and pay all the premiums to Government, which administers the scheme.

UNEMPLOYMENT INSURANCE SCHEME IN AMERICA.

In the United States, by legislation passed by several States between the years 1935 and 1941, unemployment insurance has been introduced as a compulsory scheme. The American Insurance Scheme is financed by employers only. A waiting period of 2 to 3 weeks is prescribed before one could participate in the benefits. The benefit scale is flat and is a percentage of the standard wage. Organisation of the scheme consists of a central insurance institution working through employment exchanges as its local agencies. Employers and workers participate in the administration of compulsory unemployment insurance through their representatives on advisory bodies, or tribunals for the settlement of disputed claims.

SPECIAL FEATURE IN AUSTRIAN SCHEME.

It is not intended to note here all the details of the Unemployment Insurance scheme of Austria. However, one special feature in that scheme is worthy of note. It is that employees who are not working full time will receive from the employer when interruptions of work of more than eight hours occur in the course of two consecutive weeks, a compensation by way of short-time workers' relief; and the amount of the compensation is, for the first eight hours of interruption of work an amount equal to the daily rate of unemployment allowance (which varies between 40% and 60% of the earnings depending on the class of the employee), and for each subsequent hour of interruption an amount equal to one-eighth thereof.

The following Table presents in a summary form the main features of unemployment insurance schemes in various countries:

Country.	Qualifying period (Weeks) for eligibility to unemployment benefit.	Maximum writing period (days), after which only benefit may be drawn.	Quantum of benefit (as % of standard wage) (Approximate).	Maximum duration of benefit (Weeks).
Austria ..	20	7	65	12
Australia ..	52	2	39	No limit.
Belgium ..	26	9	56	No limit.
Bulgaria ..	16	8	39	6
Canada ..	26	15	29	15
Denmark ..	52	5	68	No limit.
France ..	26	3	56	26
Great Britain ..	26	..	50	26
Greece ..	26	12	57	2
Ireland ..	26	7	60	26
Japan ..	20	..	80	18
Netherlands ..	13	..	75	No limit.
New Zealand ..	52	7	90	15
Norway ..	45	6	50	15
Sweden ..	52	6	90	15
Switzerland ..	26	1	65	15

THE POSITION IN INDIA.
In a country where there is large employment, an unemployment insurance scheme cannot be a

practical proposition, because of the heavy financial obligation it will impose. In considering the scope for an unemployment insurance

scheme in India the above general proposition has to be borne in mind. It may be roughly assumed that in India 10% of industrial workers are continuously in a state of unemployment. The total number of industrial workers in India is approximately three millions. This means that any schemes of unemployment insurance would have to cover three hundred thousand workers. Assuming that the average earnings of an industrial worker is Rs. 75 per month and assuming also that during the period of unemployment a worker is to be given an allowance equivalent to 50% of his average monthly earnings, this means that the unemployment insurance fund would be annually doling out somewhere about Rs. 15 crores. And if this is shared equally between the State, employers and workers the burden on industry would be about Rs. 5 crores annually. It is a moot question whether Indian industry would be able to bear this additional burden. In this connection, it may be pointed out that under the Employees' State Insurance Scheme and the Industrial Workers' Provident Fund Scheme additional burden of between Rs. 12 and 20 crores is already imposed on industry. The level of wages now is also about three times the pre-war level. In these circumstances, however laudable its objectives might be, it is extremely doubtful whether an unemployment insurance scheme can be successfully worked in India at this stage.

Before concluding a reference may be made to a recent development in this field. In July, 1955, it was reported that the working group on unemployment insurance constituted by the Government of India in 1954, had suggested a central unemployment insurance scheme to be integrated with the Employees' State Insurance Scheme, and the Employees Provident Fund Scheme. It was understood that the scheme was to apply only to persons already employed, and cover in the first instance persons whose total monthly remuneration did not exceed Rs. 400, and engaged in (i) factories using power and employing twenty or more persons; (ii) in mines; and (iii) in shops and commercial establishments. The cash benefits under the scheme were to be about 50% of the wages (including dearness and overtime allowances) and were to be for a period of 13 weeks in a year. The cost of the scheme was estimated at 3% of the total wage bill, and the suggestion was that this was to be met by contributions from employers at 2% of the wage bill, and from workers at 1% of the wage bill. Later however, it was reported that the scheme was rejected. That in doing so the Planning Commission displayed a realistic approach to the matter will be borne out by all that has been said in the preceding paragraph.

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Tax Treatment of Undistributed Profits

1. GENERAL

THE raison d'être for the taxation of the undistributed profits of corporations may not be apparent at first sight; for, it would appear, human nature being what it is, that once the shareholders know that a profit has been made, they will call for its distribution. And distribution is the stage at which profits may be most conveniently taxed. The question of taxing undistributed profits cannot therefore have much significance.

Where large numbers of the public are interested as shareholders in any particular undertaking, the above proposition is generally true. But the position is different in the case of concerns whose shares are held by a close circle of persons. In the case of such closely controlled corporations it is possible for shareholders to derive some advantages by postponing the distribution; and by reason of the shares being held by a limited few, there is also no obstacle to such postponement being effected. In an year in which the tax rate is high the non-distribution reduces the tax-liability of the shareholder: at the same time it entails a loss of revenue to the State. Further, as observed by the Taxation Enquiry Commission, "the amount of profits withheld from distribution could then be used as a fund from which it is possible to finance their (the shareholders) consumption or other expenditure" through the medium of loans, advances or other payments by the company to its shareholders. Therefore, to prevent this form of tax avoidance, the tax system of every economically advanced country in the world has adopted the principle of taxing the undistributed profits of closely controlled corporations, in some form or other.

Such taxation however may cause hardship in those cases where the motives for retaining the profits with the companies are genuine, and the retention is actuated by laudable objectives. This is particularly so in the case of pioneering industrial enterprises, even though the shareholding may be within limited circles. It can not be gainsaid that undistributed profits assist capital formation and provide a ready source which could be drawn upon for meeting the requirements of expansion or rehabilitation programmes. This consideration is especially important for us in India at the present juncture when the emphasis is on industrialisation. In taxing undistributed profits, care has therefore to be taken to avoid its becoming a deterrent to the building up of reserves for such useful purposes, and a balance has to be struck between the just requirement of the Revenue (that income shall not escape tax), and the extreme undesirability of such taxation be-

coming an obstacle to the industrial advancement of the country. In the light of the foregoing observations it will be of interest to examine the practice adopted in various countries in regard to the taxation of undistributed profits.

2. SYSTEM IN AUSTRALIA

In Australia, private companies are obliged to distribute among their shareholders, the whole of the 'distributable income' of the companies, less a 'retention allow-

On the first £1000/- of 'reduced distributable income'	50%
On the next £1000/- of —do—	40%
On the next £1000/- of —do—	35%
On the next £1000/- of —do—	30%
On the rest of the —do—	25%

After deducting the 'retention allowance' from the 'reduced distributable income', whatever balance remains will have to be distributed in full to the shareholders by private companies. For this purpose the following will be deemed to be private companies: companies 75 per cent or more of whose voting power is held by 20 or less persons, or those in which 50 per cent or more of the capital or voting power is held by less than 7 persons, and companies in which the public are not substantially interested. But subsidiary companies of public companies will not be deemed to be private companies. The Statute also provides that in certain cases the Commissioner may declare that a particular company will not be deemed to be a private company, even if it is so under the definition in the Statute. From the above, it will be seen that the Australian Income-tax Law allows only a little more than 25 per cent of the profits to be retained by closely controlled corporations.

3. SYSTEM IN THE UNITED STATES

In the United States certain companies are defined as 'personal holding companies'. Generally, if at any time during the latter half of a tax-year, more than fifty per cent of a company's stock is owned directly or indirectly by or on behalf of not more than five individuals, then such a company is deemed to be a 'personal holding company'. On such a company, a 'personal holding company tax' is levied, the amount of which is 75 per cent of its undistributed income on the first \$2000 of such income, and 85 per cent on the balance of such income. In computing such income allowance will be given for all taxes on income, (both US and foreign) and also for all business expenses, losses, depreciation, dividends already paid, and permissible contributions to charity. The Statute allows the tax-payer to enter into an agreement with the Department regarding his liability for 'personal holding company tax', and any dividend distributed within ninety days

of such agreement will be allowed as a deduction in computing the income liable for 'personal holding company tax'. The most significant feature in the American system, as could be gathered from the above is the option given to the tax-payer to enter into an agreement with the Department, and thereafter make a suitable distribution and thus reduce his tax liability.

4. SYSTEM IN THE UNITED KINGDOM

In the United Kingdom under Section 245 of the Income-tax Act 1952, as amended by the Finance Act 1954, where it appears to the Special Commissioners that any company to which, the Section applies has not within a reasonable time after the end of its year of accounts distributed to its members a reasonable part of its actual income from all sources, the Special Commissioners may direct by notice to the company that for purposes of sur-tax the said income will be deemed to be the income of the members. Under the Act, the test whether a company has distributed a reasonable part of its income is, whether, having regard to the current requirements of the company's business and such other requirements as may be necessary or advisable for the maintenance and development of the company's business, the company has made a reasonable distribution. The companies to which Section 245 applies are those which are under the control of not more than five persons, which are not subsidiaries, and in which the public are not substantially interested. A company will be deemed to be under the control of five or less persons if they control a major part of its voting power, or are entitled to a major part of its distributions of income: and for this purpose relations and nominees of a person will be included in that person. Further, a company will be deemed to be one in which the public are substantially interested if its shares carrying not less than 25 per cent of the voting power are held by the public at the end of the company's accounting period, and the shares

have been quoted in the stock exchange. It will be noticed that under the above provisions, considerable discretion is vested in the Special Commissioners in regard to the quantum of corporate distributions.

5. OLD SYSTEM IN INDIA

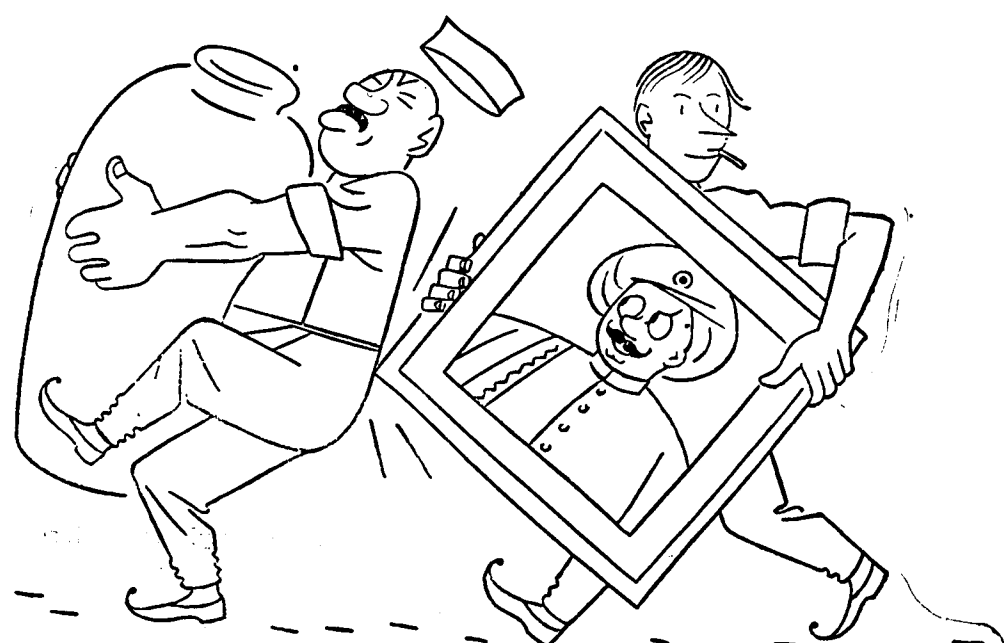
In India, prior to the Finance Act of 1955, closely controlled companies were required to pay tax on the basis that at least 60 per cent of their assessable profits, less income-tax and super-tax payable by them have actually been distributed, and where 60 per cent of the profits had not been distributed, then the entire distributable profits were deemed to have been distributed to the shareholders, and the whole amount was made chargeable to tax in their hands. This system however caused many practical difficulties, and often times necessitated the re-opening of the assessment of individual shareholders for assessing tax on the 'deemed' dividends. The Department and the assessee alike found it a trouble-some system. Hence, on the basis of various recommendations made by the Taxation Enquiry Commission, this system was changed wholesale by the Finance Act 1955.

6. NEW SYSTEM IN INDIA

Under the new system in India, the procedure of assessing the shareholders of a company in respect of the company's undistributed profits was abandoned, and instead, the company itself is assessed to an additional super-tax at a flat rate of four annas in the rupee on the undistributed balance of their total income after deducting therefrom all taxes on income, and other taxes (Central, State and Local) and, in the case of banking companies any amounts transferred to reserves under section 17 of the Banking Companies Act. Companies to which these provisions apply are those in which the public are not substantially interested. Companies owned by Government, or in which 40 per cent of the shares are held by Government, or in which 50 per cent of the voting power is held by the public and not by less than six persons will be deemed to be companies in which the public are substantially interested. All other companies are required to distribute by way of dividends 60 per cent of their reduced total income, (100 per cent in the case of investment companies and companies whose reserves including past untaxed bonus issues exceed (a) their loan capital and paid-up capital minus past untaxed bonus issues, or (b) the actual cost of the fixed assets, whichever of the above two is greater). In the case of those concerns which have distributed 55 per cent instead of 60 per cent, (or 90 per cent instead of 100 per cent), the Income-tax Officer has to give them three months' notice before assessing them to the new super-tax on undistributed income, and the companies can within that

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period avoid the assessment by making a fresh distribution.

Another new feature is that companies may now apply to the Commissioner to reduce the minimum distribution on satisfying him that having regard to the current requirements of the companies' business or such other requirements as may be necessary or advisable for the maintenance and development of the company's business it would be unreasonable for the companies to declare a larger dividend or any dividend at all as the case may be. This new provision is almost verbatim based on the UK Section 245.

Further, Indian manufacturing companies (i.e., those engaged in the manufacture or processing of goods, or in mining, or in the generation or distribution of electricity or any form of power) are given the additional right of an appeal

(from the Commissioner's decision) to a Board of Referees of two Joint Secretaries of the Centre.

7. CONCLUSION

Having noted the main features of the principal systems in the world in regard to the taxation of corporate undistributed profits, we may now pass on to consider the comparative advantages and disadvantages of the various systems. It may be readily conceded that the Australian system is the most rigid of all, seeing that the only relaxation it permits is that the Commissioner may in appropriate cases declare a company to be not a private company even though it may strictly fall within the statutory definition. In the American system, the tax on the undistributed profits is quite heavy, but the option given to the assessee to enter into an agreement with the

Department and make a distribution thereafter is a relieving feature. The system in the UK is the most flexible one as it gives the Special Commissioners the power to decide in each case on its merits, as to whether a reasonable distribution has been made having regard to the company's requirements. The UK system has been adopted in India under the 1955 amendment. It is however worth mentioning that the vesting in the Commissioner of the power to decide as to what are the reasonable requirements of the particular company surpasses comprehension. How is the Commissioner, or Joint Secretaries for the matter of that, competent to decide this issue? A body like the Central Advisory Council of Industries or the Advisory Committee on Capital Issues, is, it is submitted, more competent to decide as to what may be deemed

to be "reasonable requirements" in any particular case. The Commissioner and the Department are merely one party to the dispute between the Assessee and the Assessing Authority, as to what may be taxed: to vest any power in this regard in any one of the parties is therefore manifestly inequitable. The fact that in the UK a similar power is vested in the Special Commissioners is no justification whatsoever for its blind adoption in India. It is desirable that the new Section 23-A of our Income-tax Act be amended so that the appellate and reviewing power now vested in the Commissioner and in the Board of Referees is taken away and vested instead on either the Central Council of Industries or the Advisory Committee on Capital Issues or some similar authority on which Industry is adequately represented.

Restrictions on Sales Tax Under the Constitution of India

Power of State Governments to Levy Sales Tax

EXTRA TERRITORIAL OPERATION OF SALES TAX

The question naturally arises as to whether for purposes of jurisdiction to levy sales tax it is necessary that all the ingredients of a sale should have been completed within the frontiers of the taxing State or whether there could be any circumstances under which a State may levy sales tax on a sale that takes place beyond its territorial limits. Generally speaking a State Legislature cannot pass a taxation statute so as to bind other States of the Union. At the same time it is well recognised that the State power to levy taxes extends to all matters properly within the sovereignty of a State and exists not only in regard to persons and property but also as regards business done within the State, provided there is a sufficient and real territorial nexus between the taxing State and the transaction sought to be taxed. Thus, in the case of State of Bombay vs. United Motors (India) Ltd., reported in 1953, 4 S.T.C. 133 the Supreme Court of India observed that by virtue of Article 246(3) of the Constitution read with Entry 54 in the Second List in the Seventh Schedule thereof the Legislature of any State in the Indian Union has the exclusive power to make laws "for such State or any part thereof" with respect to taxes on the sale or purchase of goods other than newspapers; that the expression "for such State or any part thereof" cannot be taken to import into Entry 54 the restriction that the sale or purchase referred to must take place within the territory of that State; that all that the expression means is that the laws which a State is empowered to make must be for the purposes of that State; and that the constitutional validity of State legislation imposing taxes turn not on the possession by the State Legislature concerned of extra territorial powers, but on the existence of a sufficient territorial nexus between the taxing State and what it seeks to tax. (Note: the subsequent Full Bench decision of the Supreme Court in the Bengal Immunity Company's case has not over-ruled this).

It may be pointed out in this connection that in regard to sales tax there might be such nexus for several States in respect of the same transactions; for, a sale is a composite transaction involving several elements such as agreement to sell, transfer of ownership, payment of price and delivery of the goods sold, and conceivably not all of these elements may take place in one and the same State. While the State in which title to the goods sold passed may ordinarily tax the connected transac-

tion of sale, other States may also seek to tax the same transaction on the ground that some other ingredient of the sale occurred within their frontiers. It would thus be possible for several States to impose sales tax upon the same transaction. The consequent extra territorial operation of the sales tax is no bar to its validity: a State's jurisdiction to tax a particular individual does not depend upon the residence or domicile of an assessee*.

CONSTITUTIONAL RESTRICTIONS ON THE STATES' POWER TO LEVY SALES TAX

The imposition of the Sales tax on the same transaction by several State Legislatures in the country would fetter the freedom of inter-State trade and commerce. And where such taxation is on an export or import sale (which is already subject to the customs duties levied by the Centre) the resultant double taxation would tend to act as a brake on the country's foreign trade. The makers of the Constitution of India therefore thought it fit to impose some restrictions on the States' power to levy sales tax, with a view to maintain freedom of inter-State trade and commerce as between the several States of the Union, and to protect the foreign trade of the country from double taxation. And this they had to do without causing undue detriment to the revenues of the States. The problem before our Constitution makers was, therefore, one of balancing and reconciling the rival claims of trade (both foreign and inter-State) in the larger interests of the nation and the States' power of taxation in the interests of the expanding social welfare needs of the people committed to their charge. The solution reached by our Constitution makers to this problem is expressed in Articles 301, 303, 304 and 286, which read as follows:

"301. Freedom of trade, commerce and intercourse.

Subject to the other provisions of this Part, trade commerce and intercourse throughout the territory of India shall be free.

"303. Restrictions on the legislative powers of the Union and of the States with regard to trade and commerce.

(1) Notwithstanding anything in Article 302, neither Parliament nor the Legislature of a State shall have power to make any law giving, or authorising the giving of, any preference to one State over another, or mak-

*See observations of the Patna High Court in Bengal Immunity Co. vs. State of Bihar and Others (1953) 4 S.T.C. 43.

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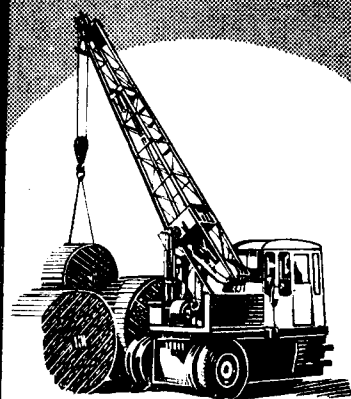
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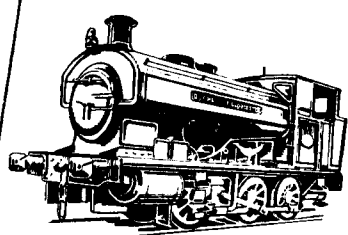
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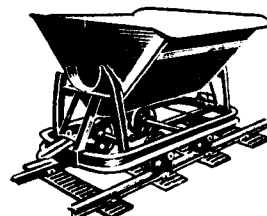
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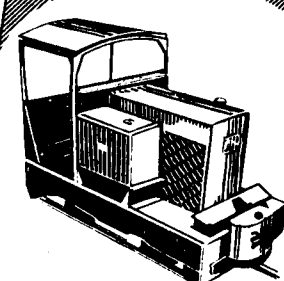
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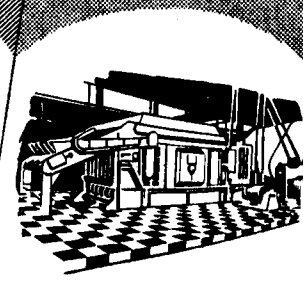
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*Note:—The power to impose taxes on the sale or purchase of newspapers in all advertisements published therein is conferred on the Union Government by Entry 92 in the 'Union List' (List I) on the Seventh Schedule to the Constitution; under sub-clause (1) of Article 246 of the Constitution, the Union Government has the exclusive power to legislate in regard to the matters enumerated in the 'Union List'.

SALE OF INCORPOREAL RIGHTS NOT TAXABLE

Entry 54 refers to taxes on the sale or purchase of "goods". The expression "goods" has to be carefully noted. "Goods" mean tangible corporeal property, and do not include abstract rights such as actionable claims, stocks, shares, securities or other incorporeal rights. A sale of incorporeal rights will not therefore attract sales tax. It has been so held by the Patna High Court in the case of State of Bihar vs. Rameshwar Jute Mills Ltd. (1953) 4 S.T.C.133. In that case, the assessee, a jute mill, was a member of the Indian Jute Mills Association which allotted certain loom-hours to each mill on condition that if for any reason a mill was not able to utilise its quota of loom-hours, either due to shortage of raw materials, labour trouble or any other cause, it had the option of selling the loom-hours to some other concern capable of utilising the same. The assessee sold some loom-hours and the sales tax authorities realised sales tax on the amount shown in the books of the assessee as sale price of the loom-hours. The Patna High Court held that "goods" referred only to tangible corporeal property and not abstract rights like loom-hours or actionable claims, stocks, shares or securities, and that consequently the sale price of loom-hours was not rightly taxed.

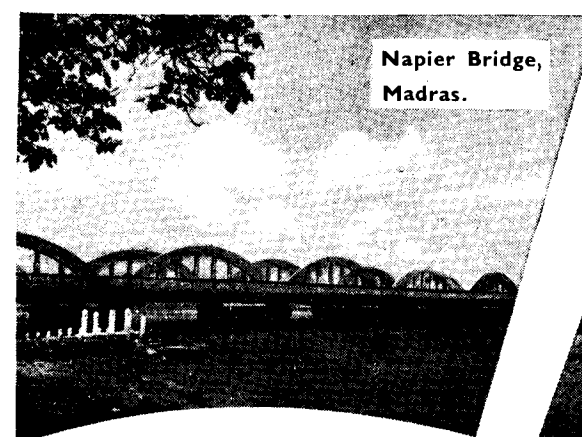
'SALE' DOES NOT INCLUDE 'AGREEMENT TO SELL'

It has to be noted that the right conferred by the Constitution on State Governments to levy a tax on sales is confined to "sales". A 'Sale' is different from an 'agreement to sell'. The right conferred by the Constitution to tax sales does not extend to the taxation of agreements to sell. Under the English Law, on which is based the Indian Law, on the subject, a sale of goods and an agreement for the sale of goods are treated as two distinct and separate matters. The vital point of distinction between the two is that in a sale there is a transfer of property in the goods from the seller to the buyer: there is no such transfer of property in the goods in an agreement to sell. A sale is thus an executed contract: an agreement to sell, on the other hand, is an executory contract. In a sale property is exchanged for a price, and ownership of the thing sold is transferred from the seller to the buyers. Where the transfer of property in the goods is to take place at a future time or subject to certain conditions to be thereafter fulfilled such a transaction is called an agreement to sell. And any such agreement to sell becomes

In the net result, by virtue of entries 53 and 54 in List II in the Seventh Schedule to the Constitution, read with Article 246(3), State Governments in the Indian Union are vested with the power to impose taxes on sales or purchases of all goods other than newspapers.*

"53. Taxes on the consumption or sale of electricity.

"54. Taxes on the sale or purchase of goods other than newspapers."

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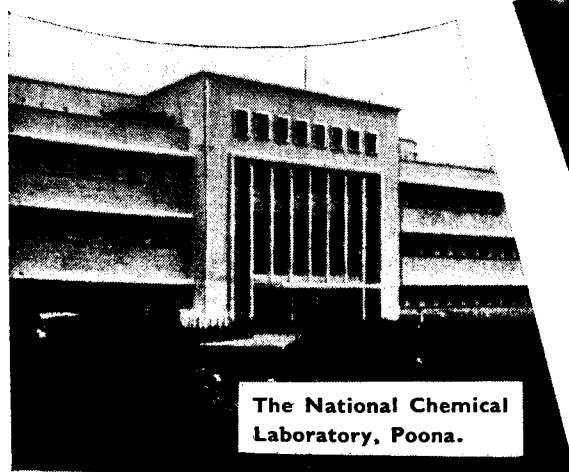
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A Concrete Shell Roof



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ing, or authorising the making, of, any discrimination between one State and another, by virtue of any entry relating to trade and commerce in any of the Lists in the Seventh Schedule.

(2) Nothing in clause (1) shall prevent Parliament from making any law giving, or authorising the giving of, any preference or making, or authorising the making of, any discrimination if it is declared by such law that it is necessary to do so for the purpose of dealing with the situation arising from scarcity of goods in any part of the territory of India.

"304. Restriction on trade, commerce and intercourse among States.

Notwithstanding anything in article 301 or article 303, the Legislature of a State may by law,

- impose on goods imported from other States any tax to which similar goods manufactured or produced in that State are subject, so, however, as not to discriminate between goods so imported and goods so manufactured or produced; and
- impose such reasonable restrictions on the freedom of trade, commerce, or intercourse with or within that State as may be required in the public interest:

Provided that no Bill or amendment for the purposes of clause (b) shall be introduced or moved in the Legislature of a State without the previous sanction of the President.

"286. Restrictions as to imposition of tax on the sale or purchase of goods.

- No law of a State shall impose, or authorise the imposition of, a tax on the sale or purchase of goods where such sale or purchase takes place—
 - outside the State; or
 - in the course of the import of the goods into, or export of the goods out of, the territory of India.

EXPLANATION.—For the purposes of sub-clause (a) a sale or purchase shall be deemed to have taken place in the State in which the goods have actually been delivered as a direct result of such sale or purchase for the purpose of consumption in that State, notwithstanding the fact that under the general law relating to sale of goods the property in the goods has by reason of such sale or purchase passed in another State.

(2) Except in so far as Parliament may by law otherwise provide, no law of a State shall impose, or authorise the imposition of, a tax on the sale or purchase of any goods where such sale or purchase takes place in the course of inter-State trade or commerce:

Provided that the Parliament may by order direct that any tax on the sale or purchase of goods which was being lawfully levied by the Government of any State immediately before the commencement of this Constitution shall, notwithstanding that the imposition of such tax is contrary to the provisions of this clause, continue to be levied until the thirty-first day of March, 1951.

(3) No law made by the Legislature of a State imposing, or authorising the imposition of, a tax on the sale or purchase of any such goods as have been declared by Parliament by law to be essential for the life of the community shall have effect unless it has been reserved for the consideration of the President and has received his assent."

The provisions of Article 286 relate directly to sales tax, and so to say, circumscribe the States' power to levy sales tax. While Article 246(3) read with Entries 53 and 54 in List II in the Seventh Schedule to the Constitution confers on States the power to impose sales tax, Article 286 restricts that power by prohibiting the levy of sales tax on the following four types of sales:

- a sale that takes place outside the taxing State;
- a sale in the course of import-export;
- a sale in the course of inter-State trade or commerce; and
- a sale of goods declared by Parliament by law to be essential for the life of the community.

In view of their importance these restrictions are discussed in greater detail below.

NO SALES TAX ON SALE OUTSIDE THE STATE

Sub-clause (a) of clause (1) of Article 286 bars the imposition of sales tax on a sale that takes place outside the taxing State. The Explanation to Article 286(1), however, says that if the title to the goods sold passes in one State, and as a direct result of that sale the goods are delivered in another State for the purpose of consumption therein, then the sale shall be deemed to have taken place in the latter State. A sale, as stated earlier, is a composite transaction involving several elements such as agreement to sell, transfer of ownership, payment of price, delivery of the goods sold, and so forth. All of these may not take place in one State: and where they have taken place in different States, the question arises as to how the locale of the sale is to be determined. In the *United Motors* case the Supreme Court of India observed it is difficult to say that any one of the above ingredients is more essential to a sale than the others so as to localise the sale, and that to solve this difficulty an easily applicable test for deter-

mining what is an outside sale is formulated by the Explanation to Article 286(1). The Explanation provides by means of a legal fiction that a State in which the goods sold are delivered for purposes of consumption therein is the State in which the sale should be deemed to have taken place, notwithstanding that the property in such goods passed in another State. Earlier it has been seen that the jurisdiction of States extends to any transaction provided there is a sufficient territorial nexus between the State and the transaction. This test of sufficient territorial nexus is replaced (by the Explanation to Article 286(1)) by a simpler and more easily workable test: Where were the goods actually delivered as a direct result of the sale for the purpose of consumption? The sale shall be deemed to have taken place in that State and outside all other States. The latter States are prohibited from taxing that sale, by reason of the bar of Article 286(1)(a). The former State also is prohibited from taxing that sale by reason of the ban imposed by Article 286(2). It was so held by the Supreme Court in the *Bengal Immunity Company's case*: 1955—6 S.T.C. 446.

DELIVERY FOR CONSUMPTION DOES NOT EXCLUDE DELIVERY TO DEALERS

The reference to "delivery for the purpose of consumption" in the Explanation to Article 286(1) should be noted. It was claimed in the *United Motors* case that the formula of delivery for consumption within a State would cover only sales taking place directly between consumers in the delivery State and dealers in other States, and that inter-State sales between dealers in two States would be outside the scope of the Explanation. The Supreme Court, however, observed that the Explanation does not say that the consumption should be by the purchasers themselves, and that the expression "for the purpose of consumption in that State" (in the Explanation) must be understood as contemplating also distribution eventually to consumers in general within the State. Thus, sales to all buyers within the State of delivery (be they consumers or dealers) by out of State sellers, (except those buyers for re-export out of the State), would fall within the scope of the Explanation and would be deemed to be "outside State" sales.

NO SALES TAX ON SALES IN THE COURSE OF INTER-STATE TRADE OR COMMERCE

If title to the goods sold passes in one State and delivery is given in another State, the transaction involves inter-State elements. Clause (2) of Article 286 of the Constitution prohibits the levy of sales tax on sales in the course of inter-State trade or commerce. The clause, however, provides for two exceptions. The exceptions are:

- Tax may be levied by a State on sales in the course

of inter-State trade or commerce in so far as Parliament may by law provide. Here, it may be stated that Parliament has not so far made any provision in this regard. And until Parliament so provides inter-State sales cannot be taxed: (*Supreme Court in Bengal Immunity Company's case*: 1955—6 S.T.C. 446).

- Any sales tax that was lawfully being levied by a State Government before the commencement of the Constitution, even if repugnant to the Constitution, may be continued till the 31st March, 1951, if the President by order so directed. This is a transitory provision, which has ceased to be of much interest after 31st March, 1951. It may, however, be mentioned that pursuant to this proviso in clause (2) of Article 286, and in exercise of the powers conferred thereby, the President of India, by an Order dated the 26th January, 1950, called the *Sales Tax Continuance Order 1950*, which came into force at once, directed that any tax on the sale of goods which was being lawfully levied by the Government of any State immediately before the commencement of the Constitution of India shall, until the 31st March, 1951, continue to be levied notwithstanding the imposition of such tax being contrary to the provisions of clause (2) of Article 286.

DOCTRINE OF 'UNOPENED PACKAGE' NOT APPLICABLE IN INDIA

While on this subject, mention may be made of the doctrine of "unopened package" laid down by Courts in the United States. What is meant by the doctrine is that if A sells goods to B, then so long as the original package remained unopened, any sale thereof in the course of the movement of the goods from one State to another would be a sale in the course of inter-State trade. In the *Cashew-nut case* (1953) 4 S.T.C. 205 the Supreme Court of India, however, said that this doctrine of original or unopened package evolved by American Courts has no place in this country.*

NO SALES TAX ON SALES IN THE COURSE OF IMPORT/EXPORT: MEANING OF "IN THE COURSE OF"

Under Article 286(1)(b) of the Constitution no law of a State may impose or authorise the imposition of a tax on the sale of goods where such sale takes place in the course of the import of the goods into or export of the goods out of the territory of India.

*See also Federal Court's observations in *Province of Madras vs. Boddu Paidanna & Sons* 1 S.T.C. 104.

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In the case of *State of Travancore-Cochin and Another vs. Shanmuga Vilas Cashewnut Factory and Others* (1953) 4 S.T.C. 205, the Supreme Court had occasion to interpret this clause. The Supreme Court said that the words "import into" and "export out of" occurring in this clause, do not mean the article or commodity imported or exported they mean the importation into the country and exportation out of the country respectively, and this is made clear by the reference in the clause to "goods" and to "the territory of India". Further, the expression "course" denotes movement from one point to another; and the expression "in the course of" implies a period of time during which the movement is in progress, and postulates also a connected relation. In the English Bankruptcy Act of 1869, in Section 15(5), there is a reference to "debts due to the bankrupt in the course of his trade"; and it has been held* that those words do not extend to all debts due to the bankrupt during the period of his trading but included only debts connected with his trade. Similarly, a sale "in the course of export" out of the country should be understood, so said the Supreme Court in the *Cashewnut* case, as meaning a sale taking place not only during the activities directed towards the end of exportation but also as a

part of or connected with such activities: the former (i.e. the time factor) alone is not determinative.

Thus, a purchase for the purpose of export will not come within the purview of the exemption provided by this clause for such a purchase is only an act preparatory to the export, and cannot be regarded as an act done in the course of the export of the goods out of the territory of India. Similarly, the first sale after import will not also necessarily come within the purview of this exemption: for it may be a distinct local transaction effected after the importation of the goods into the country has been made, and having no integral relation with the import.

In the *Cashewnut* case it was claimed that the exemption given by this clause covers only those sales and purchases under which the property in the goods concerned is transferred from the seller to the buyer during the transit, that is, after the goods begin to move and before they reach their destination. The Supreme Court, however, said that this is too narrow a view.

It may be of interest to note here that the question of imposing sales tax on transfers of goods while in transit "in the course of export" would not often arise in practice. For, where goods are transported out of India pursuant to a contract of sale already entered into with a foreign buyer, the shipping documents would generally have been forwarded to

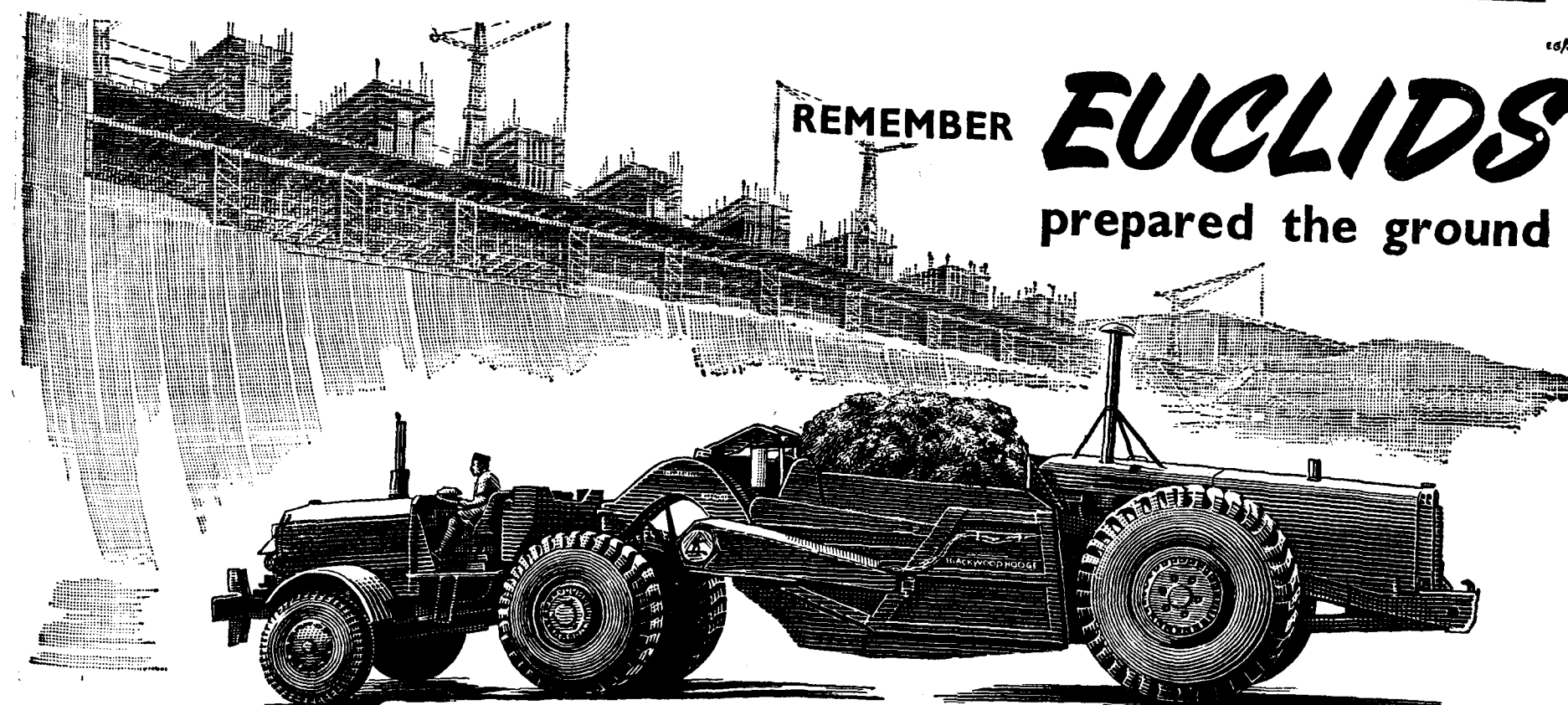
him, so that any further sale by the Indian seller is out of the question. And where the export trade is conducted through representatives or branch offices abroad, the sale of the exported goods is usually done abroad by the latter, and such sale cannot be subject to sales tax by the States in India. It is only in relation to import of goods from abroad that the question of exemption assumes practical importance. Sales by the transfer of shipping documents, while the goods are in transit to India are a characteristic feature of our foreign trade. Such sales are commercially regarded as incident to the import transaction, and may be definitely said to take place "in the course of the import". Such sales would, therefore, fall within the protection provided by Article 286(1)(b).

The Travancore-Cochin High Court had expressed the view that this clause is not restricted to the point of time at which goods are imported into or exported out of India, and that the series of transactions which necessarily precede the export or import of goods will come within the purview of this clause. But on appeal (in the *Cashewnuts* case) the Supreme Court said that this view is too wide.

According to the Supreme Court's ruling in the *Cashewnut* case,* whatever else may or may not fall within the purview of

Article 286(1)(b), sales which themselves occasion the export out of or import into the territory of India as the case may be, are protected by the exemption. It was claimed in that case that with a view to avoid double taxation, (i.e., customs duty and sales tax) it is necessary to extend this exemption to the last purchase of goods made by an exporter for the purpose of exporting them to implement orders expected to be received subsequently in the course of his business and to the first sale by an importer to fulfil orders expected to be received after the import. The Supreme Court, however, did not accept this suggestion, and said that such double taxation is already avoided by their holding that the sale which itself occasioned the export or the purchase which itself occasioned the import are exempt from the levy of sales tax under Article 286(1)(b).

It is the entry of the Articles into the export stream that marks the start of the process of exportation: there is then the certainty that the goods are headed for their foreign destination and will not be diverted to domestic use: nothing less will suffice to claim the exemption. This is the rule laid down by American Courts and it has been quoted with approval by our Supreme Court in the *Cashewnuts* case. The course of export out of the territory of India does not commence until the goods cross the customs frontier:



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similarly the course of import into the territory of India does not terminate until the goods cross the customs frontier*

An important point to be borne in mind in this connection is that to come within the purview of the exemption provided by Article 286(1)(b) the export must be of the goods whose sale or purchase took place "in the course of" the export. Thus, if some goods are purchased, then subjected to some sort of manufacturing process so that they are not commercially the same commodity; and then they are exported, the sale will not be free from tax. It has been so held by the Supreme Court in the Cashew-nuts case. This applies equally to imported goods also.

NO SALES TAX ON ESSENTIAL GOODS

Clause 3 of Article 286 of the Constitution says that if any goods are declared by Parliament by law as being essential for the life of

the community, then any State Legislation imposing or authorising the imposition of sales tax on such goods shall be effective only if such legislation has been reserved for the consideration of the President of India and has received his assent.

The Constitution (except for some provisions thereof not material for the present purpose) came into force on the 26th January, 1950. But, no law in this regard was passed by Parliament for more than two years thereafter. Parliament passed the Essential Goods (Declaration and Regulation of Tax on Sale or Purchase) Act 1952 (Act LII of 1952) in the middle of 1952. It received the assent of the President on the 9th August, 1952 and is in force from that date. Certain goods are listed in the Schedule to that Act, and the Act declared them to be essential for the life of the community and said that no law made after the commencement of that Act by the

Legislature of a State imposing or authorising the imposition of a tax on the sale (or purchase) of those goods shall have effect unless it had been reserved for the consideration of the President and had received his assent.

The following are the goods listed in the Schedule to that Act:

1. Cereals and pulses in all forms, including bread and flour, including atta, maida, suji and bran (except when any such article is sold in sealed containers).
2. Fresh and dried fruits, sugar-cane, coconuts, vegetables, edible tubers, vegetable and flower seeds, bulbs and plants, excluding orchids (except,
 - (i) any medicine prepared from any one or more of such articles; and
 - (ii) when any such article is sold in sealed containers).
3. Fresh milk, whole or separate, and milk products, including butter, ghee, chana, khoa, but excluding sweetmeats.
4. Meat, fish and eggs (except when any such article is sold in sealed containers).
5. Edible oils, and oilseeds from which edible oils are extracted.
6. Gur.
7. Salt.
8. All cloth, woven on handlooms, coarse and medium cotton cloth made in mills or woven on power-looms.

Explanation I. "Coarse cloth" means any cloth in which the count of warp yarn employed (excluding the border) is below 17s. (whether single or folded).

Explanation II. "Medium cloth" means any cloth in which the count of warp yarn employed (excluding the border) is 17s or finer but is less than 35s (whether single or folded).

9. Raw cotton, including ginned and unginned cotton or kapas, cotton thread, cotton seeds, jute seeds, raw jute, sun-hemp and mesta.
10. Hides and skins.
11. Fertilizers and manures, agricultural machinery and implements, including parts of such machinery and implements.
12. Cattle feeds.
13. Coal including coke and other derivatives, petroleum and petroleum products, including kerosene and motor spirit.
14. Iron and steel.
15. Books, exercise books, slates and slate pencils and periodical journals.

It has to be noted that the Act does not refer to any State legislation passed prior to August, 1952: clause 3 of the Act expressly re-

fers to laws "made after the commencement" of that Act.

A further point of interest to note in this connection is that clause 3 of Article 286 of the Constitution does not apply to laws made before the commencement of the Constitution. It has been so held by the Supreme Court in the case of Sardar Soma Singh and Others vs. state of PEPSU and Union of India (1954) 5 S.T.C.112. In that case the Supreme Court observed that clause 3 of Article 286 contemplates a post-Constitution law. The clause refers to a law made by Legislature of a State which can only mean the Legislature of a State created by the Constitution. Further, the clause contemplates a law which can be but has not been reserved for the consideration of the President and has not received his assent. There can be no question of law in force at the commencement of the Constitution and continued by Article 372 thereof, being reserved for the consideration of the President for receiving his assent. The clause, therefore, clearly points to a post-Constitution law. In the above case the Supreme Court therefore held that an Ordinance of the PEPSU Government imposing a sales tax on certain categories of cloth does not contravene the provisions of Article 286(3) of the Constitution, nor is it affected by Section 3 of Act LII of 1952.

In the net result the position with regard to the levy of sales tax on essential goods, (i.e., goods covered by the Schedule to Central Act LII of 1952) may be summed up as follows:—

- (1) Any State legislation imposing or authorising the imposition of sales tax on such goods, passed on or after the 9th August, 1952, will not be effective unless it has been reserved for the consideration of the President and has received his assent;
- (2) Any law imposing or authorising the imposition of sales tax on such goods if in force in the Provinces, prior to the commencement of the Constitution of India, (i.e., the 26th January, 1950) will continue to be effective until repealed; and,
- (3) On the question whether any State legislation imposing or authorising the imposition of sales tax on such goods, passed on or after the 26th January, 1950, but before the 9th August, 1952, would be effective, it may be stated that presumably such legislation would be effective since during this period there was no law passed by Parliament declaring these or any other goods essential for the life of the community.

*State of Travancore Cochin vs. S.V.C. Factory, (1953) 4 S.T.C. 105. See also Empresa Siderurgica, S.A. vs. Merced 397 U.S. 154.

Indian Finance

FOOD AND OUR PEOPLE

By Professor V. G. RAMAKRISHNA AIYAR, M.A.

THE progress of food production during the First Five-Year Plan seems to indicate that we are reaching a certain self-sufficiency in the matter of food but it would be a precarious self-sufficiency if the problem is not tackled both as a short-term and a long-term problem. Looked at from this point of view, we cannot look upon the food problems with a sense of complacency. It would therefore be pertinent to focus attention upon few cardinal facts so as to understand the problem in its proper perspective.

"Internationally organised scientists and technicians might contribute greatly to the cause of peace by planning a world-wide campaign, not merely for greater food production but also (and this is really the important point) for regional self-sufficiency in food production." Thus wrote Aldous Huxley in his pamphlet, 'Science, Liberty and Peace'. These are really wise words. Dependence on imports from foreign countries is undesirable for three reasons. Firstly, the high prices of imported food grains and the large amount we have to pay for them are a severe drain on the country's foreign exchange which must be conserved for the purchase of capital goods and machinery. Secondly, transport facilities may be cut off in the event of a war some where, thereby the country being threatened with a problem of acute food shortage. And thirdly, the countries having surpluses of food grains will not hesitate to use them as weapons in their game of power supremacy. So it is a very precarious affair to be dependent on imports from abroad especially for a country like ours which cannot import in return manufactured goods as payment. Self-sufficiency in food production at an early date is, therefore, a desideratum and it is proposed to examine in what follows whether full exploitation of our food resources will really be able to support our growing population.

The population of India in 1951 as disclosed by the All India Census Report recently issued was 357 millions. The food produced in the country has been insufficient to maintain this population and the deficit has had to be made good by imports from abroad which were nearly 4.7 million tons in 1951. For reasons stated earlier, it is undesirable that we should continue to depend for our needs on foreign countries.

At the outset it would be useful to discuss the genesis of the problem. It would be wrong to suppose that the difficulties we are facing have been created by the war. Partition has added to the seriousness of the food situation in India. Our food problem is at least thirty years old and the war has

only served to focus our attention to it with greater urgency.

There has been a steady increase in the population of India since the middle of the 18th century. Between the years 1901 and 1951, the population has increased by over 120 millions. But according to the All India Census Report of 1951, the year 1921 is the 'Great Divide'. The pattern of growth subsequent to this important year is unlike the pattern of growth before that year. Famine and pestilence put an effective check to the growth of population before 1921. But improvement in sanitation, better control of epidemics and generally better medical facilities have led to rather unchecked growth of population since 1921. It is certain that if there is no decrease in the birth rate and the present improvement in the death rate is maintained, the population will show an even greater increase. The birth and death rates for the period 1941-51 are 40 and 27 respectively as against 40 and 43 respectively for 1901-11 which means that the differential birth rate or the survival rate has more than doubled. The present rate of growth of population is about 1.3 per cent per annum.

While thus an increasing population has increased the demand for food, the production of food has not kept pace with the growth of the population. It has lagged behind due to reasons over some of which we had no control and some of which were and are certainly within our power to overcome. The separation of Burma was responsible for a reduction of 1.3 million tons in the internal supplies of food grains. The creation of Pakistan in 1947 led to a further reduction of 0.77 million tons. These reductions were inevitable. But what was not inevitable and should have been by all means avoided is the decrease in the area under cultivation. The sown area per person has steadily declined. Here again, 'the Great Divide' is 1921. Both the area of cultivated land per capita (0.88 acre per head in 1911-12 to 0.72 acre in 1948) and the productivity of cultivation per capita have declined steeply since 1921.

So, it is that due to a rapidly increasing population and to a falling food production, our country is faced with that repeatedly occurring phenomenon in history—the growing pressure of population on food supply, the spectre of Malthus. This cry of the world too full of people was heard two thousand years ago in Greece. It was familiar to the people of two generations ago in England where at popular population meetings the cry was again revived. But now the cry is universal and the entire world of humanity is warned persistently

to beware of race suicide and extinction by starvation. And in our own country the cry has been a little louder.

Throughout history, the following sequence has occurred time and again. In a limited area, the increasing population began to overtake the means of subsistence. This led to expedients for maintaining an equilibrium between population and food supply—expedients such as infanticide, abortion, emigration and later in the Christian era, celibacy and postponement of marriage. But surely we cannot in the twentieth century of time, think of practising the older method of infanticide etc. which are cruel and revolting; nor can we accept the tyranny of a convention which force us into postponement of marriage and enforced celibacy. A new civilization requires a new method. Of this more will be said later.

We shall first discuss the question of our food resources now available and their potentialities in the matter of increase. This aspect of the problem requires a little statistical analysis. Since we have launched a Five Year Plan whose chief aim is the increase in agricultural production, it will be useful to base our discussions on the conditions which are expected to exist in 1956 when the present plan would have been worked out. The estimated population in 1956 would be 383.1 millions. If this population is to be maintained at the level of consumption in 1950—namely 13.71 ozs of rice and 2.1 ozs of pulses per adult per day (for purposes of calculation, the adult equivalent of the population is taken as 80 per cent of the population) and if a quantity equal to 12½ per cent of the population is set apart for seeds, our requirements in 1956 will be 61.6 million tons. Against this, the production of food grains—if the 1950 level of production is maintained—will be 52.7 million tons. So the deficit that will have to be made good will be nearly 7 million tons. According to the agricultural programme of the Plan, there will be an additional output of 7.6 million tons of food and so we may state that the food policy under the Five Year Plan will enable us to achieve self-sufficiency by 1956.

The Five Year Plan, however, is intended as a stepping stone to a larger aim. It is to make our country reach a level of self-sufficiency for all times. This is also the object of our enquiry and we are greatly helped in our work by the valuable data furnished by the Five Year Plan. In what follows, the figures are all extracted from the Five Year Plan.

The total geographical area of India is 811 millions of acres. Out of this area, in respect of 200 million acres no precise statistics

are available. The remaining land is distributed as follows:—

	Millions of acres.
(1) Forests	93
(2) Net area sown	268
(3) Current fallows	58
(4) Cultivable waste	98
(5) Not available for cultivation	96
Total	611

An analysis of agricultural data available indicates that no new area has been brought under cultivation during the last forty years in spite of the increase in population. Further, no effort seems to have been taken to increase the yield per acre. These trends were indicated early in the article. If we are to improve our capacity in the matter of food production, we must extend the area of cultivation and also intensify the method of cultivation so as to make every acre of land yield more.

In the figures quoted above 98 million acres are shown as cultivable waste, and 58 million acres as current fallows. Why are they allowed to remain so in spite of the increasing pressure of our increasing population on our food resources? Obviously their exploitation is beyond the capacity of individual farmers to undertake. The State will have, therefore, to organise their development. Under the Five Year Plan, the Central Tractor Organization, the State Tractor Organizations and individual farmers assisted by the State are expected to develop through reclamation 7.4 million acres at a total cost of Rs 35 crores. A progressive use of these aids can gradually cover all the current fallows and also bring into cultivation a large portion of the cultivable waste.

In an area of 277 million acres under cultivation, only 50 million acres are served by adequate irrigation facilities. The remaining area is dependent on the vagaries of the monsoon. So it would seem that a very effective way of raising output is to extend irrigation facilities. Irrigation facilities encourage the farmer to intensify his efforts at cultivation. There are numerous rivers and rivulets whose waters run to waste during the rainy season. These can be harnessed by irrigation. Further, it has been suggested that large scale irrigation by wells is feasible in parts of Uttar Pradesh, Bihar, the Punjab, Rajasthan and Gujerat. Here again the Five-Year Plan has placed great emphasis on the development of irrigation, multi-purpose irrigation and power projects, no less than Rs 433 crores being set apart for them in the Plan. Eight major and twenty-seven minor irrigation projects are expected to be completed by 1956 and these will irrigate an additional area of 19 million acres. These figures are very impressive and if the same progress can be

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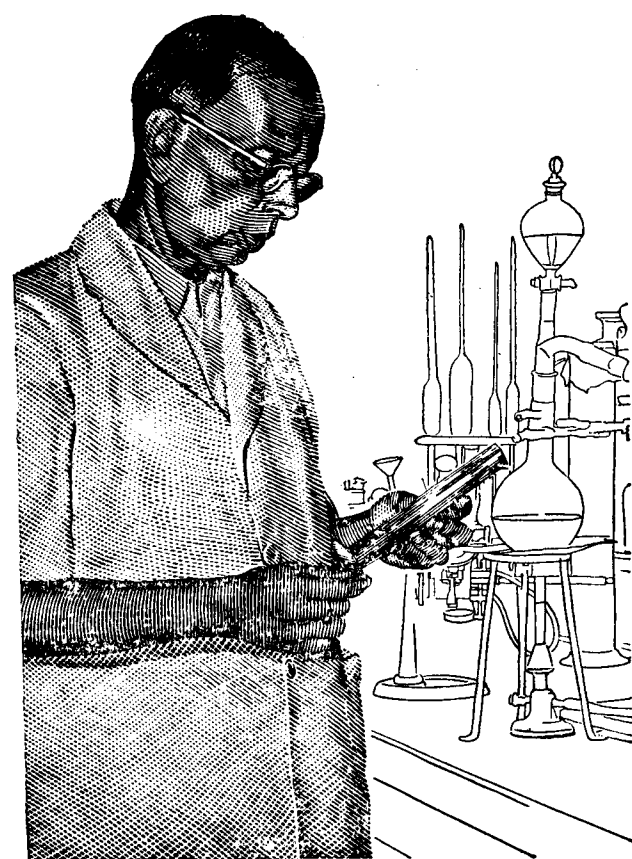
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maintained after 1956 also, it will be possible to double the area under irrigation in about 15-20 years. If that is achieved, we shall be well on the road to comfortable self-sufficiency in food. We can then produce all that is needed to ensure progressively improving standards of nutrition for our increasing population.

From the fore-going we see that the area under cultivation can be increased considerably. But it is important to note that we can not only increase the acreage but can also grow more on the land under the plough. The low yield of agriculture in our country is notorious. The following table gives the average out-turn of crops per acre in different countries.

Name of country.	Wheat in lbs	Rice in lbs
Egypt ..	1,918	2,998
Japan ..	1,713	3,444
China ..	989	2,443
USA ..	812	2,185
India ..	660	1,240

The high yield in other countries as compared with the yield in India cannot be attributed to the nature of the soil alone. In a country like China where agriculture is as old an art as in our country, the yield per acre is nearly 1.5 times as much in the case of wheat and two times as much in the case of rice as in our country. It is clear that we can also improve the yield per acre. The chief obstacles to better farming at present are—poor seed, inadequate manuring, erosion, damage by insects and pests, outmoded implements and lack of irrigation facilities. We have already considered the question of irrigation in detail. We shall now take up the other factors retarding better yield and see what improvements are possible and what attention is paid in respect of them by our Government.

The production of improved varieties of seed is among the most significant achievements of modern agriculture. In India too, a good deal of progress has been made in the evolution of better quality seeds; but it cannot be said that the seeds so produced have found wide use in the country. In 1950, it was estimated that only 4.3 per cent of the total acreage under the rice and 20.6 per cent of that under wheat had the benefit of using the improved varieties of seed. The scheme of decentralizing the distribution of pure seed and the establishment of a large number of seed farms operated by the Agricultural Department envisaged in the Five-Year Plan will no doubt go a great way in extending the use of improved seeds by the farmers.

Little attention has been paid to the matter of replenishing the soil with the elements which are removed by the crops every year. Inadequate manuring has led to the slow devitalization of the soil. The use of what is probably the

best natural manure, cattle dung should be more intensive and wide spread. Human excreta converted into compost are very rich phosphorus, nitrogen and organic matter. Its production should be undertaken on a large scale. Indeed it has been well observed that the production of compost is an act of faith. Green manures and concentrated manures like oil cakes, bone meal etc. should be more liberally used. The use of synthetic fertilizers is no less important. Ammonium sulphate and superphosphate the most commonly used fertilizers—are being manufactured in the country. All the above aspects of improving soil fertility have come up for consideration and implementation in the Five Year Plan.

A large part of the farming in our country is carried on with tools as primitive as those of the Vedic times. Improved agricultural implements can increase the yield out of all proportion. Again extensive damage is caused by insect pests and disease. These can be checked by the use of insecticides—particularly DDT and BHC. The manufacture of these insecticides is being undertaken in our country itself.

There are also a number of ways by which food supplies can be increased—for example, rotation of crops, prevention of soil erosion by contour bunding, terracing, ridging, grant of cheap credit facilities to the farmer, co-operative farming and a new land policy which will solve the question of land-ownership satisfactorily.

So we can conclude that our land resources can be so exploited by extensive and intensive cultivation, that it would be possible to add very appreciably to our food output. Such improved production will enable us to be in a state of self-sufficiency for years to come.

An optimistic view with regard to our food resources does not necessarily mean that much notice need not be taken of the startling fact that our country has added 50 million people to its population in the last decade and that our population is increasing at the rate of 1.3 per cent per annum. On the other hand, a check to the rate of the growth of population is as much relevant in the context of our aim of achieving self-sufficiency in food as augmentation of the total production of food. In this context, it would be very useful to devote some space to the conclusions arrived at by the Census Commissioner on the basis of the data made available during the last census. The first conclusion is that if people continued to get food during the next thirty years as well as they did in the past thirty years, the population would increase from 36 crores in 1951 to about 52 crores in 1981. But the Census Commissioner is of opinion that the assumption about an undiminished rate of food supplies is unlikely to hold good. So he concludes that unless effective

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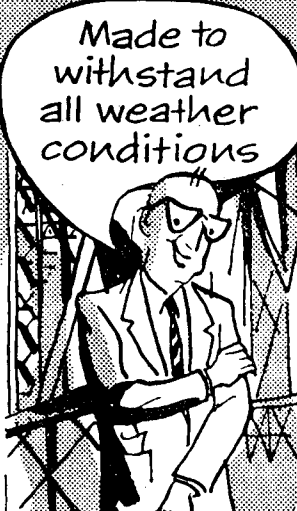
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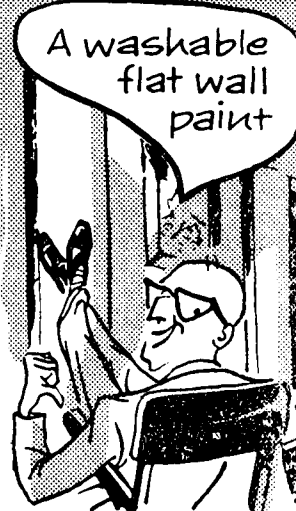
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steps are taken to limit births to approximate parity with deaths so that we may achieve a more or less stationary population, those natural checks to the growth of population like famine and pestilence will come into operation. The suggestion which the Census Commissioner makes to bring about a control of population is to avoid what is called 'improvident maternity'.

Improvident maternity consists of all births occurring to mothers who have already had three or more children when at least one of them is alive. Every married couple could have a maximum of three children without being considered demographic menaces. India has the highest percentage 42.8 per cent in this matter of 'improvident maternity' (US 19.2 per cent; UK 14.3 per cent; West Germany 13.3 per cent; Japan 33.9 per cent). A reduction of 'improvident maternity' from 42.8 per cent to under 5 per cent will bring our population to a stationary level at about 45 crores and if in the meanwhile agricultural productivity is also increased from 700 lakhs of annual tons to about 940 lakhs of annual tons the problem of balancing our food resources with population would have been achieved. If these are not taken serious note of, it seems as though men and women are doomed to lead the life of rabbits, in our country. This seems to be the final conclusion of the Census Commissioner.

To a careful student of the problem, the conclusions of the Census Commissioner seem to be unnecessarily gloomy and his remedies ingeniously simple. I shall now try to show why I consider his conclusion gloomy and why the remedies suggested as ingeniously simple.

In an age in which atomic power is the symbol, we can confidently expect that the natural faculty of invention in men would for long keep out the Malthusian spectre. Achievements like the TVA and the discovery of Antracyde which promises to pave the way for the development of a big acreage of Central and East African Savannahland, the efforts of the Jews in Palestine who have practically turned deserts into smiling pasture lands, the development by the Russians of special plant strains which ripen early, the great advance made in plant genetics, soil chemistry and soil physics, all these and dozens of other achievements by scientists are indications of the potentialities of science and the capacity of man. They hold out hope to us and encourage us in the belief that with the fillip given to technological and scientific research in our own country since the attainment of independence our scientists will help us to increase out of all bounds our capacity for food production.

Secondly, industrialization will, in course of time, help us by increasing production and also by reducing the birth rate. It is a feature of industrialization that

after a period it tends to encourage the citizen in deliberate control of reproduction.

Thirdly, and this is the most encouraging from our point of view, our Government has already given evidence of the fact that it is tackling the problem of food production earnestly.

The sober facts of our achievement already strengthen us in the hope that our entire future needs in food will be met by internal production and also make one feel that there is no need for such a gloomy outlook about the future as taken by the Census Commissioner.

Then it was said earlier that the remedy suggested by the Census Commissioner was an ingenious over-simplification. Reduce 'improvident maternity' from over 42% to under 5% and the trick will be done. The population will become stationary at about 45 crores and this population can be comfortably fed. But a little reflection will convince us that the problem is not so easy of solution. No problem which involves the study of human beings can be straight and simple and the population problem is no exception. First and foremost, the question that has to be asked and answered is—What exactly do we mean by control of population? Is it merely to scale reduction of the present birth rate so that the proportion of the fit and the unfit among those born will continue to be maintained? Or do we want that while there should be a reduction in the birth rate, we should also have a greater number of fit children and a lesser number of unfit children? In short, the question of Eugenics which postulates a method of selective breeding should be weighed against birth control which aims at control of breeding altogether. If we vote for Eugenics, we cannot achieve it by a uniform embargo on 'improvident maternity' but should encourage the better specimens in the community actually to produce more children. Then we have to consider certain points which naturally arise in the discussion of a problem which intimately concerns man's domestic and family life. We cannot ignore the fact however reprehensible populationists might consider it that some parents might find real pleasure in children and might be willing to pay a price for that pleasure. Then again, even if there is general agreement with regard to birth control, there may be difference of opinion as to the method by which it can be done. We cannot overlook the fact that men and women are creatures of impulse who might be impatient of the mechanics of contraception. We have also to investigate the acceptability and effectiveness of contraceptives and also the effect of their use on health. There may generally be no objection to the rhythm method and its effectiveness after the recent researches of Dr. Ogino of Japan and Dr. Knaus of Austria can be recognised.

This question of population control has been discussed at length just to draw attention to the fact that it is not a simple problem like writing down the equation of a circle but is something like squaring the circle. Having however underlined the difficulties, we may now consider the method of birth control which may be adopted in our country. Our Government, on the advice of the WHO has decided to adopt measures for the dissemination of advice on the rhythm method.

Finally we have to consider one important fact—the census enumeration as well as the collection of statistical data for the Five-Year Plan were made during a period of acute food shortage and so we can justifiably assume that there would have been over-statement of population figures and understatements of food production figures. It is also rather unfortunate that those who have taken the unquestioned status of specialists have, instead of doing real service to the country by getting into grips with the above aspect of the problem and by giving us a true picture of the state of affairs, been making sensational and exaggerated statement on our food and population problems. Our food resources can be doubled if nearly all the cultivable land is brought under cultivation and if improved methods of cultivation yielding an increase of 50 per cent over the present yield were adopted. According to

the Five-Year Plan, it is expected that production will increase by 14 per cent at the end of the Plan. On this basis, we may assume that production can be doubled in about 35 years' time. If the rate of the increase of population continued to be 1.3 per annum, the total population would have increased to only 1.55 times as much. It can, therefore, be stated that our food resources, if moderately exploited, on the lines suggested above, can support our population for at least half a century to come—not to speak of a decrease in birth rate which also is to be expected.

In short, the food problem of India is first of all a **quantitative** problem of increasing the food required for India's growing population; secondly, it is also the **qualitative** problem of not only increasing the supply of food so as to satisfy the nutritional requirements of a balanced diet for maintaining the physique of the people in a state of efficiency; thirdly, it is an **administrative** problem of devising ways and means of effective distribution of food and prevent artificial scarcities now and then created by a faulty system of distribution; finally, the food problem in a poor country like India is an **economic** problem of increasing the purchasing power of the masses so as to enable them to ensure food adequate in quantity and quality.

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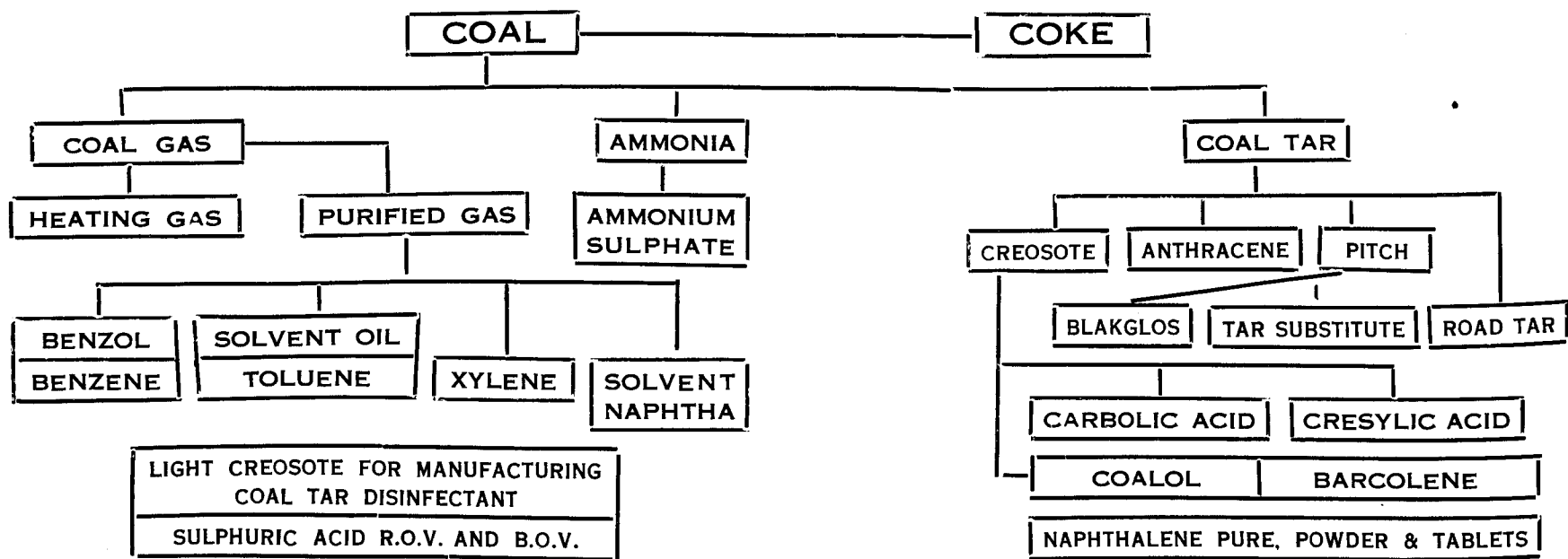
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Iron & Steel Research in India

By N. R. SRINIVASAN

THE iron and steel industry is the very basis of the industrial structure and prosperity of any country. "It is natural, therefore, that any country which aspires to industrial advancement has first to lay the foundations truly by steel. While India is well endowed by nature for this, only a beginning has been made although between the two wars a considerable advance was made in the consumer goods industries", states Mr S. Bhoothalingam, Secretary to the newly-created Ministry of Iron and Steel of the Government of India.

The Second Five-Year Plan has laid special emphasis on the development of this industry in the immediate years to come. It has been envisaged that an investment of Rs 400 crores will be made in the public sector and about Rs 100 crores in the private sector on this vital industry amounting to nearly one eighth of the total investment in the Plan period. A target of 6 million tons of ingot steel has been set for the steel industry and is sought to be realised by substantial expansion to the existing units in the country and by the creation of new units in the public sector. It would indeed be rewarding briefly to review the growth of the iron and steel industry in India and the attempts which are being made now to raise steel production in the country.

It is no idle boast to recall that, in days of yore, our country was on top of the world in the art of producing steel. If proof were needed for the amazing skill which Indians in the past possessed in making and shaping iron and steel, one need only point at the blades of steel that were made once and exported to the far corners of the world and the monumental iron pillar which has defied time and still reigns supreme in Delhi. Beautiful carvings were made on iron but the art was allowed to decay as the nation went into a deep slumber of great inactivity. It is only in comparatively recent times that the late J. N. Tata conceived of the mighty venture and truly laid the foundations of the iron and steel industry in India. Jamshedpur today is but a monument to his vision, wherein he was ably supported by his fellow countrymen proving that they too could deliver the goods. These pioneering efforts have led to the existence of an industry in India contributing to the elevation of the living standards, in the country.

NEW POLICY

As a result of an increased tempo of industrial activity in the country in the years immediately preceding the formulation of the First Plan, it was realised by the Government

that there was an urgent need for more of steel within the country to meet the needs of the many development projects. It was decided, for a variety of reasons, to expand the capacity of the then existing units. The Indian Iron and Steel Company was formed, (it may perhaps be remarked that Indian Iron was termed the 'barometer' of the Calcutta investment market,) with plans for expansion while additional capacities were proposed for Jamshedpur and Bhadravati. Mr Eugene Black, President of the International Bank for Reconstruction and Development has rightly observed that, "Industrialisation is an essential part of economic development; but in underdeveloped areas, it is handicapped by a weakness of entrepreneurial tradition, by a lack of operating experience and by a shortage of private capital willing to invest in industry. These circumstances, understandingly enough, have led Government themselves to establish and operate industrial enterprises".

Thus, by 1953, it was felt that there was a *prima facie* case for the Government to enter into the steel business to create new capacity. Beginning with a target production of half a million tons of steel per annum to be achieved with German assistance, the scope was enlarged by the intention to have two more units, one with Russian and the other with British help. A new policy was born as also a separate Ministry of Iron and Steel, under the direct charge of Mr T. T. Krishnamachari to spearhead the drive for additional production of steel to a "steel starved" nation.

The first agreement to be concluded was with the German firm of Krupp and Demag for setting up a steel plant with a capacity of 720,000 tons of finished products at Rourkela in Orissa. It involved a capital expenditure of Rs 100 crores and the creation of a company called the Hindustan Steel Limited. According to the terms of the agreement, the Government of India would provide four-fifths of the share capital while the participating firms would provide the rest in the shape of equipment. The plant is expected to go into production in 1958 and while the raw materials would be available in the vicinity, power would be got from Hirakud. It has been stated that preliminary work is in progress at Rourkela.

The second agreement was with the Soviet Union as a result of an offer from that Government to participate in India's development programmes. A medium integrated steel plant with an initial capacity of 750,000 tons of rolled products, merchant bars, heavy structurals,

billets, rails and sleeper bars would go up at Bhilai in Madhya Pradesh. The total cost of the Plant would be of the order of Rs 110 crores, though final figures would be available only at a later stage. Some terms of the Russian offer such as a rate of interest of 2½ per cent and repayment in Indian rupees seem no doubt favourable at present. The plant would start producing in 1959 and work has been commenced departmentally in the area.

In view of the reported keenness of the British Steel interests to set up a third steel plant in India, the Government of India invited a British team to survey the resources and submit a proposal. It has now been announced that Durgapur in West Bengal would be the site for the plant with British assistance. A total outlay of Rs 120 crores has been suggested and includes the development of a township at a cost of Rs 10 crores and a coal-washery at about Rs 45 lakhs, the coal suggested being a blend of the Barakar and Jharia types. The British Steel Mission had also suggested alternative sites at Bokaro and Sindri though Durgapur was said to be more suitable in view of better transport facilities. The British Steel firms interested have formed themselves into a consortium called the Indian Steel Works Construction Company. If the final offer is satisfactory, separate negotiations are to be conducted for concluding the deal and arranging for credit facilities with the help of the British Government. The final outcome is naturally awaited with interest.

PRIVATE SECTOR

In its plans to increase production to 1,300,000 tons of ingots, the Tata Iron and Steel Company concluded an agreement with Henry J. Kaiser Corporation of America to build a 130-million dollar steel factory at Jamshedpur. Kaiser Corporation would be responsible for the design, procurement and construction of the plant which would be completed in two and a half years. The expansion would include the construction of a new battery of 20 coke ovens, a sintering plant with crushing and screening of 4,000 tons of ore per day, a new 28 foot diameter blast furnace, additional open hearth furnaces and blooming and bar mills.

The Indian Iron and Steel Company, according to a recent speech of its chairman, Mr Leslie Martin, has on hand the large expansion programme involving work on the construction of a new plant, modernisation of the plants and mechanisation of ore mining. The first scheme is expected to be completed by 1958 while the second

scheme is under active consideration.

With regard to the Bhadravati Iron and Steel Works, the Mysore Home Minister, Mr H. Siddaveerappa stated recently that proposals in the Second Plan are estimated to cost Rs 9.75 crores, while some schemes costing Rs 5.3 crores would be carried over from the First Plan thus bringing the total to Rs 15.05 crores. The salient features of the schemes pertain to the installation of three electric pig iron furnaces (one has gone into production) taking the pig iron capacity from 24,000 to 90,000 tons, stepping up steel production from 30,000 tons to 100,000 tons of ingots, a cast iron spun pipe plant of 17,500 tons capacity, a stainless steel sheets plant with 15,000 tons capacity and increasing ferroalloy production to 30,000 tons. Details have been submitted and the approval of the Planning Commission is awaited. The expected production of finished steel after completion of expansion programmes and the establishment of new ones will be 4.6 million ingot tons.

	Tons per year
Tata Iron & Steel Company	1,500,000
Indian Iron & Steel Company	800,000
Mysore Iron & Steel Works	100,000
Rourkela Steel Plant	720,000
Bhilai	750,000
Durgapur	750,000
Total	4,620,000

Besides, three steel fabricating units are proposed by the Ministry of Iron and Steel to develop the indigenous capacity for the manufacture of most or all future steel in India. The fabricating units may come up in time to supply at least part of the requirements of the projects in the public sector, though the existing capacity for this purpose is to be fully utilised. The present demands for steel in India are rated at about 3.5 million tons per annum while indigenous production can account for only about 1.4 million tons. Therefore the Government propose to import steel from wherever they can to the tune of about a million ton a year for the next three years. The Union Minister for Iron and Steel Mr T. T. Krishnamachari disclosed in Parliament recently that under the Indo-American Trade Programme 169,045 tons of steel were to be imported and distributed to Government departments and for industrial purposes. The Government have placed orders for the supply of 40,000 tons of finished steel with Russia while another 60,000 tons may also be ultimately procured from that source.

Meanwhile, the Government are negotiating with UK, China, Czechoslovakia, Japan and other countries for the supply of steel. Steel prices in the country have

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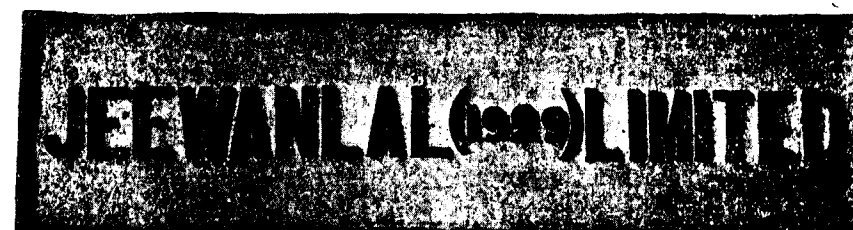


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gone up and generally present world steel prices are considered to be at their peak. There is keen competition between aluminium and steel in many fabricating industries though the inroads into steel markets on an overall basis would appear to be small.

RESEARCH HELPS

The need for metallurgical research, especially with references to iron and steel, has been realised in the country notably by the Tata Iron and Steel Co., Jamshedpur. The manufacture of steels require several alloying elements like nickel, chromium, tungsten and molybdenum and since these are in short supply in the country the development of steels replacing conventional alloying elements by abundantly available ones such as manganese has attracted considerable attention at the Research Laboratories of the Tata Iron and Steel Co., Jamshedpur. As a part of this programme, the effect of replacing wholly or in part nickel by electrolytic manganese in stainless steel has been tried and steels containing varying proportions of carbon, nickel and manganese were prepared and tested. The new steels prepared were found to possess good hot working properties and strength and with-stand atmospheric and marine corrosion.

Titanium is another metal avail-

lable in abundance in its ores in India. The incorporation of titanium shows that it can eliminate blow holes and centre porosity in certain types of steels and impart some desirable characteristics to the products. Sometimes there are found nonmetallic inclusions in bottom poured steels. A study was initiated at the Ordnance Factory, Kanpur to analyse the origin of such inclusions and to take steps to minimise rejections on this account. It was found by chemical analysis and microscopic examination that the inclusions contained silica and other mineral matter and that these were derived by erosion from the fireclay bricks employed.

In the manufacture of iron, in the blast furnace the quality of pig iron obtained is decided by the nature of the slag and its composition. The effect of high alumina content in the slag with reference to temperature, viscosity of the slag, and the nature of product obtained has been studied. The estimation of the basicity of slags during steel making is of importance as it enables the melters to exercise some degree of control on the speed and extent of the various chemical reactions on which the steel making process is based. The metallurgical microscope has been harnessed as a possible tool for evaluating basicity quickly by a

mineralogical examination of the slags.

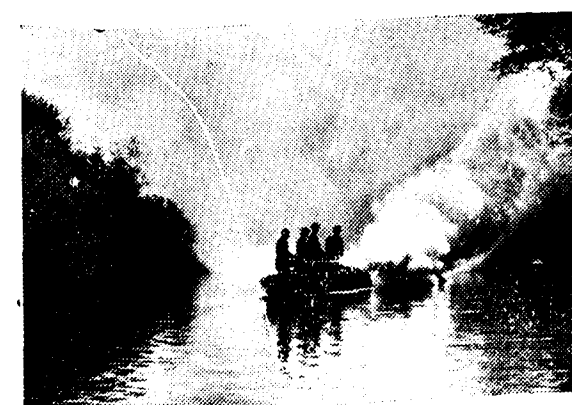
In the Duplex process of steel making, mixer performance depends on the fluidity of the slag which is governed by its composition. If a solid floater is formed due to the depletion of iron oxide, mechanical damage may be caused and would interrupt continuous operation. To keep the slag fluid in the working range of temperatures, a practical solution was found in the addition of fluid open hearth slag enriched with iron oxide among other measures.

The reduction of powdered red iron ore, haematite, with hydrogen gas to produce iron powder has been studied successfully in a batch process and as a continuous process in a rotary kiln at the Department of Chemical Technology of the University of Bombay. At the National Metallurgical Laboratory, Jamshedpur, the production of low carbon ferro-chrome has been attempted using chrome ore and ferrosilicon. Ferro-chrome containing 58 per cent chromium about 0.8 per cent carbon and 0.8 per cent silicon is obtained instead of a theoretical amount of 66-68 per cent chromium under certain conditions. Transformations in steels has been a subject of study in this laboratory, among other problems.

The structure of cold worked steels has been investigated at the Indian Institute of Science, Bangalore. The Bengal Engineering College, Sibpur, Howrah, has worked on structural changes in high chromium steel. The mechanism of a new type of aging phenomenon in iron and steel on anodic surcharging has also been investigated there. Of the action of energisers viz., carbonates and oxides of alkali and alkaline earth metals and the nitrogen liberating energisers, the energising effect of nitrogen was found to be very strong comparable to that of the carbonate. The action of nitrogen has been attributed to the formation of iron carbonitrides and of iron. Lastly statistical method of quality control have been applied to the production of steel in quantity and quality at Jamshedpur. The quality control techniques when properly applied help in locating faults and tracing them with a view to taking remedial measures quickly and effectively.

It may be concluded that iron and steel which have been termed the twin servants of man are growing in stature and strength in this country and it is reasonable to expect that increased production and research will render them more useful in contributing to the well being of man and the creation of better and higher living standards in this country. (Copyright)

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Development of Shipping in the Second Five Year Plan

By U. SHANKER RAO

Scheme for coastal self-sufficiency: Need for Technical Approach: Wooden Coasters and satellite Ports: New Deal for Coal: The Conference Bubble: Rupee Company for Indian Tanker Fleet.

AN outstanding feature in the economic life of India since independence has been the lack of adequate transport and communications for passengers and goods. Whether it was for sending essential supplies to Assam or coal to South India frequent congestion in ports and constant bottlenecks and shortage of wagons on the railways have been industrial head-lines. Somehow transport has not yet been recognised as the master key for the eventual success of the Second Five Year Plan.

The 2nd Plan envisages an all-round increase in industrial and agricultural production. For example the output of iron steel has to be raised by 4 times, coal from 36.9 million tons to 60 million tons, manganese ore to 2 million tons, cement to 10 million tons, and various other ambitious targets in salt, sugar, and fertilisers so as to put up India's national income by 25 per cent.

OVERLOADING RAILWAYS

Curiously enough to tackle the vast movement of such commodities the present tendency is to overload our railways though lessons of the past have shown how limited and restricted they are both as regards supplies of wagons and line capacity. While presenting the Railway Budget in the Lok Sabha, the Railway Minister had explained how out of a presumed increase of 60.8 million tons in goods transport, only 42 million tons could be moved by railways' Second Plan. The Minister had also admitted that there would only be a "meagre margin" for increases in trade and output in other sectors. So far the great and manifold services of our coastal shipping with its valuable auxiliaries canals, inland waters, and sailing vessels, their inherent capacity to make our minor ports a major asset, revive the traditional art of shipbuilding, take full advantage of coastal reservation, and create new avenues of employment in urban and rural areas, have not been pressed into national service in any significant manner.

LOW TONNAGE TARGET: SOME COASTAL PARADOXES

To lay down any plans for the future development of our coastal shipping it would be relevant to make a brief survey of the present position. Many responsible spokesmen for the industry have viewed with serious concern the existing conditions on the coast. Coastal reservation though maternally referred to as the nursery of Indian shipping has somehow resulted into a number of paradoxes

and with the best of intentions on every one's part has failed to dovetail itself with the expanding economy of India. To sum up some of the difficulties are:—

1. Difficulties of acquiring new tonnage—practically all the shipyards abroad are fully booked with orders for new ships for the next 3 to 4 years. Prices have fluctuated from about Rs 44 lakhs in 1950 to about Rs 80 lakhs today.
2. Consequently the price of second hand tonnage has also risen and it has become a very difficult problem to get suitable vessels for the coastal trade.
3. The limited capacity and delay in building in the Vizag yard has made even some Indian owners withdraw their orders and place them outside.
4. Owing to increasing difficulties and diverse views on certain matters of policy as regards chartered tonnage and freight rates disputes and differences of opinion have occurred in the Coastal Conference.
5. High operating costs, mounting repair bills, and frequent delays in Indian ports have needed about 20 per cent more tonnage than what is available.

All these factors have combined to make conditions in the coastal trade very precarious in character. So much so that it has been found cheaper to operate chartered tonnage than one's own ships. The target in the 2nd Plan is also low and not commensurate with the requirements of India's growing trade. All that the 2nd Plan provides for is an addition of 77,000 g.r.t. plus the shortfall of 323,000 g.r.t. making a total of 4 lacs. Today there are some 72 ships in the coastal service. In the days of the British rule India's coastal requirements had been estimated to require 100 cargo ships of an average size of 7,500 dwt. Though there was a marked fall soon after partition and the separation of Burma and Ceylon yet in recent years as a result of India's industrial progress and economic stability coastal trade has been steadily rising. The Shipping Policy Committee had assessed in 1947 our coastal trade as 24 lakh tons per year. Today it is approximately 28.5 lakh tons and had there been sufficient tonnage to meet the needs of coal and salt shipments it could have exceeded 3 million tons.

GAP IN COASTAL TONNAGE

In short, there is today a gap in the coastal tonnage by about 30 ships. Every attempt has to be made to fill in this gap and make ourselves self-sufficient in coastal requirements besides providing for the fairly substantial increases in the volume of the trade in the course of implementation of the 2nd Plan.

In working out the estimated requirements for coastal shipping the Plan has not taken into consideration certain vital factors such as age. At the present moment more than half of the coastal tonnage is over 20 years old and as such cannot be considered as efficient and economic carriers. High operating costs, rising repair bills, and consequent delays have necessitated high freights. Had it not been for coastal reservation and much spoon-feeding coupled with the fact that there has been heavy congestion on the railways almost the entire coastal fleet would have been wiped out of existence.

Besides age of ships another important matter which is a great handicap for the future development of coastal shipping is with regard to its present size. As conditions are at present only 75 per cent of their carrying capacity is being utilised. In the case of general cargo coastal vessels can now get only 40 per cent of their capacity. There is therefore a good deal of imbalance in the type of ships and the cargoes available. This is particularly true for coal ships from Calcutta as the volume of return cargoes from the West Coast to the East has been estimated to be about half of all the cargoes shipped from the East to the West Coast. More ballast voyages have necessitated calls at intermediate ports which have resulted in the delays to turn round of coastal ships. These factors have put up the cost of ship operations and have consequently reflected on the higher freights for homogeneous cargoes such as coal, salt, and cement. For example the current sea freights for coal from Rangoon to Sourashtra ports is Rs 36-4 as against a rail charge of Rs 20-14 a ton. This disparity though explained by the Indian Coastal Conference as artificial and uneconomic for the railways yet from the consumers' point of view has nevertheless shown that after all coal could be moved at a cheaper rate than by sea. A further high light in this coastal paradox is that in their recent memorandum submitted to the Planning Commission, the Coal Consumers' Association of India while advocating sea transport for coal has suggested a subsidy of Rs 20 a ton to the industrial consumers in South India and Saurashtra who get their coal by the sea route.

COASTAL TRAFFIC—OVERFLOW FROM RAILWAYS

The basic fact to bear in mind is that our coastal traffic is primarily an overflow from what the railways cannot carry. Coastal shipping has thus got to dovetail itself to the needs of internal transport and shape and streamline itself to what the railways want. The small per centage of 3 per cent of cargo carried by the coastal ships as against a total of 100 million tons by the railways is sufficient evidence to show that a smaller type of ship is required for the coast. Taking coal which is the backbone of coastal shipping the bulk of the production is consumed within the country itself. More than 80 per cent has to be moved from the Ranigunge coal fields to internal stations and the use of sea ports is only resorted to when direct wagon loads are not available. The biggest single consumer of coal are the railways which in 1953-54 used 12 million tons—of which 10 per cent was sent by the sea route at a higher rate—as a special concession to industrial users in South India and Saurashtra—and more as a policy to develop coastal shipping.

SIZE OF COASTAL SHIPS NEEDS ALTERATION

A study of the relevant facts would show that the first essential to make our coastal shipping a paying proposition and a valuable adjunct to our internal transport is to make a basic alteration in the size of our coastal ships. At the present moment the coastal ships that are being constructed in the Vizag Shipyard range between 5,000 to 5,100 g.r.t. Generally known as the "three island" type with a speed of 10 knots such types are a legacy from the old conception of the coastal trade in the days of the British. Today such types are out of date. For one thing such large size is uneconomic in the changed pattern and not required under present day conditions of the coastal trade.

It will thus be seen that in determining the future size of Indian coastal ships it would be of vital importance to take into consideration the capacity of our railways, the plans for their development, opening of new rail links, the facilities that they can provide for transshipment from sea ports, and the possibilities of new trade routes. One significant fact that has stood out during the last seven years is that in spite of rail bottlenecks and wagon shortage railways are fully capable of attracting and moving in a much more efficient manner than those cargoes that normally went by the sea route.

As further support to our claim for a smaller size in the coastal ships even in the Nanjundiah

Looking to the future

WHAT is the fate of this youngster, and millions like him, who will one day inherit the new India?

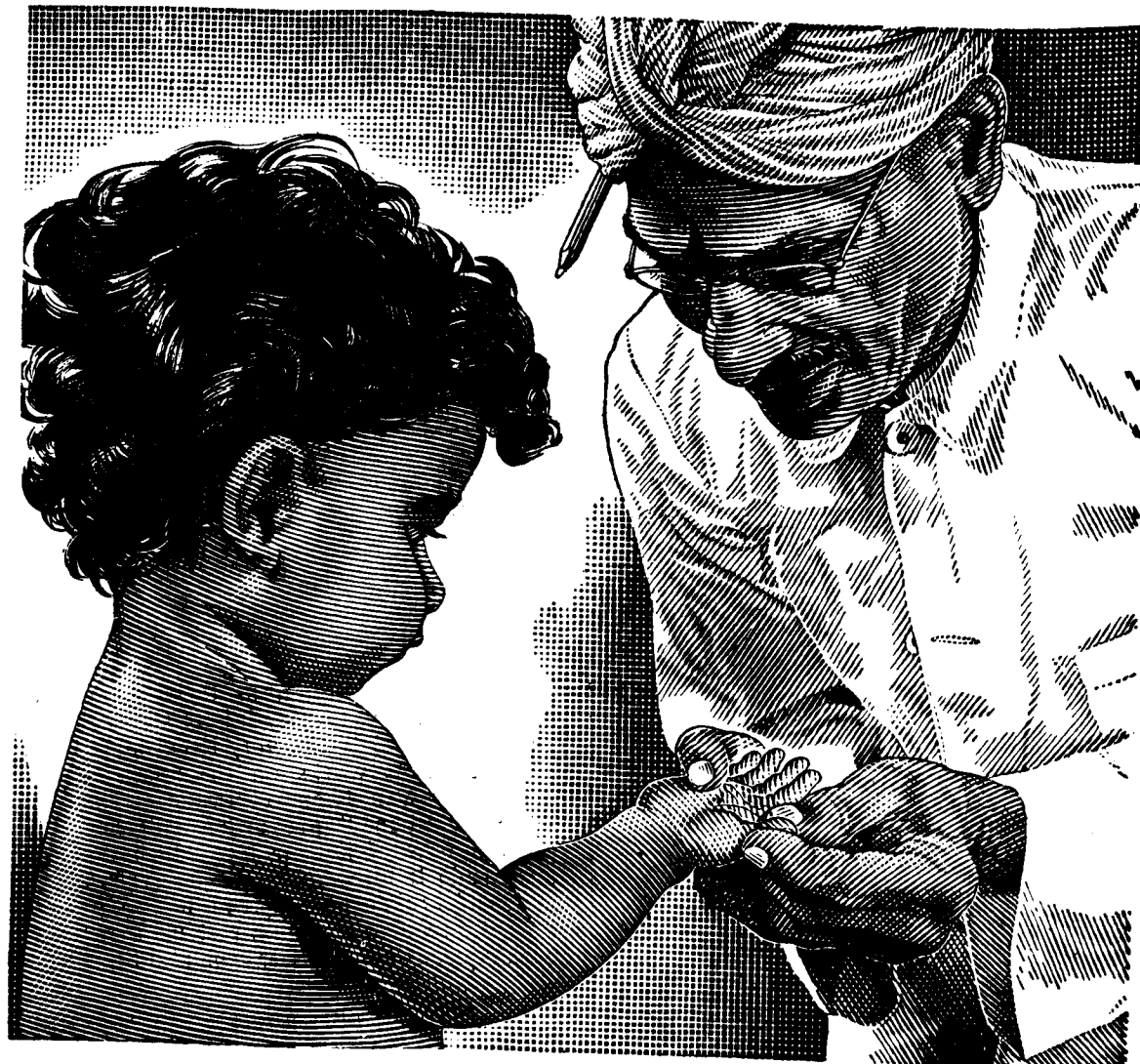
It does not need a palmist to tell his future for his lines are clearly marked.

His future lies in the fields—to subdue the earth and to wrest from it its choicest fruits with the aid of tractors and modern agricultural implements, or perhaps he is destined to bring light to the villages of India and produce motive power to run the country's factories in which case he will need turbines and diesel engines and all the equipment required by a power station. Equally he might be called upon to irrigate vast arid areas and to give a hand in construction schemes, river valley and national projects; for these he must have pumps and tube well drills, construction and earth moving equipment as well as air compressors and pneumatic tools. Yet again he may probe below the earth's crust for coal and ores for which he will need drills. The existing industries have to be maintained and it is the men of tomorrow who will do it. They must have textile machinery and mill stores to produce cloth to clothe the nation and workshop and foundry equipment to produce more goods while India's latest industry—air conditioning and refrigeration—offers unlimited possibilities.

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CALCUTTA**BOMBAY****KANPUR****NEW DELHI**

Report on the survey of minor ports of India the need for building a new type of small steamer suitable for the coastal trade was clearly indicated.

EUROPEAN COASTAL TRADE

While on the subject of coastal trade a brief reference to conditions in the coastal trades of Britain, Continent, Australia, and USA would show that the basic cargo carrier is hardly more than 3,00 d.w.t. 90 per cent of the coastal ships in such countries range between 500 to 1,500 tons. Fast diesel engined modern coasters operate and provide a net work of regular sailings between the bigger ports of Britain and the Continent. Vessels of 500 to 550 tons are in the North Sea and Baltic trades—a chockful in such sea lanes carrying on an efficient service and acting as valuable feeders to bigger ports. These small ships besides their great strategic value during War contribute in no small manner in offering direct berthing facilities, avoid congestion in the major ports, and bring in a more harmonious pattern in the transport economy. To conference lines the value of such small ships that can run between Britain and the Continent is of especial competitive advantage. Much of the handicaps and difficulties of the great dock strike in London and Liverpool were greatly lessened due to the existence of such small and fast carriers. Diversions are quicker and delays are avoided. Similarly round the Australian coast the Government have a fleet of small coasters that operate between the important ports. Australia's "Sixty Milers" are a fleet of colliers which carry coal along the New South Wales Coast and run between Newcastle (port for the rich coal fields) and Sydney. On the US Coast the CIMAV-1, a diesel engined vessel of 3,500 tons is still the important link between New York, Philadelphia, and New Orleans on the east coast and Vancouver, San Francisco, and California on the west coast. The high efficiency and quicker turn rounds claimed by the Continental ports in spite of their war shattered

harbours and ports is entirely due to a fleet of Dutch and Scandinavian coasters with their shallow draft and high cubic capacity that kept going throughout the 1939 "slump". In addition to coasters train ferries for passenger and goods provide supplementary services.

**RAIL—SEA CO-ORDINATION
NOT ECONOMIC**

In the present conditions of our coastal shipping and with the present type of the larger cargo vessels of 5,000 to 7,500 ton range, the long desired co-ordination of rail and sea transport would remain a hypothetical proposition. Though the Government have recently appointed a Rail-Sea Co-ordination Committee to investigate into the existing pattern of trade movements within the country of commodities which could suitably move by sea, it will be found that in actual practice that such co-ordination will not be an economic proposition.

Today though the volume of coastal traffic has been steadily rising yet its pattern and trend of movements have altered. The Government's Export Drive has also resulted in a large number of new cargoes and efforts are being made to increase the present value of total exports from Rs 459 crores to a much higher figure. Without alterations in the basic size of the Indian coastal vessel co-ordination would mean a good deal of overlapping between the two forms of transport and unless pressure is put on shippers, which would not be fair to the trade, they would sooner prefer the rail route.

Paradoxical as it may seem though attempts are being made today for such co-ordination yet during the War an efficient system of rail/sea movements was carried out on the West Coast with the help of the small coastal ships and sailing vessels. Consignees were given the facilities of "through booking" and goods were sent from Ahmedabad, Lahore, and other internal stations to the nearest port, later carried by sea, and eventually delivered to their destinations in-

land under the same railway receipt.

**THE ANSWER: SMALLER
SHIPS NEEDED**

What, then, is the answer? The obvious course is to design a new type of cargo vessel that could help to dove-tail the overflow of railways relieve pressure on various important routes, avoid congestion in major ports, open out minor ports, and put both shipping and shipbuilding on a sound and remunerative basis. Bearing these principal factors in mind and taking into consideration the new trend in our coastal trade the following types of ships are recommended as suitable for the coastal trade:—

TYPE OF INDIAN COASTERS.

I. Minor Type of Coaster
II. Minor Sub-type Coaster
III. Intermediate Coaster
IV. Inter Coastal Trader
General purpose 300-ton wooden coaster with main engines of 250 b.h.p., draft 8 feet. Auxiliaries and cargo winches. To be built in India.
100-ton wooden motor schooner, speed 7 knots, draft 6 feet. To be built in India.
General purpose 750 tons Steel hull, speed 12 knots. To be built abroad preferably in Holland.
Special type collier of 2,500 tons for the carriage of coal, salt, and cement, in bulk. Speed 12 knots. To be built abroad.

These four types of vessels would largely meet the future requirements of our coastal trade. The division of the Minor Type into a smaller sub-type can be met by the existing fleet of country craft. Mechanization where possible would help to fill the gap and provide a more dependable class of vessel instead of entirely relying on sail propulsion. A further improvement in this particular class which could be encouraged by cheap loans and subsidies is in introducing the Motor Schooner where the sail will be the auxiliary.

Both the Minor and Intermediate type coaster with their shallow drafts can navigate through the Pamban pass, go alongside Tuticorin harbour jetty, Saurashtra ports, Mahanadi river, and up the Brahmaputra river as high as Tejpur in Assam and even as far inland as Durgapur via the DVC navigation canal for direct shipments of coal from Raniganj. This type of vessel would offer, in certain times of the year, a direct link between Orissa and other East coast ports to Assam, though the passage would have to be made through Pakistan. This route would mean a great relief to the Assam Rail Link and avoid transshipment in Calcutta. Future types of ships would have to take into consideration all possibilities of opening out new trade routes particularly in catering for the special requirements of Assam, Andamans, and Laccadive Islands.

Under the States Reorganisation Report India would have nine maritime states as against seven. This has given an opportunity for some of the land locked states to have sea ports. Besides in any large-scale industrial and agricultural development as envisaged in the Second Plan the latent potentialities of our minor ports would have to be taken into account. Indeed minor ports are a major asset. The Nanjundiah survey

trade some observations on the nature of the trade would be of relevant value. For practical purposes coastal trade could be divided into the following tentative zones:

No.	Coastal Zone.
1	Saurashtra, Tuticorin, Zone
2	Bomay, Cochin, Tuticorin and Laccadive Isle
3	Calcutta, Saurashtra, Adjacent Trades, Persian Gulf-Red Sea, Indonesia, Singapore
4	Calcutta, Madras, Cuddalore, Andamans
5	Calcutta, Orissa Ports, Chittagong, Assam River
6	Coastal Shipments of Oil from Refineries
7	Coastal tankers (Shallow drafted for supplies to smaller ports)

Type of Ship Needed.

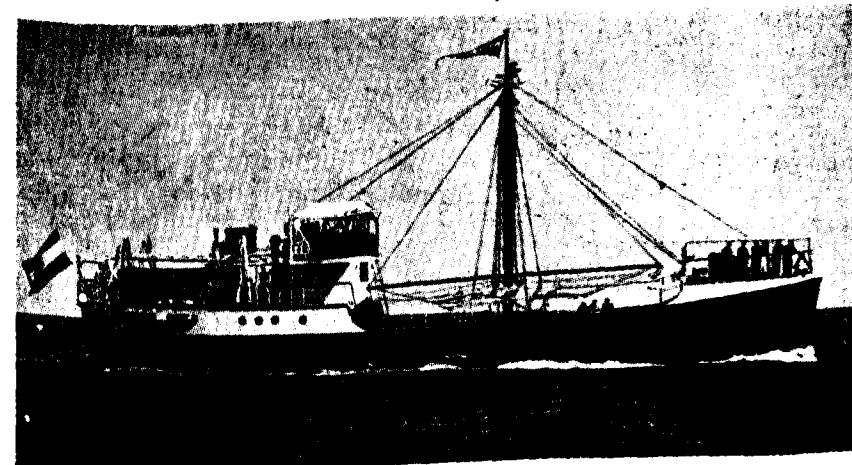
Minor and Intermediate type.
Minor and Sub-type inclusive of mechanised vessels.
Intercoastal type.
Intermediate type.
T-2 Tankers.
Special oil tankers of the "Minor" type.

**MINOR PORTS AND SAILING
VESSEL TRAFFIC**

Though the value of sailing vessel traffic in India's coastal economy has been recognised the provisions made in the Second Plan for their eventual development and putting them on a sound basis has not been dealt with in detail. Their major handicaps and traditional difficulties have not been solved though they contributed in no small manner in relieving pressure upon the railways. In 1955 there were approximately 2025 sailing vessels ranging between 25 and 150 tons. The total cargo lifted by them was estimated to be in the region of one million tons. Though this figure had remained more or less static since the end of the War yet lately owing to mechanization and better organisation as a result of the Government's Sailing Vessels' Committee the trade has increased. In 1955 they carried a little over 14.5 lakhs of cargo on the coast. As against this coastal steamers carried 28 lakhs of cargo.

These figures show an interesting comparison between the two classes of vessels—one handicapped by having to rely on sail and without any state aid and the other "nursed with cheap loans, parity prices, and other measures and the cargo turnover decisively shows the value of sailing vessels in our coastal economy. Working on the basis of only Rs 15 per ton as average freight earned by a sailing vessel with a freight range between Rs 6 to Rs 45 a ton, the total freight earned by the industry during 1955 had amounted to a little over Rs 232.5 lakhs.

Under the States Reorganisation Report India would have nine maritime states as against seven. This has given an opportunity for some of the land locked states to have sea ports. Besides in any large-scale industrial and agricultural development as envisaged in the Second Plan the latent potentialities of our minor ports would have to be taken into account. Indeed minor ports are a major asset. The Nanjundiah survey



A MODERN COASTER.
—(Courtesy: NESCO Holland).

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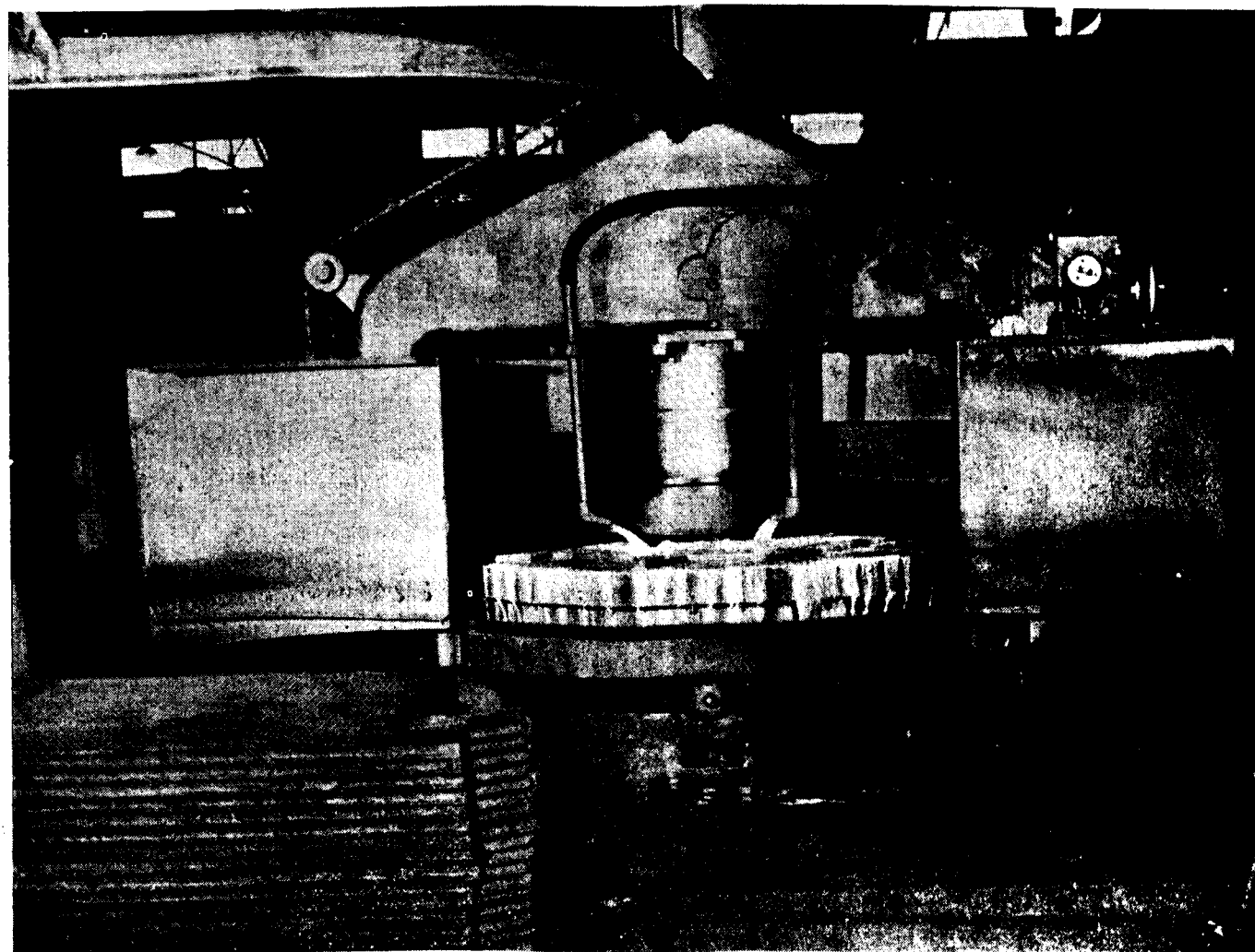
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SAILING VESSELS IN BOMBAY HARBOUR.

Mechanisation is only a partial answer. What is needed is a new type of standardised 100 ton, 7 knot, motor schooner that could have a permanent place in coastal shipping and make minor ports a major asset. In 1955 sailing vessels in coastal shipping and made minor ports a major asset. In 1955 sailing vessels in coastal shipping and made minor ports a major asset. In 1955 sailing vessels in coastal shipping and made minor ports a major asset.

has shown the amazing variety of our minor ports, in size and functions, volume of traffic handled, financial position and administrative set up. How some ports handle only a few hundred tons while others as much as 5 lakhs of cargo; from having an annual income of only a few hundred rupees to one with an income range of Rs 6 to Rs 8 lakhs a year.

The controlling problem in most of these minor ports is the need for dredging the entrances of the various river mouths. Present drafts available range from 6 to 8 feet at low water. Simple dredging so as to increase depths would help to bring them a greater trade and improve their present economy. The chronic congestion in our major ports could be greatly relieved if minor ports are made use of.

What is needed is the 100 ton motor schooner to revive and put on a sound basis the trade of minor ports. Reduction in sail area is necessary as a larger crew means more expenses. Reliance on the wind for their propulsion is a great handicap. Both in the Bay of Bengal and the Arabian Sea there are well defined trade winds steadily blowing in the same direction. These winds are both an advantage and a disadvantage. For example a sailing vessel that takes only 6 days from Bombay to Cochin with a good N. E. ly wind takes about 17 days from Cochin to Bombay. Similar conditions exist on the East Coast. Owing to their heavier scantlings much of the propulsive efficiency is lost and unless the freights are high and cargoes readily available mechanisation is only a partial solution for their difficulties.

COAL AND SALT CARGOES FOR SAIL

The possibilities of encouraging sailing vessels and the Minor type (300 ton wooden coasters) of ships

in carrying coal cargoes from Calcutta to the various coastal ports need investigation. Coal shipments by sailing vessels was a regular feature before the arrival of the steamship. Once again in the interests of Indian economy the old traffic could be revived. This would also provide a new trade for sailing vessels and wooden coasters and thus give them additional gainful employment. Freights could be appreciably lowered as the initial cost of vessels, manning, and operation are no where near what steamers would cost.

With a view to help such shipments of coal from Calcutta it is suggested that a satellite port be established at Gewankhali. Survey and local conditions have shown that a valuable subsidiary port can be set up here. This location would have an additional advantage as coal could be loaded direct from barges or country boats into the vessels. The Durgapur navigation canal that is going to be opened very shortly would be of direct help here. At the present moment coal barges from the Durgapur canal would have to enter the Kidderpur Coal docks before loading can be done. There is only one berth available for river loadings and although this may be increased yet full benefit of the canal can only be taken if barges can go alongside ships and unload their coal without entering the docks. The Gewankhali project would offer such facilities.

Besides coal there are also several minerals that need a quicker despatch. Gewankhali is situated at the right place for handling all the mineral traffic from Bihar and Orissa. Thus a satellite port could give facilities both for sailing vessels and ocean going steamers. Sailing vessels could be assisted up the Hooghly River by tugs and all facilities given to them. Coal shipments could be

made to Madras (Ennur) and to Vizag.

On the return trip salt could be brought up to Calcutta. A large fleet of sailing vessels and coasters shuttling between Madras and Calcutta would be of great help and relieve the bigger vessels for longer trips and overseas tramping.

NEW DEAL FOR COAL: TRANSPORT TO SOUTH INDIA BY COUNTRY CRAFT

Coal needs a new deal. It is obvious that over the last seven years transport has been the major stumbling block in the movement of coal from the pitheads. There is today grave apprehension in the coal industry that when production plans are being designed to raise the output of coal by 22 million tons in the next five years whether transport and supply of wagons could cope with vastly increased traffic. Another important point is the question of freights. Sea freights, under the present conditions of coastal shipping are so glaringly high as compared to rail freights that something drastic would have to be done to cut down the cost of coal haulage along the coast.

This is where the use of wooden coasters and sailing vessels would provide the ultimate remedy and solve one of the biggest problems of the coal industry—adequate transport facilities at the right time and at the right place. For the purpose of this assessment the demands of the Andhra, Madras, Mysore and Travancore-Cochin States are to be considered. The present total demand of these States is about 5,898 wagons on an average every month. (One wagon is approximately equal to 22 tons). Against this, 1,638 wagons from Bengal and Bihar coal fields, 1,599 wagons from Singareni fields, and 540 wagons from other outlying fields, in all totalling to 3,777 wagons moved on an average every month during the year 1955. This works out to about 64 per cent of the total demand. As the outlying

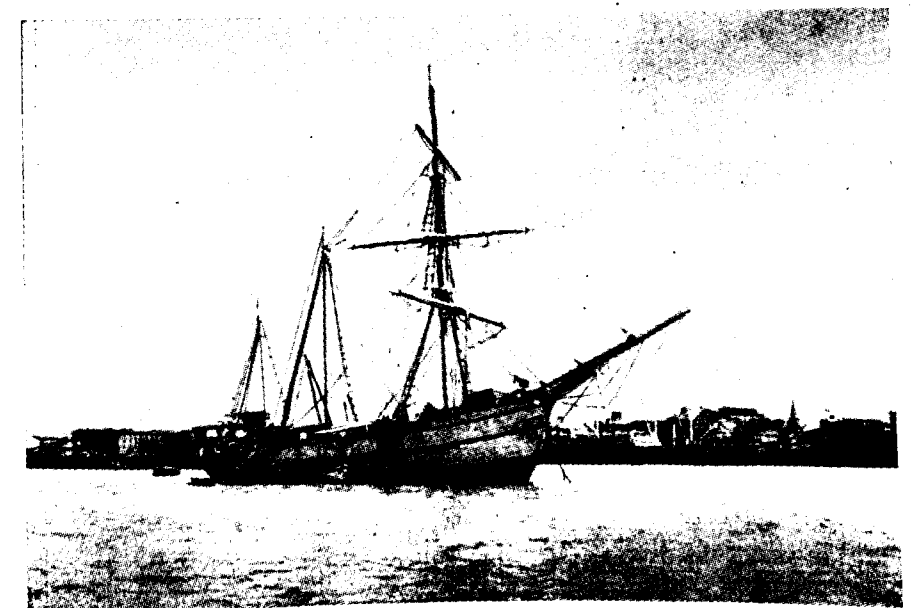
fields are far away from the coastal ports, only Bengal and Bihar fields are to be considered for the purpose of this note.

During the year 1955, South India received from Bengal and Bihar coal fields on an average every month 399 wagons by rail-cum-sea route and the balance of 1239 wagons by all rail route. It was not possible to step the despatch by all rail route, because of the following bottlenecks in rail transport:—

1. The present inadequate yard capacities at Waltair, Rajamundry and Bezwada for movement of traffic (via) these junctions;
2. limited line capacity mainly South of Bezwada;
3. limited transshipment capacity for break of gauge at Gudur and Tadepalli for movement of coal to metre gauge stations.

It is learnt from Railway's Plan for the Second Five Year Period and the recent budget speech of the Minister for Railways that the yards at Rajamundry, Waltair and Bezwada will be remodelled to increase their capacities, the work to begin from the ensuing financial year. The lines between Tenali and Gudur will be doubled in parts year after year, the first portion of which consisting of about 35 miles to commence from the coming financial year. In other important stations on this section additional loops will be provided and with the completion of the changing over to broad gauge the Gudur Renigunta Section in the next two years, the capacity of the line south of Bezwada will increase. It is, however, very difficult now to estimate in advance how much additional coal traffic can flow as a result of these improvements proposed by the railways. But it may be safely assumed that the present bottlenecks in this sector will be removed considerably.

In this context of shortage of rail transport it will be a welcome



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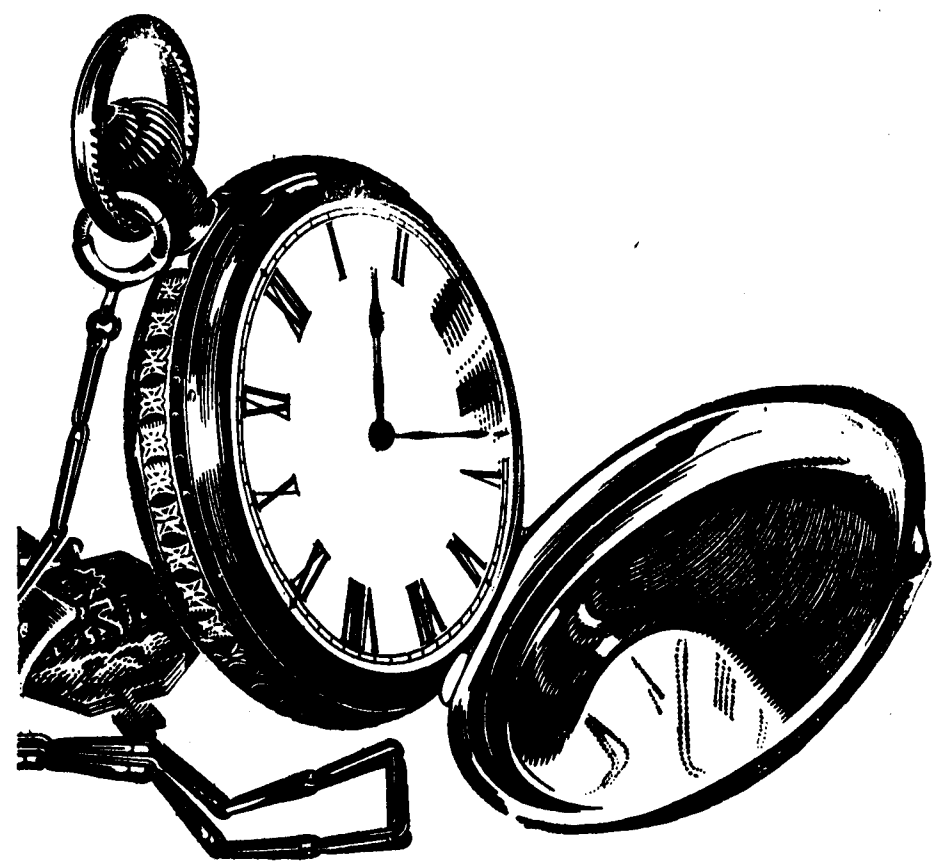
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LIMITED**

feature if country crafts are used to carry coal to South India. Use of country crafts in transporting coal will be more popular and advantageous as compared to even transport by ships, as shippers do not accept small parcels of coal and the requirements of a good number of consumers in South are far less than a shipload; these consumers will readily prefer to transport of coal by country craft whose average capacities are less than their requirements and so can easily accommodate them.

If this form of transport is used now the coal has to be brought from coal fields to Calcutta Docks or Shalimar Depots from where they are to be loaded into these crafts. This may perhaps cause some traffic congestion at Shalimar Depot if they are not loaded at the Docks. However, after a year or two when the steel plants go into production all the requirements of the South Indian industries are then to be met from Raniganj field except for coke from Jharia fields as almost all the production of coking coal of Jharia field will be used for metallurgical purposes. By that time the Durgapur Barrage will also be ready for use. The coal can then be easily loaded in these crafts at Durgapur itself which is near the Raniganj field and taken straight to the South Indian ports without any transshipment at other places. Then this form of transport will be very useful and helpful in supplementing the movement by all rail route.

SOLUTION FOR HIGH COST OF STEAMERS: BUILD WOODEN COASTERS

The high cost and difficulties of getting suitable tonnage for the coastal trade has been explained before. The gap in coastal shipping has also to be made up as early as possible. For example the cost of a new ship in the UK of an average size of 5,300 gross tons has been valued by the "Fairplay" Journal as £710,000 in June 1955 (in August 1939 it used to be £145,000). As against this current quotations for a Liberty type ship (if available) is in the region of £600,000. These prices, soaring still higher, would show the vast initial investment that would be required for achieving the plan target. Moreover, second hand ships, if and when sold by foreign interests, are not always a safe buy and a good commercial proposition. Many that have been bought for India had to be converted or other repairs done or put from coal to oil fuel before they could finally be used for coastal service.

In the circumstances to make ourselves self-sufficient in coastal requirements and that too within a short time is for India to undertake an organised scheme for wooden hulled construction of vessels. Besides reviving the ancient art of shipbuilding it would also help to galvanise rural economy. Diesel engine, wooden hulled, coasters, upto a maximum of 300

tons (suggested Minor Type) could be built in Cocanada, Masulipatam, Tuticorin, Beypore, Mangalore, Surat, and Saurashtra shipyards. Those that build Kotiyas and Phatemars can also undertake this class of vessel. Besides these yards there are also a number of other ship repairing yards in Calcutta, Cochin, and Bombay, that can build small vessels of this class for the Indian trade. During the War naval vessels of the Basset and Bangor Class were largely built in Calcutta. The use of wood would release steel for the larger vessels. With state aid and standardised design the construction for wooden coasters would open out a new industry. Indeed for the first time since independence we would be building "our own ships".

COMPARATIVE COST OF WOOD AND STEEL SHIPS

A comparative cost of wood and steel built vessel would show the advantage of building wooden coasters in India. According to the Sailing Vessels Committee (May 1949) the cost of a 100 ton sailing vessel, excluding the price of sail and other equipment, was estimated at Rs 80,000 that is at Rs 80 a ton. The cost for D. W. ton for a steel vessel in UK Yard has been quoted as £70 a ton. A recent purchase of a light vessel (steel built) from abroad cost a major port £130,000 or Rs 17.33 lakhs. In the case of the proposed wooden coasters there would be considerable reduction in many items as with the exception of diesel engines, auxiliary deck gear such as cargo winches, etc most of other equipment could be manufactured in India. Large scale demand could help subsidiary industries and such instruments as compasses and navigation gear could be made in the Mathematical Instrument office and ordnance factories.

SECOND SHIPYARD?NO

Owing to the limited space in the Vizag Yard and delay in delivery of ships proposals have been made for setting up a second shipyard. A second shipyard is not necessary. On the other hand what would help in accelerating shipbuilding is to encourage private enterprise to undertake small craft construction. Curiously enough though there is so much enthusiasm for developing Indian shipping yet an important matter that has been overlooked is the scope for building small craft by private parties. There are a number of boat and motor boat building yards in Calcutta, Cochin, and Bombay that need genuine encouragement. Construction of wooden vessels would also show the great variety and utility of Indian woods which have now remained untapped in our forests. Laminated wood construction and composite frames give lightness and durability.

Vessels of the Intermediate type coaster (750 tons) and Intercoastal

Traders (2,500 tons) could be built in foreign yards. This would be economical and much quicker though the 750 ton coasters could also be built in India. Two types of Intercoastal Traders would be needed—one to serve as a bulk carrier for coal, salt, and cement, and another as a general purpose cargo cum passenger vessel for service in adjacent trades. A feature that needs introduction in both the 750 ton and 2,500 ton class of coaster is the provision for transport of refrigerated cargoes such as fish fruit, and other perishables. Calcutta's supplies of fish are always inadequate and depend upon what East Pakistan can send. Self sufficiency can be attained if arrangements can be made to send supplies from Tuticorin and Madras.

Besides the construction of coasters for the coastal trade there is also the need for a large number of tugs, barges, ferry boats, pontoons and other equipment that all go to help in giving a quicker turn round to shipping. Many of the mooring buoys, navigation channel buoys, anchors and cables, and port installations need renewal. Though every port has its own workshop and repairing facilities yet the problem of making India self-sufficient as regards harbour equipment has not received serious attention. Thus instead of thinking of a second shipyard it would be better to tackle our immediate needs as the experience of the Vizag yard has shown that the cost of importing the necessary equipment for building ships is not only high but also causes great delay in delivery dates. Around our small boat building yards in coastal and river ports there has to grow the highly specialized ancillary industries for manufacturing winches, pumps, boilers, valves, pistons, heating and ventilating appliances, refrigerating and electrical equipment, cables and cordage, and the myriads of auxiliary machinery that are just as complementary to shipbuilding and ship repairing, as the acquisition of new tonnage, and the formulation of a national shipping policy.

CONGESTION IN MAJOR PORTS: CALCUTTA & MADRAS NEED SATELLITES

An analysis into the causes of congestion in the major ports of India would show that much of the delay in the turn round of shipping is primarily due to the incapacity of the railways to provide wagons at the right time and at the right place. These difficulties create bottlenecks. Moreover there is also break of gauge to be reckoned with that aggravates the problem. But the railways cannot be blamed. In recent years the pressure on ports and harbours has increased to such an extent that many have reached their limitations in providing the facilities needed for ships. One important problem is as regards "line capacity". Many of the harbours are already full of double and treble

lines and there are every indication that the ports are reaching their saturation point with reference to line capacity. These difficulties particularly refer to Calcutta and Madras. When the oil refinery is opened in Vizag a similar situation is likely to arise if not cared for now. Line capacity restricts movement of wagons and unless goods can be removed from the jetties and berths delay is caused.

One solution that can relieve port congestion speedily is the opening of satellite harbours near each major port. A satellite port as the name implies takes all its resources from its parent organisation and as such need not be a very elaborate harbour. Moreover the nature of our postwar exports would show that much of the cargo handled was of the bulk variety coal, iron ore, manganese, and other minerals. Such cargoes can be easily handled from barges and country boats and supplied from overside loadings: thus dispensing with jetties and berths. Barges and country boats could also be used as floating warehouses and thus many of the problems that have actually restricted a greater output in our export cargo can be got over if new satellite "harbours" are opened up near each major port. An example of how Pakistan was able to solve its problem of congestion in Chittagong is in the case of Chalna on the Passar River. Indeed Chalna is a triumph for water transport and it speaks volumes for those who "built" (Chalna is an exposed river port with only mooring facilities. Khulna, the nearest land and the railway station is 40 miles up the river. Ships are loaded by barges and steamer flats and direct connections are maintained by Liner Conferences) Chalna amidst swamps and sandbanks, with no water supplies, or other amenities. But Chalna has taken away a good percentage of Calcutta's jute shipments. Instead of waiting for Chittagong to be developed Chalna provided a ready outlet and enabled Pakistan to capture a sellers market and earn valuable foreign exchange. Similar possibilities of opening satellite ports exist in India.

COAL SHIPMENTS TO MADRAS: OPENING OF ENNUR

A glaring instance where port congestion has directly affected imports is in the case of Madras. Thus coal shipments have been fast dwindling since their peak year in 1949. As a result the entire supply of South India by the sea route has been affected. Since the closure of Goa (though a temporary "loss" yet has to be reckoned with as Goa was the inlet for a number of inland stations on the West Coast) there has been greater pressure on the harbour facilities in Madras. The only way to relieve congestion in Madras is by opening a satellite port at Ennur. This is situated 9 miles north of Madras and affords good anchorage for vessels in depths of 5 to 7 fathoms, about

1½ miles from the entrance. Behind Ennur there is an extensive backwaters and the Buckingham Canal that connects it to Madras and other places. Coal ships could anchor off Ennur and discharge into lighters as is done in Cuddalore. A fleet of 2 tugs and some 50, 25 ton lighters could handle the monthly shipments of coal and thus relieve Madras.

Besides coal, other cargoes such as ore, and salt could also be handled from Ennur. Unlike Madras harbour there are ample facilities for putting up "dumps" and storage space. A lighted buoy to mark the Ennur Shoal and another light at Ennur would help to improve the anchorage. Depths at Ennur entrance are about 5 feet and loaded boats can go in and discharge in canal.

The bulk of our coal production is consumed within the country itself. More than 95 per cent has to be moved inland while only 5 per cent was exported. In 1953-54 as much as 35.8 million tons had been utilised for internal consumption. Today coal constitutes the biggest import of Madras, forming nearly a quarter of its total imports. During 1954-55 418,125 tons of coal was imported into Madras. Half the exports of Madras are ores. During 1954-55 these amounted to 245,490 tons as

compared with 300,329 tons during 1953-54. Another important export is in hides and skins which had amounted to 28,265 tons. It may be added that a fair percentage of exports is moved into Madras by the Buckingham Canal and the opening of a satellite port at Ennur would confer a natural blessing and go a long way in our export drive. Canal boat traffic would relieve wagon shortage and problems of line capacity. Many interests in Madras harbour would welcome shifting coal discharges to Ennur as this would enable releasing the present berthing space for general cargo and passenger traffic. Mere increase in tonnage without corresponding increase in port and harbour facilities would not help the present precarious conditions in coastal shipping.

CANALS & INLAND WATERWAYS: THEIR PLACE IN COASTAL SHIPPING

Sufficient emphasis has not been laid on the development of canals and inland water ways in the 2nd Plan. Their place in the context of coastal shipping has also not been recognised. Canals and inland water ways are indeed supplementaries to our road and railways, act as valuable feeder services for the major ports. Conditions in Europe, USA, and Britain would show how canals have been made into useful auxiliaries and

serve the needs of important sea ports.

Today with steel shortage, heavy cost of rolling stock, locomotives, and growing congestion on most sections of the railways it would be very unwise not to dovetail the utility of our canals to our capital requirements. At present there is a large volume of traffic in the Buckingham Canal, Malabar Backwaters (Cochin—Quilon) along many of the river on the West coast, in Tolly's Nullah, Circular Canal, Ulubaria Canal and in Orissa. But the traffic is not organised nor geared to modern requirements. In most canals power craft are not used and equipment, drafts, and other facilities are in a very poor condition.

The first essential is an imaginative canal policy—to improve the present ones and open out new links (artificial boat canals) so that the future of all new railway lines has to depend upon the possibilities of making artificial canals. Simple dredging, greater depths of water, efficient management, mechanization of canal boats, would give unrivalled opportunities to make use of a natural asset to solve bottlenecks, relieve port congestion, develop minor ports. With a view to bring our canals and inland water ways in line with the needs of coastal

shipping and to meet the growing transport requirements of the 2nd Plan the following suggestions are made:—

1. Hydrographic and a comprehensive Load survey of the potential traffic in the principal canals.
2. Each major port to have its own canal system and utilise them to relieve pressure upon the railways. Use of canals would be of prime importance in opening satellite ports at Calcutta (Gowankhali) and Madras (Ennur).
3. Cut new canals so as to join up industrial centres. A Vizag to Cocanada, B. Interlink the Ganga with the Brahmaputra River system and subsidiary canals to the Hooghly.
4. Encourage trade to ship by canals by allowing a system of Through Booking as operated in the Malabar Backwaters (Cochin to Quilon).

SELF-SUFFICIENCY IN COASTAL SHIPPING

Having studied the various aspects and the basic essentials for attaining self-sufficiency in coastal shipping let us now draw out a plan whereby the industry could be put on a sound, commercial basis, geared to the transport needs of the 2nd Plan. In making the following tentative calculations for drawing up a tonnage programme the present Vizag built ship has been taken as the standard coastal ship. For practical purposes as a vessel of 5,000 g.r.t. instead of 5,100 g.r.t. In the 2nd Plan a sum of Rs 97/- crores have been allotted for shipping, harbours, and other maritime development.

PROPOSED PLAN FOR COASTAL TONNAGE

Coastal ships at present: 70 ships (dec. 1955);

Estimated Gap in tonnage: 30 ships

(Assuming 100 ships needed for coastal traffic in the 2nd Plan.)

1 Vizag cargo ship (5,000 tons) is roughly equivalent of 16 Wooden Coasters of 300 tons each. The suggested wooden coaster has been taken as the basic type for requirements of coastal trade. As explained earlier the large scale construction of wooden coasters would make India independent of foreign shipyard assistance. Having emphasized the need for smaller vessels on the coast and taking notice of the present 75 per cent wastage in cargo space, the estimated gap in tonnage could be reduced to 20 ships of the Vizag type or 20 x 16=320 wooden coasters of the suggested type. Each wooden coaster is of 300 tons. Since coastal services would also need two other types—Intermediate type of 750 tons and another of

2,500 tons the following construction plan has been drawn up so as to have the least recourse to construction in foreign ship yards.

Total requirement for coastal self-sufficiency: 320 wooden coaster.

1. Lay keels for construction of 100 wooden coasters.
2. Mechanize 100 sailing vessels.
3. Build 10 Intermediate type Coasters of 750 tons.
4. Build 6 Intercoastal type of vessels of 2,500 tons each

Current quotations for a standard cargo vessel of	Rs.
5,000 tons ..	80 Lakhs
1. 100 Wooden Coasters @ 4 lakhs each ..	400 "
2. Mechanization of 100 sailing vessels ..	50 "
3. Construction of Motor Schooners ..	50 "
4. 10 Ships of Intermediate type @ 15 lakhs ..	150 "
5. 6 Ships of Intercoastal type @ 40 lakhs ..	240 "
Total Cost ..	890 Lakhs

Cost of 20 ships @ 80 lakhs each (old type) ..	1,600 "
Suggested coastal fleet on the new basis ..	890 "

Estimated saving in cost of fleet on new basis ..	710 "
Approximate time for construction of fleet ..	TWO Years

PRICKING THE CONFERENCE BUBBLE: FRIENDSHIP WITH STATELESS SHIPOWNERS: OVERSEAS TRAMPING

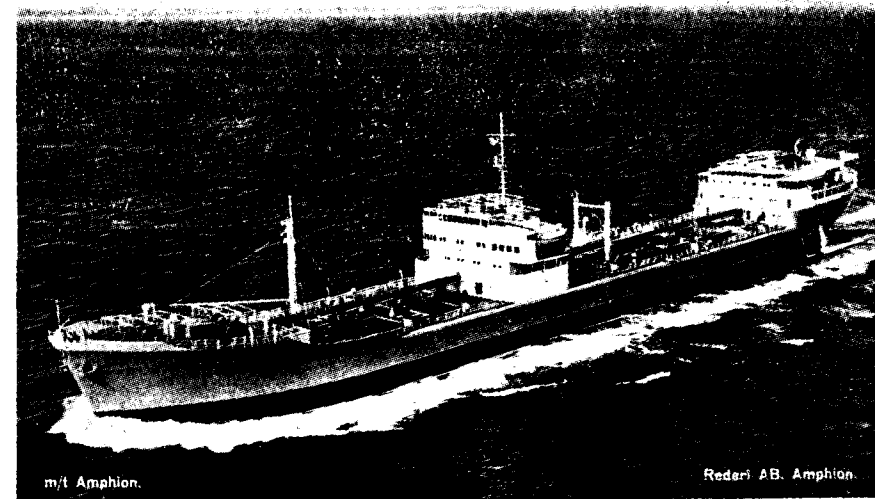
Sir Ramaswami Mudaliar while speaking on Conference Membership had remarked "we have attempted time and again to get a reasonable settlement of this question but so far we have failed to get any results from several of these Conferences. I feel that the time has now come when with due regard to our convenience and interest we must make our entry into these routes irrespective of whether members of such Conferences desire it or not". Sir Donald Anderson, the Chairman of the P. & O., had recently referred to the "modern phenomenon, the Stateless Shipowner" he had indeed pointed his finger to a subject of increasing gravity in the post war years. Like the meaningless charges of "flag discrimination" the "Stateless shipowners" with their flag of convenience has now become a bug bear of vested interests in shipping. 80 per cent of the tonnage under the so called "flag of convenience" is less than 10 years old. What these stateless shipowners have done is to give fair competition to conference lines and have literally controlled the monopolistic tendencies in freight rates. Thus both in the North and South Atlantic trades, and the tanker operations Pacific trades, and even in Continental trades the influence of the stateless shipowner is being increasingly felt.

Stateless shipowners are indeed an asset to underdeveloped countries. They operate a modern fleet without any ties and strings and serve the interests of "have nots". Such tonnage is owned by Greeks, Americans, Norwegians, and others and fly the flags of Panama, Costa Rica, Liberia, and Honduras. There seems to be no reason why Indian owners should not investigate the possibilities of joining hands with such owners purely on a private basis. If this is done, such a move would at once open out a vast arena of world trade and add a considerable quantity of fast, modern, competitive tonnage. Most of these vessels are already operating as tramps and carry considerable quantities of cargo for India. Paradoxical as it may seem we provide the very cargoes that enable others to make profits and yet cannot carry our own cargoes owing to lack of ships. Many references have been made to the need for foreign aid. Here is one possibility which can be taken not on Government level but purely on a private basis.

The names of Livanos, Onasses, and Niarchos are well known in the shipping world. Individually the richest and most powerful owners they have set up shipping companies in many parts of the world. At the present time world tonnage fleet is something like 40 million tons, of which three million tons are registered in Panama, Liberia. Of this 1 million tons is within the American Oil group, the remainder being owned by Greeks. It was also disclosed in the British Parliament that 144 ships of 500 tons gross and over had been transferred from the U.K. and Colonial registry to Panama, Liberia, Costa Rica, and Honduras.

From London and New York large fleets of tramps are being operated. Familiarly known as "London Greeks" such owners have nevertheless been of great benefit. With difficulties of obtaining new tonnage, high cost, and the indifference of Conference Lines, if India could offer facilities for registration of foreign tonnage similar to Panama, Honduras, Liberia, or Costa Rica, it would go a long way to build up tonnage, save foreign exchange, and increase the low level of India's participation in foreign trade. Joint ownership with Greeks and other foreign shipowners would also open out opportunities for overseas tramping. In 1953-54 India's overseas trade had yielded 13.3 million tons of dry cargo. Of this amount 5.68 million tons had moved by tramp ships giving employment to 724 tramps. Out of this only 5 were Indian ships. The freights on imports on food grain have been in the region of Rs 4,012 lakhs, the bulk of such payments going to foreign bottoms.

The rapid recovery of ex-enemy tonnage was the result of contemporary politics rightly or



A MODERN OIL TANKER.

Coastal shipment of oil and petroleum products amount to approximately 3 million tons. Two tankers, as planned, are hardly the answer. What is needed is for the Oil Companies having Refineries in India to form a Rupee Company and transfer certain Panamanian Flag vessels to Indian Register.

wrongly the fear of Russia. India as a neutral country has every right to take advantage of such facilities that would help her economy and build up new industries particularly in shipping so long denied to her by vested interests. If SCAP helped Japan, NATO Italy and Germany, why not open out a new career for Indian shipping by making friends with stateless shipowners?

TANKER FLEET FOR INDIA: FORM RUPEE COMPANY

The Indian Government has already laid out plans for building up a tanker fleet. Our coastal movement of refinery products has been estimated to be in the region of 3 million tons. There is, however, one step that could be taken to accelerate formation of a bigger tanker fleet than what has been contemplated. Both the Caltex and Stanvac Groups have a number of T 2 tankers now operated under the Panama flag. These vessels carry a considerable quantity of oil to India. Some 15 tankers are run under this flag. It is suggested that an Indian Rupee Company should be formed and such Panamanian flag tankers transferred to the Indian flag. These tankers already employ Indian crews but not Indian officers. Here again is another matter of serious concern. Why only employ Indian crews and why not Indian officers? It is a common thing to find on such tankers that with the exception of the master and chief officer (chief engineer and second) others are either uncertified officers or possess only a second Mate's or Master's certificate. They belong to all nationalities except Indian. Employment of Indian officers and engineers, including wireless officers, would offer greater opportunities for Indians besides giving valuable experience in the oil trade.

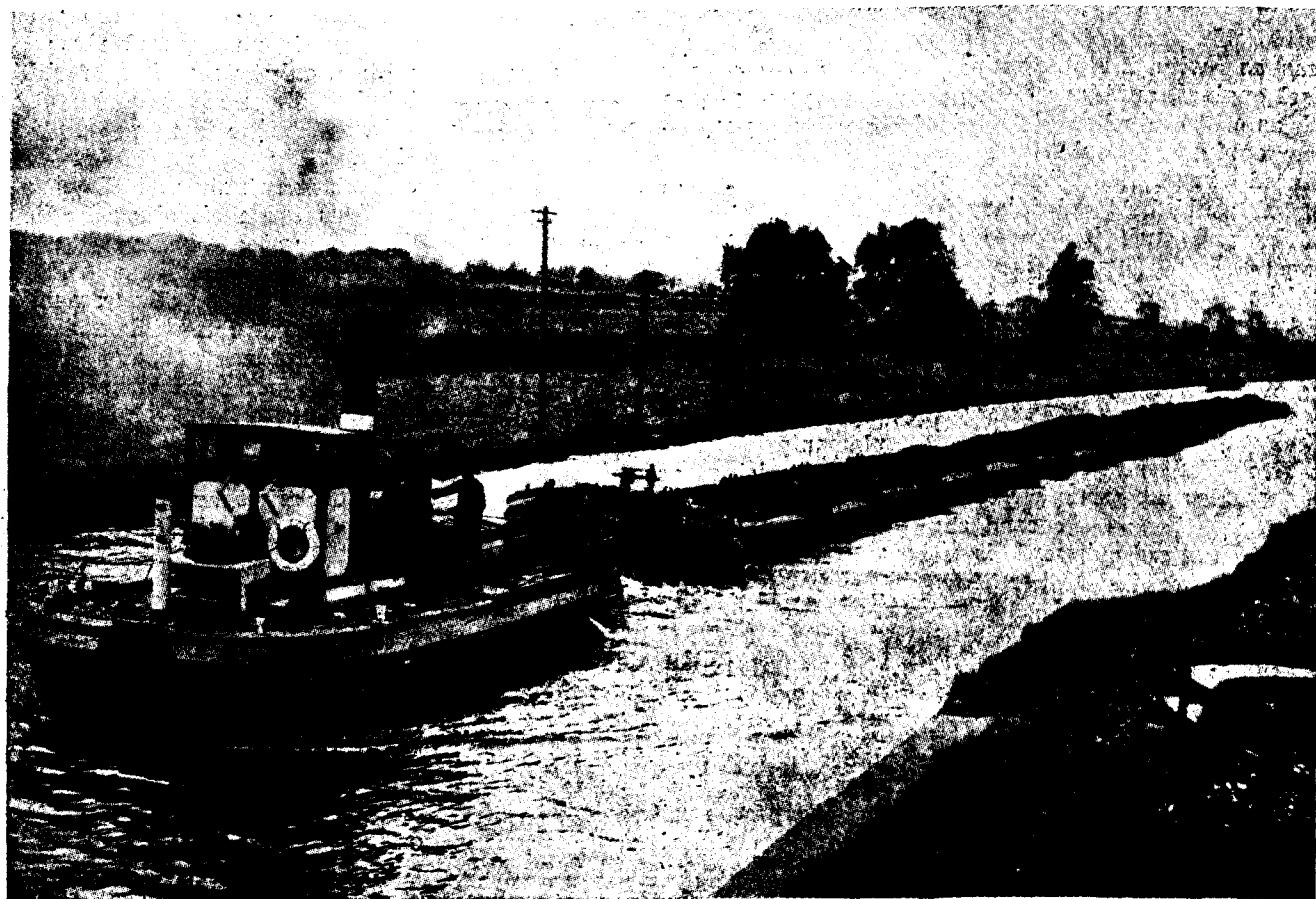
Lately such Panamanian flag tankers are being transferred to the British flag. The oil companies owe a duty to India and it is strongly recommended that a

rupee company be formed and such tankers transferred to India. The Indian Merchant Shipping Acts are being amended. It is suggested that a special provision be made in the Acts for facilitating such transfer of foreign flag vessels to Indian registry.

CONCLUSIONS

Finally there is one aspect to bear in mind. Shipping is an international business. It is like a trade barometer and particularly sensitive to currents of political opinion, military, and commercial pacts. The trend of world events show that considerable difficulties would arise in obtaining tonnage either new or second hand. The Prime Minister, in the course of the discussions on the defence budget, in the Lok Sabha, had warned of the subsequent dangers of a "neighbouring country" accepting military aid from foreign sources. This is a clear indication that India may have to consider diverting resources from development projects to defence requirements.

In the circumstances, to achieve our targets in the Second Plan one of the first requirements is to make a major shift in our constructional policy from steel ships to wooden coasters. Even today with their many handicaps sailing vessels account for more than half of coastal traffic. Why not modernise such a fleet and take full advantage of a natural asset? After all coastal trade is merely an overflow of railway and the introduction of modern diesel engined Indian built wooden coasters would solve rail-sea co-ordination and open up many new trades besides making us self sufficient at nearly half the cost and in half the time. In overseas shipping and in tramping India has to look towards new horizons. Indeed on the eve of launching a mighty Second Plan we need a new slogan—BUILD OUR OWN SHIPS, MAKE NEW CONFERENCE, CARRY OUR OWN CARGOES.



COAL HAULAGE ON BRITISH CANALS.

—(Courtesy: British Transport Commission).

An outstanding feature of the inland waterways in Great Britain is the remarkable system of conveying coal in Compartment Boats from collieries in Yorkshire to the Port of Goole. These boats, locally known as "Tom Puddings", are floating steel containers, each 20 feet long by 15 feet wide by 8 feet deep, and carrying from 35 to 40 tons of coal. With a tug at their head they are joined together to form a "train" of 19 boats, and thus convey about 700 tons of coal on a single trip manned with a crew of only 4 men in the tug. On arrival at Goole the compartments are lifted by hydraulic hoist and their contents tipped into sea-going ships. Power stations, gasworks, industrial firms, etc., are supplied with waterborne coal direct from collieries, and oil installation inland are fed by small tankers from the ports.

A similar system is recommended for coal haulage on the Buckingham and D V C navigation canals.

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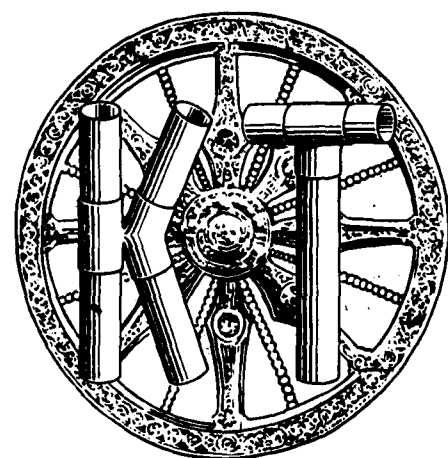
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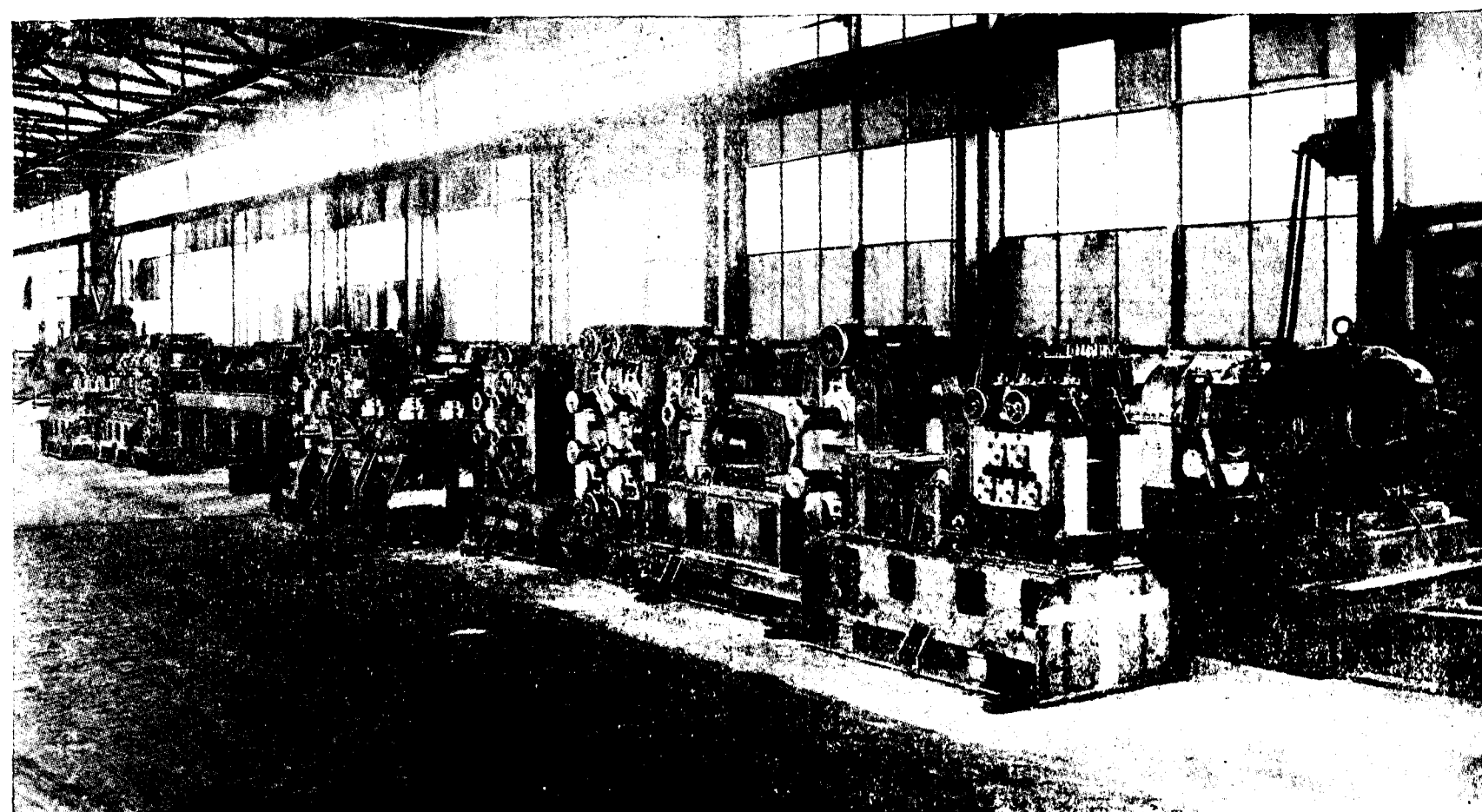
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The Aluminium Industry

By A. L. SABHARWAL

ALUMINIUM was isolated as a metal in 1825 by Oersted, but it remained a chemical curiosity for over 60 years as an inexpensive method of producing it could not be found. It was not till 1886 that a satisfactory commercial process was evolved and comparatively large scale production started. By 1900, world production had reached twenty thousand tons annually. The production in 1954 was about 3 million tons and is expected to attain a level of well over 4 million by 1960. During the last 40 years demand has increased enormously, roughly doubling every seven years or so. Aluminium has surpassed copper in volume of production and is second only to steel.

The most important area of production is North America. Relative figures for 1954 for some important countries are given. The table below shows the remarkable increase in the production of aluminium in the main producing countries and the production capacity which is expected to come into existence by 1956:

	Figures in short tons of 2,000 lbs.		
	Production 1950	Production 1954	Production 1956
U.S.A.	719,000	1,448,000	1,800,000
Canada	397,000	561,000	700,000
U.K.	33,000	36,000	36,000
France	67,000	127,000	150,000
Germany (Western)	31,000	132,000	150,000
Italy	40,000	62,000	70,000
Switzerland	22,000	30,000	34,000
Norway	50,000	70,000	110,000
Japan	27,000	58,000	100,000
Sweden	4,500	12,000	15,000
Total	1,390,500	2,536,000	3,165,000

As the availability of large quantities of cheap electric power is one of the most important prerequisites for the aluminium industry, the location of further plants, it is anticipated will form a different geographic pattern than hitherto. Western Canada, Alaska, parts of Africa such as the Belgian Congo, French West Africa and the Gold Coast, not to forget Russia, all loom large in the plans for future expansion. Europe is conspicuous by its absence as sources of cheap electric power are almost exhausted except for certain countries such as Norway and Austria.

In Asia, in terms of world figures, the future expansion of the industry is not likely to be large at least for some years to come. Japan, had a production in 1954 of 58,000 tons, which is likely to rise to 100,000 tons by 1956; Formosa produces 7000 tons and this figure will remain more or less static; India, currently turning out aluminium at the rate of 7000 tons annually, will by the end of the Second Five Year Plan augment

production to around twentyfive to thirty thousand tons. The draft of the Second Five Year Plan mentions a target of 30,000 tons. This represents an increase of about 450 per cent over present production. The corresponding figures for steel, nitrogen fertilisers, two industries very much in the limelight, are only 285 and 300 per cent.

In attempting to expand any industry, the object should be not simply to satisfy domestic requirements but also to do so at a cost comparable to those obtaining in world markets. In order to achieve this, apart from technical know-how, the two most important prerequisites are:

- Availability of raw materials at competitive prices;
- A suitably large-scale of operation.

India possesses ample reserves of bauxite and is better placed in this respect than most countries. Canada and the USA have to import their bauxite as do most of the other important producers. The quality of the deposits, while not as good as the South American and African deposits which feed the greater part of world industry, is reasonable.

The other important raw material is electric power. It requires about 25,000 Kwh to produce one ton of metal, power costs accounting for about 20 per cent of the total cost of production. In India the price of power so far has been much higher than in the other important producing countries but with the development of new multi-purpose schemes, this is now being narrowed down.

It will therefore be seen that the Indian industry has available both the important raw materials required.

In general in most basic industries the larger the unit, the lower the cost of production. However what constitutes a satisfactory scale of production depends entirely on conditions prevailing in other countries. For example, the demand for ammonium sulphate as a fertiliser in India justifies the installation of factories as large as any of those in other countries. Consequently the cost of production is more or less the same as elsewhere and the industry could survive by exporting should there be a recession in local demand. The coal, paper, sulphuric acid and steel industries are a few examples of other industries also more or less in the same position. In the case of the automobile industry, it is estimated that a production of about 50,000 vehicles a year would constitute a satisfactory market. Present demand is about one-third this figure. Accordingly until the

level of consumption rises to this level, the price of automobiles will be appreciably higher than say in Europe or America. In aluminium, the situation is far more serious. The main exporting country, Canada, already has a plant producing over 500,000 tons annually in Quebec. Giant factories such as these are likely to become more common in the future. A project for the production of over 300,000 tons in Canada is well on the way to completion and can be expanded to 500,000 tons; a similar large project in Alaska is envisaged; plans are afoot to put up a 200,000 ton plant in the Gold Coast and another like installation in French West Africa may well come into being. It is quite clear therefore that as far as India is concerned, the largest possible factory is the only solution, if cost of production here is to be even remotely competitive. There is yet another pitfall.

The industry is highly capital intensive. It requires an investment of Rs 10,000 to produce a ton of aluminium as against for example, Rs 1,000 for steel. Unless therefore plant and equipment are kept operating at full capacity, cost of production rises disproportionately on account of the very heavy depreciation and interest charges. It is vital therefore to avoid the Scylla and Charybdis of, on the one hand, under-production due to demand being less than anticipated, and, on the other, relatively uneconomic operation due to unwarranted small plant size. It is interesting to note here that even important producers like France and Germany, each producing well over a hundred thousand tons annually, have import duties as high as 20 per cent to remain competitive, mainly on account of small plant size. Italy, which produces about sixty thousand tons, has a tariff of 25 per cent, not much less than our own present rate. A correct assessment of the level of future demand is therefore much more essential to the aluminium industry than in other cases and deserves the most careful attention.

The consumption of aluminium in India after Partition was about 11,000 tons. This year it is expected to be about 20,000 tons and is being met as follows:

- 7000 tons from primary production
- 3000 tons from indigenous scrap.
- 10000 tons from imports

By 1957-58 it is estimated by various authorities to reach thirty thousand tons. On the surface it would appear therefore that additional capacity for 23,000 tons should be installed. This is proposed to be achieved by installing a new unit of 20,000 tons and ex-

panding one of the existing Plants from 2,000 to 5,000 tons. While a factory of this size would be an improvement over the present small units being operated in India, in view of the heavy capital investment it is necessary to make sure that the estimated increased consumption does materialise. This can be achieved in two ways.

- create an export market.
- force the pace of consumption within the country.

(a) India could export to South-East Asia, East Africa and Australia provided world prices were met. Ordinarily the prices would not be economic but by suitable adjustment of the domestic and export prices, if a reasonable return on investment can be assured there is no reason why an export market cannot be built up. This can only be done with Government assistance. Export however will at best be a temporary expedient as it is dependent to a large extent on the policies followed by the exporting countries who due to their lower cost of production will determine the price at which the metal should be sold in the international market.

(b) The other method, namely that of increasing domestic demand rapidly is a much more permanent solution. The three main fields where increased offtake is expected, are, as in all other countries, Transportation—Road and Rail, Electrical Conductors, and Building. Of the total possible market for aluminium in these fields, Government departments are responsible for 70 per cent of the offtake. The extent to which aluminium is used therefore instead of alternative materials such as steel, galvanised sheet etc., will be decided by them. If, for instance, Government intend to build 10,000 buses a year, a market for at least five thousand tons of aluminium is assured against the present offtake of about seven to eight hundred tons. The Railways too can increase the requirements to a similar figure. Recent trends seem to indicate that Government is thinking along these lines but more as a method of conserving foreign exchange than on account of the inherent superiority of the metal. If, therefore, Government does increase its offtake as a result of which additional production capacity is installed, it will be essential to maintain their offtake even after the country achieves self-sufficiency in steel.

There is only one other factor which can alter the picture and render invalid the foregoing considerations regarding domestic demand and furthermore, this depends more than ever on Government policy. India, as is well

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HOW ALUMINIUM IS MADE

By K. K. PALIT

THIS article describes the various stages in the production of aluminium from mining of the raw ore to the extraction of the metal in pig or ingot form. The two producers in India—Indian Aluminium Company Limited and The Aluminium Corporation of India Limited—employ basically the Bayer Process for refining the aluminium ore and the Hall-Heroult Process employing the continuous Soderberg paste electrode for extracting the metal by electrolysis. In discussing the production methods, the raw materials and attendant problems are also described.

MINING

India is gifted with adequate resources of bauxite (the ore of aluminium). Aluminium constitutes approximately 1/12th of the earth's crust (compared to 1/20th for iron) and the country is estimated to have reserves of about 35 million tons of metal grade ore out of a total of about 200 million tons of bauxites of different grades. The State of Bihar currently has the largest single region of workable bauxite, and both the producers, at present, confine their mining operations to that region.

The bauxite is mined by open quarrying. The process, in brief, consists of stripping the earth, which is usually 3 feet deep, followed by stripping of the remainder of the overburden which consists of moorum and laterite. Below the overburden bauxite is generally found in the ore body in an almost homogeneous solid mass. In general approximately two tons of overburden have to be removed for every ton of bauxite. Care is taken to keep the overburden separate from bauxite and thus overburden removal is kept ahead of bauxite mining. Mining consists of drilling 1½" dia. holes of one to twenty feet depth as required, and blasting with explosives. The Company uses an aerial

ropeway, which unloads the bauxite at Lohardaga railhead. The Company's mines are some six miles north-west of Lohardaga, while those of the Corporation—operated by contractors—are about twenty miles away.

The ore mined by these two producers has the following approximate analysis: 1-4 per cent SiO₂, 9-17 per cent TiO₂, 50-60 per cent Al₂O₃, 3-10 per cent Fe₂O₃. The quality of Indian bauxite is somewhat inferior to that found in the high grade deposits in other parts of the world. The aluminium content averages around 55 per cent as compared with over 60 per cent in the ores used by the North American industry. Furthermore, North and South American, African and East Indies bauxites contain alumina in the form of trihydrate (three molecules of combined water to one molecule of alumina) which is relatively easier to extract than alumina in monohydrate form. Indian bauxite contains a considerable portion of the alumina in the form of monohydrate, requiring more vigorous processing which increases production costs, and, consequently, yields are lower: five tons of Indian bauxite being required per ton of metal, compared to four tons elsewhere.

REFINING

This consists of the extraction of aluminium oxide from bauxite by eliminating the impurities. Except for differences in the type of equipment used, both the Corporation and Company basically employ the same process for refining, viz. the Bayer Process, which involves the following stages:

(i) Digestion:

Bauxite is ground and mixed with a hot caustic soda solution and then, under steam pressure in digester tanks, the alumina dissolves in the solution forming sodium aluminate, while the impurities remain in solid form.

(ii) Clarification:

The solution containing alumina in the form of sodium aluminate is separated from the impurities, known as "red mud" in settling tanks and/or pressure filters. The clarified solution or pregnant "liquor" is sent to a holding tank while the red mud residue is sent on through a thickening and washing circuit to recover soda and alumina from the small amount of liquor still left with the residue.

(iii) Precipitation:

From the holding tank the clear supersaturated liquor is pumped into large tall tanks called precipitators or decomposers. After "seeding" with fine crystalline particles of alumina hydrate, produced from previous cycles, and after circulation is started through central airlift pipes, the liquor starts to cool and new crystals propagated by the nucleus of seed crystals start to precipitate out of the supersaturated solution. After sufficient alumina has precipitated, the crystals are settled and washed free of the mother liquor.

(iv) Calcination:

Alumina hydrate contains approximately one-third combined water which must be removed to obtain pure, anhydrous aluminium oxide. This dehydration process is effected in an oil-fired, rotary calcining kiln which subjects the

alumina to a temperature of about 2,000°F.

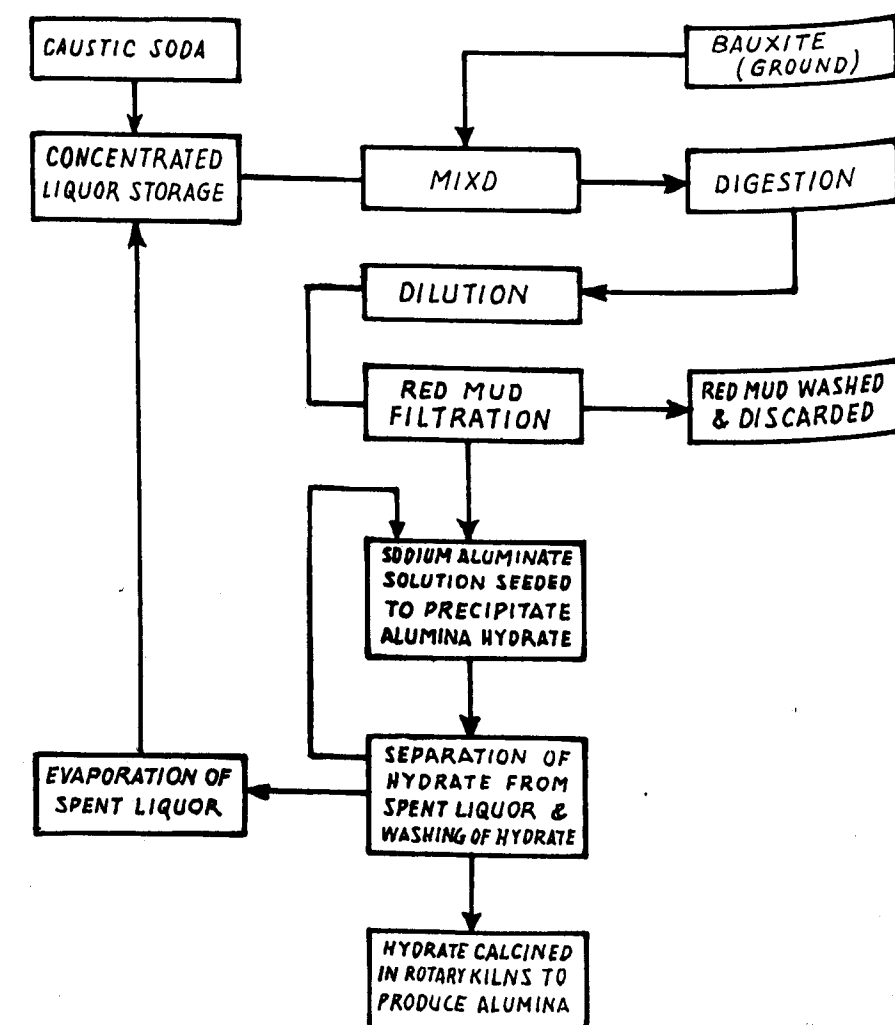


Rotary Kiln for Calcining Alumina.

In this process, roughly 2.5 tons of bauxite are needed to make one ton of aluminium hydrate; the other raw materials required are caustic soda, soda ash and lime, filter cloth for the filter presses, coal for power generation and fuel oil for calcining. These raw materials are available from indigenous sources except for fuel oil, and part of the caustic soda or soda ash of which the production in the country is insufficient for requirements.

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The following chart shows the various stages at a glance:



Aluminium—Its Uses in Industry

By G. G. BULCHANDANI

IN the history of metals, the rapid growth and progress of the aluminium industry is unparalleled. Known as a commercial metal for only 70 years, its production in volume today is second to steel. Over the last 30 years, the rate of growth of world production of aluminium has been more than double the rate of general industrial expansion and this pace is expected to be maintained for a long time to come. Many potential applications yet remain to be fully developed and this combined with technical progress, more economic production and relative price reduction may result in still a faster growth of the Industry.

The world production of aluminium hit the 3 million short tons mark in 1954, out of which the Indian production was about 5,000 tons. It is interesting to note that during the same period, India consumed approximately 20,000 tons of aluminium. Even at this rate, the consumption in India works out to 0.12 lbs per capita compared to 19 lbs in USA, 12 lbs in UK and 10 lbs in Canada. The higher per capita consumption in Western countries is partly due to higher standards of living but mainly to the recognition of its superiority for many varied industrial as well as domestic uses. Aluminium's resistance to atmospheric corrosion and its lightness combined with high strength of its alloys have made this metal the obvious choice of designers and engineers who, for centuries, have been unsuccessfully trying to solve the problem of corrosion of steel and rotting of timber which limit the life of these traditional construction materials in spite of expensive maintenance and constant repairs. The proved uses of aluminium even in its short life are so numerous and so varied that there are few fields where it is not employed. Known to an average person in

India as only a kitchen material, it has established itself in aircraft, railways, road transport, marine, building, structural engineering, electrical engineering, chemical engineering, packaging, agriculture, food processing and other industries. The following table shows typical consumption in major industries in USA the leading producer of aluminium in the world:

Buildings	..	20 per cent
Transport	..	15 per cent
Electrical	..	12 per cent
Packaging	..	6 per cent
Machinery and Equipment	..	10 per cent
Household Appliances	..	12 per cent

Compared to this, manufacture of utensils provided practically the only outlet for the aluminium industry in India till very recently, but it is heartening to know that the picture is changing, although slowly, and our engineers have now started using it for industrial applications also. Some of the important applications where it can be used with advantage in our country are described below.

TRANSPORT

Its use in the transport field—aircraft, rolling stock and road vehicles—has developed very rapidly during the last half century. To reduce deadweight of a vehicle and thereby increase the revenue earning capacity without sacrificing strength, safety and comfort of passengers has always been the chief aim of designers, and it was only natural for aluminium to replace steel or timber in this field. The initial higher cost is amortized in no time by economies effected due to longer life, increased revenue and savings in operation costs, fuel, maintenance and repairs.

All-aluminium rail coaches, wagons, passenger buses, lorries and vans are now common in Western countries. In India rail coaches are normally skinned with steel



Alum. painted Railway Coach.

panels, which in spite of regular repainting require constant repairs and have to be replaced every 6-8 years. On the other hand experience with aluminium panels which have only been tried out on experimental scale so far, has shown that they can be expected to last the full life of the carriage which is estimated to be 30-40 years. Panels fitted on some coaches running on the Simla-Kalka line, nearly 30 years ago, were recently inspected and found to be as good as new. Similarly, aluminium plated wagons built in India some time back are giving satisfactory

service. Larger use of aluminium for this purpose would, therefore, seem to be the obvious step on the part of our railway engineers.

In the field of passenger bus bodies, the progress has been spectacular. Aluminium panels are now a standard feature almost all over India, whereas chequered aluminium plates are now replacing the traditional timber floors. Complete all-aluminium buses are also being adopted—notably by the Bombay and West Bengal State Transport Organisations though experimental prototypes have been built practically by all leading transport organisations in the country. All-aluminium vans, lorries as well as refuse trucks are also in use but still on a very limited scale.



All Alum. Tipping Lorry in use in Behar.



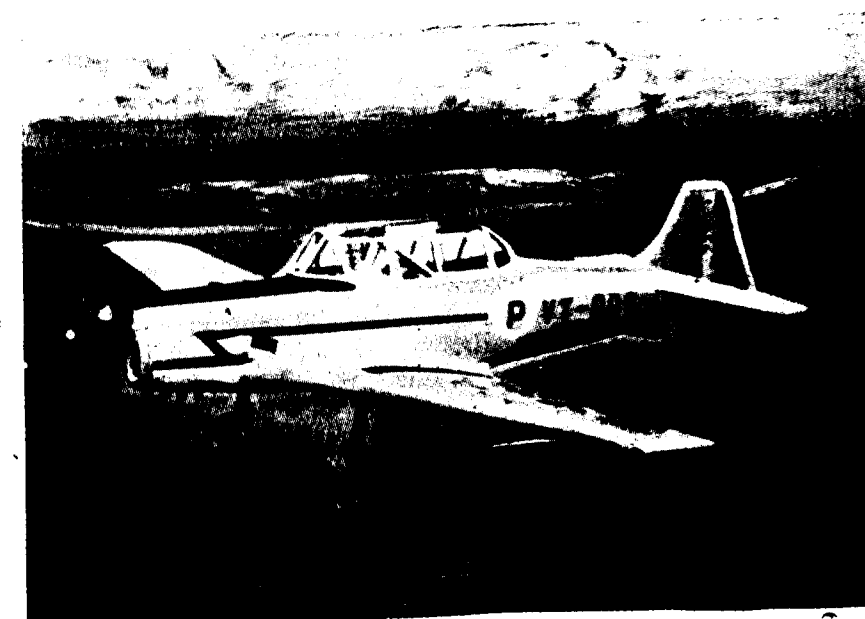
Bus with Alum. Body built for Travancore Cochin State Transport.

ELECTRICAL INDUSTRY

Aluminium is finding an ever-increasing use in the electrical industry. This fact is of great importance to India as vast electrification schemes are underway and in view of our inability to produce electrolytic grade of copper and its scarcity in the world, we have to depend on aluminium for their successful accomplishment.

The two most important uses are

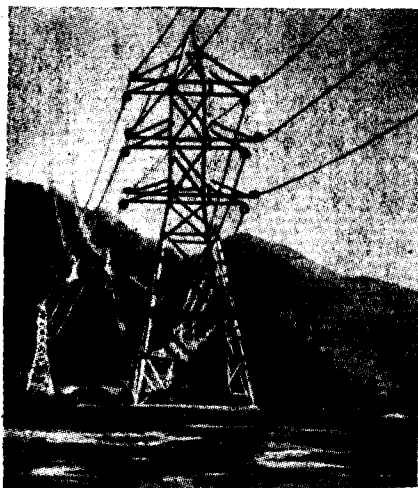
for high voltage transmission lines across open country and for the distribution of power at low voltages in the urban and rural areas. The first use for high voltage transmission took place in India as far back as 1926 in Mysore and since then millions of conductor miles have been put in service. Where its use for low voltages is concerned, it is only of recent growth but rapidly expanding.



The New HT-2 Air Craft made at Bangalore.



A line of Aluminium Reduction Cells.



Alum. Cables carrying Power to Millions.

Two other uses where aluminium conductors have been extensively used abroad but are only now being considered in India are for overhead telephone lines and as the feeder or catenary in railway electrification. During the second Five-Year Plan both uses will rapidly expand in India.

Another important development in the last several years is the use of this metal for sheathing and armouring of cables both for overhead and underground use. In view of our dependence on imports for lead this is an important development.

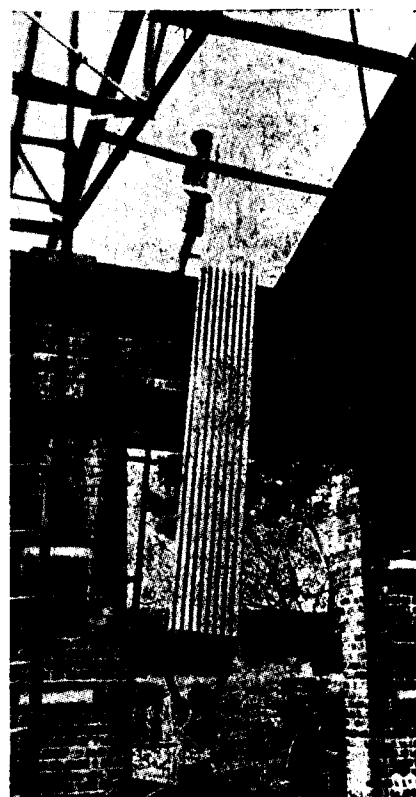
In 1954 over 5,000 tons of aluminium were used for the above purposes in India and it is estimated that in the near future this will rise to over 10,000 tons per annum.

BUILDINGS

In nearly every sphere of the building industry aluminium is now a well-known and accepted material with case histories extending back 50 to 60 years, though its use on a large scale in this industry has developed only during the last decade or two. Its ease of fabrication, the available shapes made by the extrusion pro-

cess which are impossible to duplicate in wood or steel and the relatively great strength of its alloys have established it as the ideal building material. Lightness simplifies and speeds transportation and reduces the labour involved in fitting and installation. Its pleasant appearance and weathering characteristics eliminate need for paint, remove fears of rust, stains and deterioration.

With indigenous production of standard alloys of aluminium in the form of sheet—flat as well as corrugated—and extruded shapes, our architects are now gradually specifying the use of this new material. The combination of properties mentioned above together with its low thermal conductivity due to its ability to reflect 95 per cent of the sun's radiant heat is leading to its increasing use in



Aluminium Corrugated Sheets being installed.



Telephone Bhavan—Calcutta.

India as a roofing material for residential, agricultural as well as industrial buildings.

Metal windows have found a place in Europe and North America in the building industry during the post-war years. Using metal for windows in place of timber has the advantage that the frames can be made slim and unobtrusive, permitting a proportionately larger area of glass and therefore less

obstruction to light. Till very recently, only steel windows were available in this country, but now with the installation of a modern aluminium extrusion press, more and more architects are specifying this metal. Glazing bars used for framing thick glass in factory roofs, railway stations and other large buildings are also being made in aluminium for apparent reasons. In most of the important

buildings louvres made from this metal are also increasingly being used to admit light and at the same time keep out the sun's rays.

This light metal is now making possible the revolutionary new development of curtain walling on the American continent. Prefabricated aluminium walls are simply bolted on to the skeleton of a building to do the duty of customary brick walls and at the same time give the ultra-modern appearance to otherwise ordinary looking structures. These light weight walls require a less robust foundation, which brings its own savings in labour and materials.

Aluminium hardware and fittings like handrails, step edgings, tower bolts, mouldings and trimmings

are now becoming common. Besides being attractive and durable they are cheaper than other non-ferrous fittings so far available.

PREFABRICATED HOUSES

One of the most recent developments in India is the indigenous manufacture of prefabricated aluminium frameless houses. Designed for ease and simplicity of erection and dismantling coupled with robustness of construction, they are ideally suited for farm buildings, temporary dwellings at factories and construction sites, or for permanent structures in hilly areas and other remote places difficult of access where availability and transport of building materials is a serious problem.



All Aluminium Frameless Office Building in Delhi.

STRUCTURAL ENGINEERING

Development in this field has received attention mainly in the post-war years. Advantage of light weight has been taken in case of transportable and quickly erected structures like hangars, large storage sheds, etc. Aluminium finds its natural place also for ap-

plications such as dragline excavator jibs or crane jibs where the extra reach for the same dead-weight is a valuable consideration.

Many bridges are constructed of aluminium notably the Arvida Bridge in Canada, and the Bascul Bridge at Aberdeen in Scotland. In future aluminium will no doubt

find its natural application for large span bridges where self weight is the main load to be carried or where maintenance costs would otherwise be a major recurring expenditure. The immediate use in India is unquestionably for redecking existing bridges to allow for the increasing live load.

FOOD AND AGRICULTURE

Safe storage of bulk foodgrains has always been a serious problem in India. About 3% foodgrain is wasted due to lack of proper storage facilities. In USA and other countries, aluminium storage bins have been satisfactorily used for bulk storage of grain. Following extensive tests carried out by Indian Standards Institute (Agriculture Department), portable bins made of corrugated aluminium sheets are now being fabricated in India. These bins are strong and durable, easy to erect, hygienic, weather and vermin proof and inaccessible to birds, rats or rodents. The metal does not harbour pests of bacteria or promote mould growth—the major causes of infestation of grain.

In the field of irrigation, light aluminium pipes and fittings are making the Sprinkler Irrigation System a major factor in increasing the crop yields in North America and Europe. This mode of irrigation has recently been introduced into India and results achieved so far indicate that in the very near future it will become a common sight in our countryside.

PACKAGING

Packaging is one of the principal applications of aluminium in the form of foil, collapsible tubes and cans for many foods, pharmaceutical and toilet products. Aluminium foil is impermeable to air,

moisture, oils and bacteria and therefore not only protects the contents from contamination but also minimises the possibility of undesirable loss of moisture. The most familiar foil wrapping in this country is for such products as tea, cigarette, confectionery and milk bottle caps.

Few people realize that collapsible tubes used for toothpaste, shaving cream and other toilet preparations are of aluminium. Small cylindrical containers produced by impact extrusion process are finding considerable favour for packing pharmaceuticals, photographic films and other materials previously marketed in glass tubes.

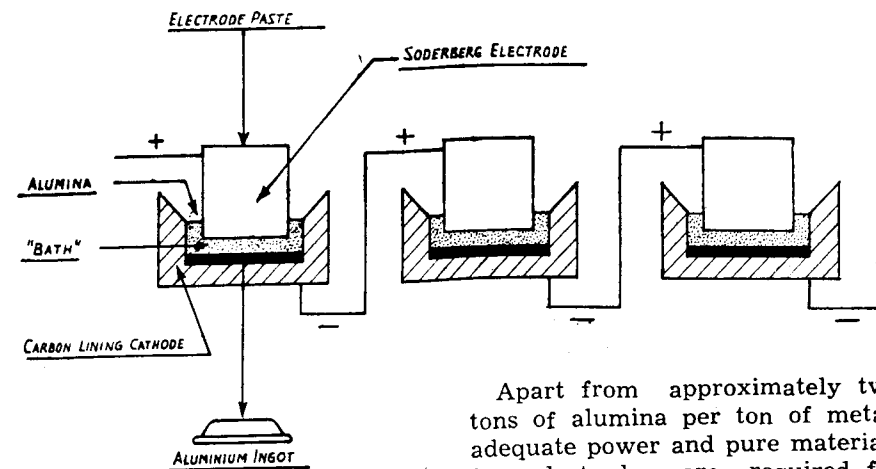
Aluminium cans for canning food have not found a place in India so far, but in Europe and North America they are extensively used for packing fish, vegetables, milk and certain meat products. Bottle and jar closures which do not rust have obvious appeal; examples are crown corks for aerated beverages, rolled on pilfer proof bottle seals and vacuum seals for preserves.

Aluminium drums and containers are used for the transport of certain chemicals like petrol, acetic acid, glycerine, etc. Aluminium milk churns are widely used in the Scandinavian countries and elsewhere, and with the development of our dairy industry will also find a place here.

It is therefore evident that this new metal is going to play a very important part in our industrial development. So far only a start has been made and if we are to achieve what other progressive countries have done, our engineers and Government agencies must become more progressive in their outlook.

HOW ALUMINIUM IS MADE

(Continued from page 62)



SMELTING

The final stage in the production of aluminium is carried out in large electrolytic cells or reduction "pots" by what is known as the Hall-Heroult Process which was discovered independently and simultaneously by Charles Martin Hall in America and Paul L. T. Heroult in France in 1886.

The cells are of the Soderberg type, the electrode being the continuous self-banking type. Each cell consists of a steel box lined with carbon which serves as the cathode and also holds the "bath". Dipping into the bath is the single Soderberg electrode which serves as the anode. The "bath" is chiefly cryolite, a double fluoride of sodium and aluminium, in which the alumina is dissolved. The cells are connected in series. The following diagram illustrates the arrangement of the cells and electrode.

To start the cell in operation the anode is lowered until it touches the carbon bottom of the bath and powdered cryolite is packed round it. When the current is switched on, sufficient heat is generated to melt the cryolite and the anode is

gradually raised, more cryolite being added until the cell is filled to the correct height. Calcined alumina is then introduced and dissolved in the cryolite. Vigorous electrolytic action takes place, aluminium being deposited on the bottom of the cell, the oxygen given off at the anode combining with carbon to form carbon dioxide. Alumina and fresh Soderberg paste are added intermittently and the metal is tapped out into crucibles and poured into ingot moulds.

CONCLUSION

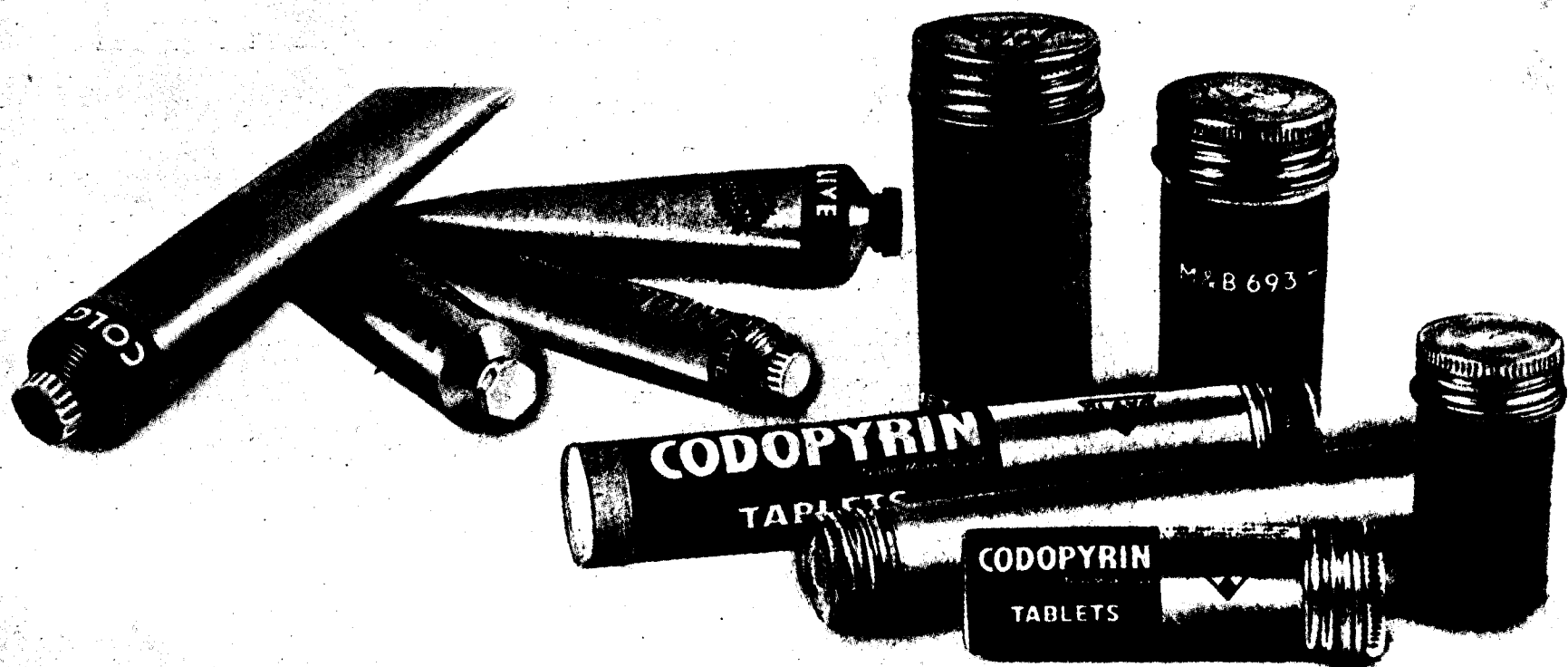
Although aluminium occurs in nature in greater abundance than iron, it is much more difficult and costly to produce a ton of alu-

minium than a ton of steel. It is estimated that aluminium requires ten times as much capital investment as steel. Furthermore, it calls for an advanced degree of technical efficiency in the selection and processing of a variety of raw materials, a list of which is stated below:—

Main raw materials per ton of aluminium.

Bauxite	5 tons
Caustic soda	0.10 to 0.20 ton
Cryolite	0.07 to 0.10 ton
Aluminium Fluoride	0.035 to 0.04 ton
Fluorspar	0.007 to 0.01 ton
Petroleum coke	0.5 ton
Pitch	0.20 ton
Coal	4.00 tons
Furnace Oil	0.30 ton
Electric energy	20,000 to 24,000 Kwh

More than anything else, power in bulk supply at low rates is the main requirement for the development of an aluminium industry and this explains why the world's major plants are near hydro-electric sites. India is following the same pattern in the projected expansion of the industry since the largest smelter-to-be in India will be located near the Hirakud hydro-electric site.



Aluminium Collapsible Rigid Containers.

ALUMINIUM COMPARES WITH STEEL

By V. D. AGARWAL, B.S.C. (MET. ENG.) M.I.I.M.

THE high importance of aluminium as the key metal has been recognised the world over; and among the more important non-ferrous metals also, Aluminium holds the best prospects of large scale development. Aluminium consumption has been increasing at a rapid rate ever since 1940 and shows promise of expanding if not faster at least at about the same rate during the predictable future.

The desirable properties and characteristics of aluminium have given it an industrial versatility unmatched by any other materials. As a result, aluminium applications appear in an amazingly large variety of places. Its low density and high strength; malleability and thermal conductivity; non-toxicity and casting characteristics are chiefly responsible for its so extensive applications in such an extensive field. In certain products, though representing only a small part of industrial market, aluminium for its rare combination of properties, possessed by no other material, holds an unique position.

Competition between two metals involves an economic choice but in many instances physical properties supersede the real choice; for example the use of steel for rails and the use of aluminium in the air-craft and electrical industries.

In majority of the cases aluminium is in direct competition with a number of materials. For instance, aluminium castings compete with the steel, iron, zinc, copper and bronzes; Aluminium Sheets compete with galvanized steel; aluminium electrical conductors and heat exchangers compete with copper; aluminium utensils compete with stainless steel, copper, bronzes and brasses and aluminium foils compete with tin, lead, plastics and paper. In architectural uses also aluminium is competing with steel, bronzes and many more materials. In fact, in many applications where aluminium enjoys a clear cut cost advantage, competing materials have practically been eliminated from the market. In other applications though initially the cost of aluminium may exceed that of other materials, yet economic advantages gained on account of its lower maintenance cost and greater efficiency, compensate for the same.

On a volume basis, aluminium requires smaller quantities of ore, coal and other minor raw materials per unit than does steel; the ratio being approximately 1:2. Equally important—aluminium production like steel does not almost depend upon high grade coking coal. Besides, the aluminium industry is less affected by direct labour charges than is the steel industry. However, the capital

investment required for this vital metal remains higher than for steel. According to United Nations study on the subject, the capital requirements for the processing operations through the ingot stage in aluminium and steel compare as below:—

Steel: Per ton of Annual Ingot capacity Rs 437 to Rs 523.

Aluminium (including hydro power facilities): Per ton of Annual Ingot capacity Rs 5,659 to Rs 6,096.

Even taking into consideration the price difference between the metals, aluminium facilities require twice the capital investment than steel plants. But, in the face of recession and an acutely competitive market, the higher capital charges give the aluminium industry far greater flexibility in price than the steel industry has.

The easy machinability of aluminium alloys is a feature greatly in their favour, as it has a considerable effect upon machining cost. The economy in this direction, combined with the savings in weight is such that the final cost of an aluminium alloy casting may be less than a similar part of cast iron.

Aluminium scrap from the processing industry is the major secondary metal used for aluminium castings; and the increase in production and processing of primary aluminium will make available more scrap for aluminium casting and this naturally will enhance the competition with iron or steel castings, eventually. And in view of the development of new high duty aluminium alloys, the use of iron castings may be greatly affected.

Aluminium has been found to render excellent service when used in roof coverings and outside walls and slowly it is gaining popularity in the domain of an old and well established galvanized steel. With the point of view of durability and atmospheric weathering it excels many other materials. Aluminium being only one third in weight than steel, the structure required in supporting aluminium roofing is also very light and handy.

Aluminium roofs and walls require little or no maintenance except for aesthetic reasons or where reflectivity is to be retained. The aluminium roofing usually costs more than galvanized steel roofing in the beginning, but this difference is compensated in the long run: keeping in view the savings in maintenance, its longer life and other positive advantages. Its high reflectivity also plays an important role in keeping the interiors warm during winters and cool during summers. It should interest the reader that an inch thick

mat, of fibre glass sandwiched between two corrugated aluminium sheets, provides twice the insulating value of 12" thick masonry wall.

A very interesting application of corrugated aluminium sheet has come forth in petrol station forecourt canopies, which has greatly added to the appearance of service station forecourts as well as protect the petrol pumps, attendants and customers from the weather. The light weight of the canopy facilitates the use of slender pillars, adding much to the looks and convenience of the canopy which is only 1/6th the weight of a similar roof of steel framed glass. An additional advantage of these prefabricated canopies is that they can be dismantled and erected on site in a matter of hours.

The soft gleam of aluminium combined with strength and light weight and yet freedom from rust have lead its extrusions shaped into doors and windows, which do not swell with passage of time and are warp free and split proof. This is another phase where aluminium is competing with steel. Then venetian blinds and awnings, door and window handles, nails, screws and banisters are the growing applications of aluminium.

Efforts to reduce weight in modern construction did not end with the use of aluminium walls and roofs. An underfloor wiring system using cast aluminium junction boxes is the recent development to further lower it down.

In air conditioning, ventilating or heating systems also aluminium is replacing the galvanized steel particularly for air ducts; because the former reacts better than the latter, with the point of view of fabrication and erection economies. Aluminium ducts give uniformity in seams, have attractive looks and better heating efficiency. And above all, aluminium assures ducts against rust corrosion even under severe conditions; and they render service as much as four to six times more than galvanized steel-ducts.

Aluminium being an acoustically dead material, ducts are quieter and also having tendency to absorb contraction and expansion noises, eliminates the crackling and popping of ordinary duct work. This is an additional advantage of aluminium ducts in homes, hospitals and offices.

The application of aluminium does not stop with air ducts, but it is being endorsed for duct dampers, smoke pipes and stacks, chimney liners, spray chambers, cooling towers and ventilating hoods. Of course, the comparative initial cost of aluminium in all these applications may be more,

but the difference is counter balanced considering the lower scrap losses, actual man hour savings in fabrication and erection work and reduced cost of supporting structures.

Aluminium's many inherent properties viz., light weight, corrosion resistance in air, good mechanical strength and high electrical conductivity have made an excellent material for electrical transmission lines. It is interesting to note that a pure aluminium wire, weighing the same as a copper wire has 212.9 per cent the electrical conductivity. Still simpler, a pound of aluminium is equivalent to two pounds of copper; and thus aluminium can provide the same current carrying capacity at much less expense.

Practically in all countries of the world people are shifting from copper to aluminium for high voltage transmission lines. Aluminium cables steel reinforced (ACSR) enjoy the high electrical conductivity of aluminium and mechanical strength of the steel core. The advantages of ACSR are so convincing that there are no two opinions about the same; and the use is growing rapidly.

Since aluminium is 20 per cent lighter and 50 per cent stronger, ACSR have been found to render far superior service than copper conductors. In installation, ACSR allows longer spans, with considerably smaller sag. These ultimately reduce the number of towers without increasing their heights. Then, greater margin of safety, higher corona limit and easier and faster erection are other favourable factors with ACSR.

This is not all where aluminium finds its use in electrical industry. Aluminium bus bars are light yet strong and give maximum efficiency. In electric irons, heaters and stoves, aluminium is well adapted on account of its good heat conductivity and corrosion resistance. Vacuum cleaners are invariably made almost entirely of aluminium because of its light weight.

Aluminium and its alloys provide increased payloads, low up keeps and long life which total upto substantial savings in transport. Aluminium has its own dominating place in air craft industry. Its many light and strong alloys have made this metal indispensable for air crafts. Steel has no place to compete with aluminium specially with regard to air-frames and interior fittings. Although, it may along with titanium alloys find application in the highly stressed parts of supersonic aircrafts.

Marine designers also have specified aluminium to achieve beauty and utility, practically in all forms

of vessels. Certain lately developed aluminium alloys, embodying strength, light weight and corrosion resistance, have given this metal functional advantage in the construction of vessels for pleasure or for commerce. For super-structure, funnels, masts and life boats, mostly aluminium in the form of plates or extrusions is being used and is in direct competition with steel.

Railways too, are becoming increasingly important consumers of aluminium and its alloys in the form of sheets and extrusions in passenger coaches and freight cars: though the quantities used are much less comparatively, yet not insignificant. Aluminium is replacing steel in making window frames, seat frames, luggage racks and luggage compartments. The 'light aluminium' leads to higher pay loads and lower running and maintenance costs. Passenger coaches especially, where rapid acceleration and deceleration are very important, aluminium and its alloys play a very significant role.

Use of aluminium and its alloy sheets in body building of buses, trucks and trailers is steadily expanding day by day. A considerable advantage in favour of aluminium for such work is that the number of filling coats required, as distinct from the actual painting, is small compared with steel or even wood. It is an inherent fault of steel sheets that no matter how carefully planished they may be, minute irregularities will show themselves. These irregularities are not present in aluminium sheets and as much as 20 per cent is saved in some cases by the use of aluminium rather than steel.

Its use in motor cars has however, been limited, but aluminium castings are fast replacing steel castings in modern automobile engines.

Few materials can match aluminium in the combination of useful properties, which it offers to builders of textile machinery and equipments. Aluminium in the form of castings, forgings, sheets, tubings and extrusions is being endorsed for making roving and spinning frames, twisting and knitting equipments and in carding machinery, weaving looms and in a host of other related uses. In these applications, the inertia of machine parts rotating or reciprocating at high speed could be cut down, operating speeds increased and machines run more smoothly.

The non-rusting gift to aluminium and its resistance to many corrosive agents encountered in textile industry are especially advantageous in the high humidity of the weave shed; because moisture condensing on aluminium parts would not produce rust and chemicals would not attack aluminium: and thus aluminium saves yarns or cloth, being processed, from undesirable stains or discolouration.

Metallic yarn made of aluminium is the fascinating latest develop-

ment in the Textile World; and these yarns could be made available in a wide range of deep and light shades. The aluminium yarns do not fade or tarnish and fabrics woven with them possess a soft and pliable texture.

Aluminium looks very impressive and attractive when used for decorative and architectural purposes. The remarkable ductility of aluminium is one of its outstanding properties and due to this not only is the working of aluminium easier, but also, shapes which are too complicated to be made commercially in other metals may readily be obtained with aluminium. Weighing only one third as much as steel, nevertheless embodying the strength of structural steel and resistance to atmospheric corrosion enables it to endure indefinitely and provides long range economy in terms of minimum maintenance.

Modern Furniture means Aluminium Furniture! Aluminium pipes and tubes have attracted the attention of the designers of today. Though steel furniture-making is comparatively an older art, but the growing trend of light weight, beauty and utility, all mixed in one, have given rise to aluminium furniture.

Aluminium furniture is light, eye catching, yet immune to rust and relatively impervious to combined forces of rains and sunlight. Apart from office and professional furniture, lawn furniture in aluminium is becoming very common. Generally aluminium furniture is more expensive than comparable furniture in steel or wood, but its functional advantages have made it the choice of many.

Applications of aluminium in farming and irrigation are as important as in other industries. For example low cost farm buildings in aluminium give maximum utility and livestock and poultry gain faster. Aluminium silos are directly competing with steel silos; though there is a slight disparity in price, yet aluminium's light weight, ease of erection, durability, attractive looks and low maintenance cost assure a good market for them.

The use of aluminium pipe in sprinkler irrigation systems has introduced the idea of portability and an unprecedented expansion of sprinkler irrigation. Aluminium irrigation pipe is strong, yet light in weight and withstands rough handling in the fields. Besides, its smooth inner surface minimizes the pressure drop in water due to friction. Fertilizer compounds and insecticides also can be sprayed from the system without any adverse effects.

Aluminium has almost completely replaced other materials previously used in dairy industry. Dairy equipments made of aluminium include milk precipitation and settling tanks, portable tanks for transporting milk, cream maturing tanks and butter forming machines. Its solubility in milk

products is negligible and its salts are tasteless, odourless and non-toxic.

Aluminium is the accepted material for kitchen use without much competition, all over the world India, indeed has been the largest consumer of aluminium for pots and pans. However, for certain articles viz., mixers, squeezers or grinders, stainless steel has come in the field for intense competition, but it is anticipated that the choice may fall to aluminium on account of its numerous advantages.

Aluminium is only second to gold in malleability; and its good malleability is made use of in its rolling to very thin foils. While aluminium foil has a number of properties that are valuable in the general packaging field, its special properties are indispensable in meeting the packaging requirements of many products viz., automotive repair parts, photographic films and food products.

Aluminium dominates the field of foil packaging; while steel stands no chance whatsoever, tin being scarce and expensive, and lead presenting the problem of toxicity and contamination, are completely eliminated.

Aluminium foil is non-toxic and has no harmful effect on the food preserved in it. It being an effective barrier to light, moisture, gas or odour, photographic film manufacturers have endorsed it to save their products from being aged. In fact, aluminium in the form of foil is the most effective available commercial material or packing the distinctly and delicately flavoured products. The applications of aluminium foil are so numerous and new being introduced so fast that it would be difficult to discuss all over here. However, some of the major industries making use of aluminium foil include tea, tobacco, food products, cosmetics and drugs.

The World production of aluminium is estimated to rise to 4 to 4½ million tons by 1960. On volume basis this would be equivalent to 12 to 13.5 million tons of steel. The competition offered by aluminium to steel is steadily increasing.

The present demand of aluminium in India is estimated of the order of about 20,000 tons per annum. It is stipulated that this demand would increase to upto 34,000 to 35,000 tons in near future. In these estimates the Electrical Industry is expected to consume the major portion of it viz., from 2,500 tons to 14,000 tons. Next come the Engineering and Transportation industries which are expected to consume about 2,000 to 5,000 tons; while the consumption of foil industry is estimated to be 2,000 tons and other industries combined to range between 1,500 to 5,500 tons per year.

Lack of adequate supplies of electrical power, so vital for aluminium industry has been chiefly responsible for its so slow progress in India. Yet, it is gratifying and encouraging that our indigenous

products in aluminium compare favourably well with the imported ones. The country's demand for aluminium is increasing fast and adequate supplies of bulk power from the new Hydro Electric power and Multi-purpose projects promise a very bright and promising future for aluminium industry in India.

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THE ALUMINIUM INDUSTRY

(Continued from page 61)

known, is notoriously short of resources of non-ferrous metals. Production of copper is running at about 8000 tons annually and unlikely to increase much further. Production of lead and zinc is not possible, at least in any appreciable quantities, as there are not substantial indigenous sources of raw materials. Consequently, well over Rs 20 crores worth of non-ferrous metals, copper, lead zinc and tin are imported annually. Assuming that domestic consumption doubles as a result of the first two Five Year Plans, imports are likely to rise to over Rs. 40 crores annually. Equally important is the fact that we expect to be short of foreign exchange required to pay for ever increasing quantities of capital equipment etc. which will have to be imported. Effort will have to be made therefore in every conceivable manner to conserve foreign exchange so that the country can develop. In the substitution of aluminium for other non-ferrous metals, the only non-ferrous metal which the country can produce in comparatively large quantities, lies an important method of accomplishing this. In India, substantial quantities of copper and zinc are used for the manufacture of electrical conductors, utensils and galvanised iron plain and corrugated sheet, to name only a few important products. Even assuming that custom and tradition are accorded their just dues, there is no reason why part of the imports cannot be cut off and a market for ten to twenty thousand tons of aluminium created. Furthermore, certain totally new industries, as for example the aluminising of steel sheets, will have to be set up, bringing with them attendant new difficulties and problems. Without question however, the benefits to the country will be so enormous that it will be well worth while for Government to investigate these potentialities without any delay. Other countries, notably pre-war Germany, have achieved remarkable success with similar measures. It will also make possible the eventual installation of a single smelter with a capacity of thirty to forty thousand tons capable of holding its own in world markets, and this is what is wanted if we are to have a stable industry.

The aluminium industry can therefore play a very important role in the development of the country but only with the full and unstinted co-operation and joint endeavour of the Government, industry and the public.

ALUMINIUM IN THE ELECTRICAL INDUSTRY

(Contributed)

ALUMINIUM is a metal which, due to a combination of mechanical and electrical properties and low cost, is finding ever-increasing uses in the electrical industry. This fact is of particular significance to engineers in India now that the country is on the threshold of vast electrification and industrialization schemes, since aluminium is the only metal of its kind, deposits of which are abundant in India. It is the purpose of this article to present the properties of aluminium and to discuss briefly its varied uses in the electrical field.

PROPERTIES

In recent years aluminium has been applied to many duties which were formerly performed by other metals; for instance copper in the case of conductors and lead in the case of cable sheathing. Aluminium has very different properties from the metals it is replacing and consequently its adoption means that some changes should be made in conventional designs to make use of aluminium efficiently and economically.

The properties of aluminium are compared to those of copper as a conducting material in Table I.

Table II compares average properties of aluminium with lead when used in cable sheathing.

	Hard drawn aluminium.	Hard drawn copper.
Density at 20°C (gm./c.c.)	2.703	8.89
Melting point °C	659	1083
Coefficient of linear expansion per degree C	0.000023	0.000017
Electrical conductivity at 20°C as per cent of International Annealed Copper Standard	61.00	97.00
Resistivity in microhms per c.c. at 20°C	2.828	1.774
Constant mass temperature co-efficient of resistance per °C at 20°C	0.00403	0.00381

	Aluminium.	Lead.
Density at 20°C (gm./c.c.)	2.703	11.37
Co-efficient of linear expansion 1°C×10 ⁻⁶	23	29
Melting point °C	659	327
Electrical conductivity at 20°C as per cent of I.A.C.S.	61	8.68
Thermal conductivity (Cal./cm./sec./°C)	0.54	0.082
Ultimate tensile strength lbs./sq. in.	13000-16000	2000-4000
Elongation % on 2 in.	7-25	25-40
Hardness (Diamond pyramid hardness number)	20-40	4

ALUMINIUM CABLE STEEL REINFORCED AND ALUMINIUM STRANDED CONDUCTOR

For high voltage transmission lines running across open country where span lengths are not restricted, the high strength to weight ratio of ACSR a distinct advantage over other conductor materials. Because of its high strength to weight ratio ACSR can be strung to longer spans with savings in poles, insulators etc which are in addition to the initial lower cost of ACSR.

ACSR has been used in India as long ago as 1926 in Mysore where an 18 mile, 33 kv transmission line using a 6×.2109" aluminium 7×.0703" steel ACSR was strung from Bangalore to Theppagondane-Halli. In the same year another line known as the Kolar transmission line, rated at 75 kv, 34 miles long, was built of 3/0 AWG 61×.1672" ACSR.

The advantages in using ACSR for high voltage transmission lines are now so well known that it is used almost exclusively on the nation's high voltage system.

For the distribution of power at low voltages as in urban and rural areas, where span lengths of the order of 150 to 220 feet are normally employed, the relatively higher strength of ACSR cannot be used to advantage, and Aluminium Stranded Conductor (popularly known as All-Aluminium Conductor, and differing from ACSR in the absence of a steel core) which is characterised by cheapness and lightness, proves the most economical choice.

Aluminium wire for conductor use is rolled and hard drawn from aluminium of 99.5 per cent minimum purity. These aluminium conductors have high electrical conductivity ratings. The conductivity of conductor grade aluminium wire used in aluminium conductors is 61 per cent of the International Annealed Copper Standard at 20°C on an equal volume basis. Since aluminium is much lighter than copper, an aluminium wire weighing the same as copper wire per unit length has more than twice the electrical conductivity. For equal conductivity an aluminium conductor must have a cross sectional area 59 per cent greater than the equivalent copper conductor.

From the point of view of long life with low maintenance, aluminium conductors have proved highly satisfactory. Extensive use of aluminium Stranded Conductor is now being made on low voltage

distribution systems all over India, and in all instances where aluminium conductors are in use the lines are performing satisfactorily. Performance records such as these are the best indication that aluminium conductors give long service with a minimum of maintenance.

The inherent lightness of aluminium conductors is one of their more important advantages. This light weight, as compared to other common conductor materials, contributes materially to easier and faster handling with resultant savings in transportation and erection costs.

OVERHEAD TELEPHONE LINES AND RAILWAY ELECTRIFICATION

Two uses to which aluminium conductors have been applied extensively abroad, and which are only now receiving attention in India, are as conductors for overhead telephone lines and as the feeder or catenary in railway electrification.

Communication lines built of ACSR have been in use since 1926 in many countries. An ACSR for use on a communication line must have the same loss per loop mile in decibels as the copper conductor it is replacing. At carrier frequencies 61×.0743 ACSR "THRUSH" will be found a satisfactory substitute for the normally used 200 lbs/mile copper conductor.

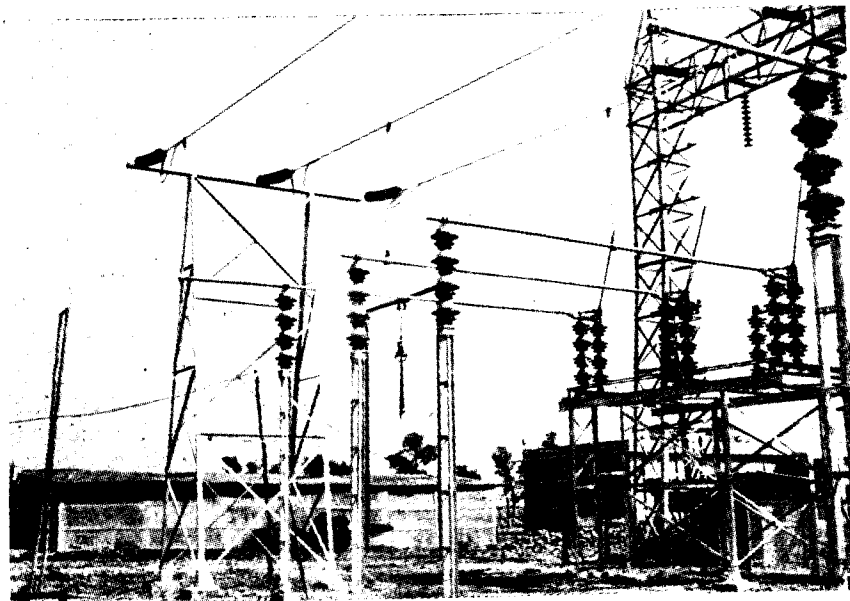
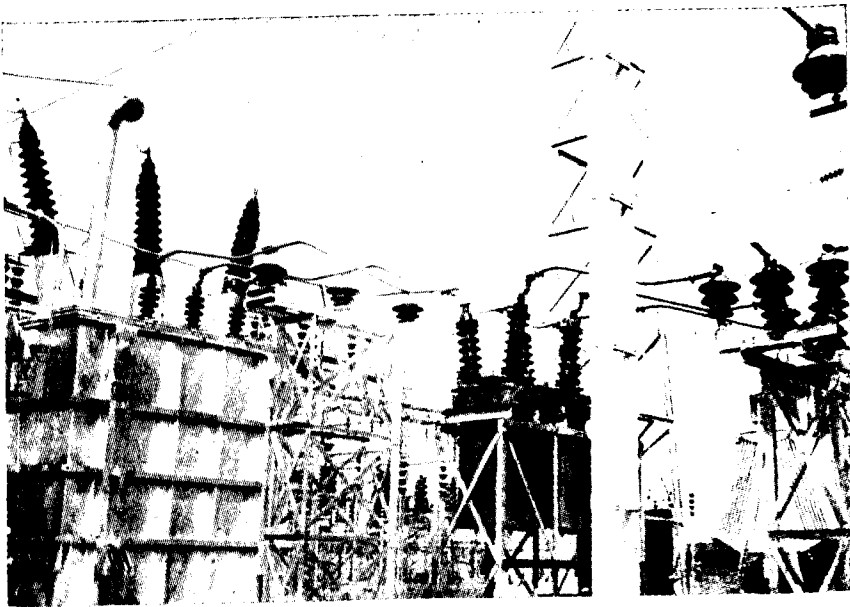
Aluminium conductor has often been used for the overhead feeder on electric railway systems. Since span lengths on such systems are short, aluminium stranded conductor is usually preferred. On systems where it is desired to combine the feeder and the catenary wire an ACSR is found suitable since its steel core acts as the catenary and the outer aluminium section as the current carrying feeder.

BUS BAR CONDUCTOR

Readers of this article are probably well acquainted with the advantages of aluminium conductors for transmission and distribution of electrical energy. However, the application of aluminium in bus conductors, though well established abroad, seems to have been overlooked in India till a few years ago. In 1951 a large multipurpose undertaking in the country started using aluminium bus bars in their high voltage switching stations and being satisfied

with its performance have standardised on aluminium.

Aluminium bus bars are available in sections normally used such as rectangular, tubular or channel, each having its particular field of application. Rectangular aluminium bus bars are normally used for low current installations. Where it is necessary to transfer large blocks of A.C. current the tubular cross section is found to be the most economical, since it reduces the skin effect resistance ratio (ratio of A.C. resistance to D.C. resistance) to a minimum and thereby permits the optimum use of the metal. Aluminium channel is extremely rigid and permits the use of long spans even when heavy short circuit currents are expected.



Figures 3 and 4. Tubular Aluminium Busbars in Damodar Valley Corporation's 132 kv Kalipahari Substation.

Aluminium offers many advantages over other commonly used bus bar materials. With a conductivity of 60 per cent of the International Annealed Copper Standard an aluminium bus bar will weigh only half as much as a copper bus bar having the same resistance. The economies to be had by using aluminium can readily be appreciated when it is realised that aluminium costs much less per pound than copper. Due to its lower conductivity an aluminium bus having the same resistance as a copper bus will have to have a larger cross sectional area. However, the aluminium bus bar will have a higher current carrying capacity based on equal temperature rise since its larger surface area permits faster dissipation of heat. This current carrying capacity can be further increased by painting the aluminium bus bar a dull black.

It is often wrongly assumed that because aluminium is not as strong as copper an aluminium bus bar will be less rigid than a copper one. All bus bar conductors are essentially beams; the deflection in a beam is expressed by formulae of the following type:

Deflection = $\frac{K \times W L^3}{EI}$

Wherein W is the weight of the beam, L the span length, E the modulus of elasticity, I the moment of inertia and K a constant which is equal to 5/384 for a uniformly distributed load. The relative density of copper compared to aluminium is 3.29 and copper has a modulus of elasticity of 16×10⁶ psi compared to 10×10⁶ psi for aluminium. Hence the ratio W/E for copper is twice as great as for aluminium so that the static deflection of an aluminium bus bar is only half that of a copper bus bar of the same section and on the same span. When bars of equal current rating are considered the aluminium bar will be the stiffer; consequently longer spans can be used for a given deflection resulting in savings because of the need for fewer supports.

Because of its light weight aluminium is easier to handle and consequently speeds up erection work, can be bent and shaped with great facility, and is easily drilled and sawn.

Where a great deal of bus work is involved an aluminium bus bar installation can be made very economically by welding. Welding shows to greatest advantage in heavy current installations, eliminating drilling, splice plates and

bolts with consequent savings in weight and affords a neat appearance. On smaller installations, joints are made by bolting or clamping. Bolted joints in rectangular aluminium bus bar are made in essentially the same way as with copper, a lap equal to the width of the bar being generally sufficient. Galvanized or cadmium-plated nuts and bolts are satisfactory and these should be equipped with washers of generous size. Where severe variations in temperature are expected spring washers are to be preferred to plain washers. In making aluminium to aluminium connections the joint surfaces must be thoroughly cleaned with emery cloth and liberally coated with an oxide inhibitor. After coating with the oxide inhibitor the surface should be abraded through the film of oxide inhibitor with a wire scratch brush or steel wool to remove the oxide film from the contact surface. The presence of the oxide inhibitor will prevent the reformation of the oxide film. The joint can now be assembled without removing the oxide inhibitor.

Since the first installation of aluminium bus bar in one of the industry's own reduction plants as far back as 1895, aluminium has gained popularity and its satisfactory performance is borne out by the fact that it is now being used in installations calling for a high degree of reliability, as for instance in telephone exchanges, aboard ship, in generating and substations, in chemical and electroplating plants, in steel mills and in large office buildings.

ALUMINIUM IN INSULATED ELECTRIC CABLES

Aluminium is being increasingly used in insulated electric cables both for the sheathing and the conductor and in some instances for the armouring. Aluminium sheathed cable has been used in several installations in India both for overhead and underground use.

The properties of aluminium and lead are compared in Table II. It will be seen that aluminium as a cable sheath material is much lighter than lead, is considerably



Figure No. 1. A low voltage double feeder circuit line using aluminium stranded conductor "PANSY" (7×.1093").



Figure No. 2. A 66-kV double circuit transmission line strung with ACSR "DOG" 16×.186" aluminium/7×.062" steel.

An important chemical property of aluminium is its affinity for oxygen. A transparent and relatively inert (chemically) film of oxide forms spontaneously on any aluminium surface exposed to the air. It is to this protective film that aluminium owes its high resistance to chemical and atmospheric corrosion. The oxide film has a very high electrical resistance. When making electrical connections it is very essential that this oxide film be removed and its reformation prevented. This is accomplished by smearing the portion of the aluminium conductor forming the joint with an oxide inhibitor, abrading the conductor through the oxide inhibitor with a wire scratch brush and completing the joint without removing the oxide inhibitor.

stronger and harder than lead and has a far superior resistance to vibration fatigue. These properties of aluminium indicate that it is not as a substitute that aluminium is being used for sheathing cables.

As do all new practices, the use of aluminium in cable sheathing had its teething troubles. Some of the first samples of aluminium sheathed cable, which had been served in the same way as is standard for lead, corroded when buried underground after a relatively short period of time. This problem has been solved by serving the aluminium sheath with an impervious plastic tape in addition to the normal serving. Aluminium sheathing is now being employed in cables operating at voltages up to 301 kv.

The high strength of aluminium makes its application as sheathing material particularly attractive in the case of high voltage oil filled and gas pressure cables and makes the need for armouring unnecessary in most instances. Aluminium's light weight is of particular advantage in aerial cables.

In addition to the above the use of aluminium in insulated electric cables cuts the cost of such cables considerably, the savings being greatest when aluminium is used both as the conductor and the sheath.

Joining procedures with aluminium are only slightly different from those used with conventional metals and can be mastered readily.

Insulated aluminium conductors are now available in India for

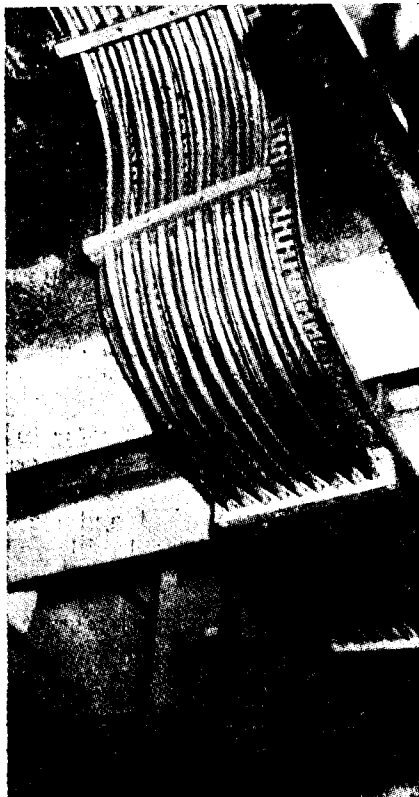


Figure No. 5.
An installation by G.E.C. using Pirelli-General "Asbestal" (Aluminium Sheath) 400 V Cables in the air conditioning plant room of a large office building in Calcutta.
Photograph by the courtesy of The General Electric Co. of India Ltd.

house service connections in sizes equivalent to the normally used insulated copper conductors. Insulated aluminium conductors apart from being cheap and light offer an additional advantage when used in areas where aluminium stranded conductor is being used for low voltage distribution in that their use transfers the bimetallic connection from an exposed position on the pole top to the meter terminal which is in a dry location and thereby eliminates the danger of corrosion.

ALUMINIUM IN ELECTRICAL EQUIPMENT

Aluminium has been used in the past to a small extent in electrical equipment because of its high conductivity, light weight, resistance to corrosion and non-magnetic properties. With the increase in price of other metals the cost advantage is swinging in favour of aluminium and a great deal of research is being carried on by leading manufacturers of electrical equipment to introduce aluminium into their products wherever its properties and low cost justify. Nothing more than a reference can be made to such applications here since detailed information is not yet generally available.

In rotating machinery of large size the light weight of aluminium is taken advantage of by using it for rotor windings where centrifugal forces are of importance. For squirrel cage rotors of small induction motors it is not standard practice among several manufacturers in India and abroad to die cast the cages in aluminium. Earlier, reference was made to the fact that a film of non-conducting oxide forms spontaneously on the surface of an aluminium wire placed in air. The thickness of this film can be increased artificially by a chemical process known as anodizing. Such a film forms an excellent insulation. Motors have been wound using anodized aluminium wires and it is claimed that with such insulation better cooling properties are afforded than with ordinary insulation and that anodized wire can carry heavy overloads since its insulation value is not affected by temperature. On smaller motors aluminium die castings are being used for casings, end frames and ventilating fans.

Aluminium has been used abroad in transformers both in the windings and in the tank. In larger transformers keeping the weight down is an important consideration and it is likely that aluminium will find increasing application in this field. At least two leading transformer manufacturers in the country are investigating the economies of employing aluminium windings in their transformers and the results of preliminary studies are most encouraging.

In current limiting reactors aluminium is being used extensively

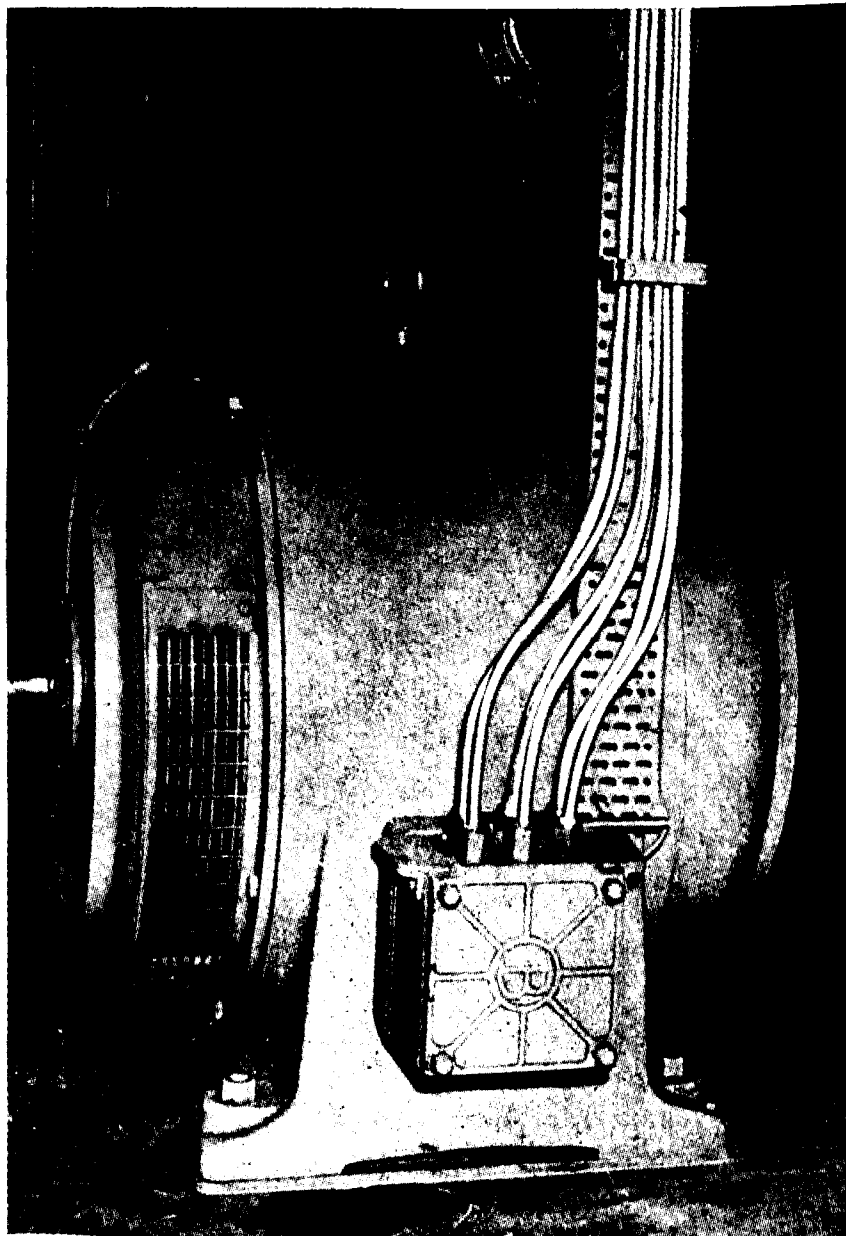


Figure No. 6.
An installation by G.E.C. using Pirelli-General "Asbestal" (Aluminium Sheath) 400 V Cables in the air conditioning plant room of a large office building in Calcutta.
Photograph by the courtesy of The General Electric Co. of India Ltd.

now, its use resulting in a considerable weight and corresponding cost saving over equivalent equipment using copper.

ALUMINIUM STRUCTURES

As mentioned earlier aluminium has a high resistance to chemical and atmospheric corrosion. In areas where structures of conventional structural material require periodical painting to prevent corrosion an aluminium structure can often prove more economical over a number of years since it requires no painting. Aluminium alloy substation structures are known to exist and its use in the top hamper of high voltage transmission line towers is being considered since this will obviate costly shut-downs on the transmission line while painting the tower. In inaccessible areas involving high costs for transportation to site and erection aluminium will often prove the economical structural material. On one circuit of a section of their 300 kv transmission line from Kemano to Kitimat in British Columbia, Canada, the Aluminium Company of Canada decided to use aluminium transmission line towers for just this reason.

Already we have an aluminium industry with a capacity of approximately 7,000 tons of aluminium per year and an aluminium conductor manufacturing industry capable of meeting the conductor requirements of the country. Although at present it is necessary for us to import aluminium for certain uses we can look forward, as industrialization gains momentum, to an era of self sufficiency in this important metal. It is therefore in our interest to develop to the maximum extent the use of aluminium in fields, such as the electrical industry, to which its properties are admirably suited.

Aluminium in Shipbuilding

(Contributed)

MORE than sixty years have passed since the first recorded use of aluminium for marine purposes, when Sir Alfred Yarrow built a 60 feet torpedo boat for the French Navy in 1894, employing an aluminium-copper alloy for the greater part of its structure. In the following year another torpedo boat was built for the Imperial Russian Navy, with aluminium hull plates and superstructure, and this was claimed to be the fastest vessel of its class.

Although these experimental prototypes demonstrated some of the advantages of aluminium, they were not entirely successful, for the alloys then available did not possess adequate resistance to marine conditions.

Since those early days, however, the aluminium industries of all countries have devoted extensive research to the problems of using aluminium in marine construction: new alloys have been evolved, offering both durability and strength, combined with lightness; great strides have been made in fabricating technique; methods of forming and handling have developed to a stage where they present no greater problems than are encountered with other materials; mechanical properties have been raised to a standard acceptable to the classification societies. Moreover, as the result of practical experience, both designer and technician have now become better acquainted with the handling of aluminium.

As a result of these advancements, the value of light metal construction is, today, universally acknowledged, and aluminium is now of considerable importance in modern shipbuilding. Practical evidence of its worth is to be seen in the numerous examples illustrated in the second half of this paper, from all-aluminium dinghies and yachts, to the recently launched 60,000 ton "United States", which incorporates no less than 2,000 tons of the metal in her superstructure, hull and interior.

To the naval architect and shipbuilder aluminium offers certain characteristics of immediate interest, which may be summarised as follows:

1. **Lightness**—The density of aluminium is approximately one-third of that of steel. This asset can, in practice, result in a weight reduction of some 40 to 60 per cent when an aluminium structure of equivalent strength is compared with its steel counterpart.

2. **Durability**—The aluminium alloys recommended for shipbuilding possess greater inherent resistance to the action of salt water and marine atmospheres than other structural metals, with the exception, perhaps, of stainless steel.

3. **Non-Magnetic qualities**—Aluminium is a non-magnetic material,

the value of the magnetic susceptibility (H) at 18°C being 0.6×10⁻⁶. For this reason the metal has been extensively used in wheelhouses and other structures in way of the standard compass. Recent reports indicate that the Norwegian and Swedish shipbuilding industries have incorporated aluminium wheelhouses in almost every vessel launched since 1945.

Amongst other characteristics deserving of notice are the amenability of the metal to all normal methods of cold working, and the diversity of forms available to the shipbuilder.

In particular, attention is drawn to the extrusion process, by which structural and decorative sections can be produced to complex designs with great facility, and offer wider scope to the designer than the use of rolled forms. Since aluminium is a non-sparking metal, it has found much favour in vessels where the fire hazard is necessarily increased, as in warships and carriers of inflammable cargo.

SELECTION OF ALLOYS

Pure aluminium is a soft, ductile metal, easily worked, and possessing great durability but generally unsuited to structural applications. The term "aluminium" is customarily employed to denote any of the numerous aluminium alloys, which are formed by the addition of certain other elements principally magnesium, silicon, manganese and copper to the pure metal. Unless otherwise stated, the word is so used in this paper.

Alloying improves the mechanical properties, particularly strength and hardness, and subsequent cold working or heat treatment has a further strengthening effect. It is thus possible to obtain an aluminium alloy with a very high strength weight ratio compared with other industrial materials.

It is convenient to divide aluminium alloys into two main classes:

- (1) Those which gain their mechanical properties from heat treatment. (Heat-treatable alloys).
- (2) Those which are not heat-treatable, but owe their mechanical properties to a controlled amount of cold working. (Non-heat-treatable alloys).

Both classes are usually available in several tempers, with a corresponding choice of mechanical properties.

The use of aluminium for shipbuilding has been officially approved of by Lloyd's Register of Shipping, and is covered by their "Ten-

tative Requirements for Quality and Testing of Aluminium Alloys for Shipbuilding Purposes." The Requirements specify two types of material: a non-heat-treatable alloy containing up to 5.5 per cent magnesium and a heat-treatable alloy containing magnesium and silicon.

These are required to meet the following mechanical properties: Ultimate Tensile Strength (min.): 17 tons per sq. in. (28½ kg/mm²) 0.1 per cent Proof Stress (min.): 8 tons per sq. in. (12½ kg/mm²) Elongation (min.) (On 8 in. gauge length): 10 per cent. The commonly used alloys are tabulated below:—

Aluminium Limited designation.	British Standard designation.	Available forms.	Characteristics.
51S	H10	Structural sections and rivets.	Heat treatable. Good durability and easily fabricated.
54S	N5	Structural sections.	Non-heat-treatable. High resistance to marine conditions.
B54S	N5/6	Plate to Lloyds requirements.	Non-heat-treatable. Similar to 54S.
A56S	N6	Rivets. Sections to Lloyds requirements.	Similar to 54S of higher strength in extruded forms. Also widely used for marine rivets.
65S		Sheet, plate sections.	A heat treatable alloy of North American origin similar to 51S. Good cold-working properties.
M57S	N5	Sheet, plate sections.	Mainly used for small craft and decorative purposes.

TYPICAL MECHANICAL PROPERTIES OF SHIPBUILDING ALLOYS.

Alloy	Form	Temper*	0.2% Proof stress kg/mm ²	Ult. Tensile stress kg/mm ²	Elongation %
51S	Extrusions	W	14½	23½	18
		WP	28½	31½	11
54S	Extrusions	M	12½	22	22
B54S	Plate	M	20½	30	17
65S	Extrusions	W	14½	23½	16
		WP	27	31½	11
M57S	Sheet	O	8	19	28
		H	18½	21½	14
		H	22½	24½	10

*O = Soft.
M = As manufactured.
W = Solution heat treated only.
WP = Fully heat treated.

Structural sections are normally extruded in 51S, 65S, A56S or 54S while B54S is the standard alloy for plate. Rivets are made from A56S, 51S and steel.

The design of an aluminium structure may frequently be based on a similar project in steel, and may therefore be prepared by designers unfamiliar with aluminium practice.

The following notes are intended to serve as a guide to the elementary principles involved in the design of an aluminium superstructure. It must be emphasised that they should not be regarded as rigid rules, but are a guide only, and subject to modifications in practice.

For Equal Stiffness (deflection).

If d = deflection
 I_a = moment of inertia of aluminium section
 I_s = moment of inertia of steel section
 E_a = elastic modulus of aluminium
 E_s = elastic modulus of steel
 $d = K$, where K is a constant $\frac{EI}{L^3}$ depending on loading and support conditions

For the same deflection

$$E_a I_a = E_s I_s$$

and, since,

$$3E_a = E_s$$

$$I_a = 3I_s$$

Nevertheless, an aluminium column loaded to breaking point need not have a three-fold moment of inertia, as compared with a steel column, bearing the same load, as a small increase in the moment of inertia immediately induces a decrease in the slenderness ratio and therefore an increase of the permissible buckling load.

According to the "Tentative Requirements" of Lloyds Register for light metal alloys in marine construction; the ultimate stresses for steel and aluminium are 44.4 and 26.8 kg/mm.² respectively.

Beams: Where the same deflection is required for the aluminium beams as for the steel:

$$I_{AL} = 3 I_S$$

Gusset-plates: Gusset plates should be of the same size but 20 per cent thicker than steel. Long exposed edges on gusset plates should be flanged in order to provide stiffening.

Riveting: The shearing strength of aluminium rivets is increased by cold working as compared with non-driven rivets. (Figures quoted further below.)

Joining with steel: Aluminium structures should be joined to steel structures over a galvanized ground bar.

SHIPYARD PRACTICE

Practical experience over a number of years has shown that aluminium presents few problems in shop or yard once the technique has been acquired; it can be manipulated without difficulty by the usual methods adopted for steel, and, with certain exceptions, referred to later, similar equipment may be employed.

Cold Working:

Sections and plate are usually worked cold since aluminium is readily amenable to cold working with normal shipyard tools. When severe cold forming is necessary, however, it is important that the temper of the material be correctly specified. Because of the metal's low elasticity, hammer work is apt to prove laborious, and where possible sustained pressure should be used for the bending of shapes.

Cutting, drilling and shearing operations can be performed without difficulty, and, generally speaking, a higher rate of operation than with steel is possible. In shearing of plate there is a noticeable absence of kick-up, and longer cuts can be made before snipping off. Flame cutting should not be attempted with aluminium.

In flanging reasonable precautions should be taken to avoid burrs, and generous tool radii should be used. Similar remarks apply to joggling. It has been found that when sections are joggled the use of a backing strip with a radiused edge may serve to prevent undue nicking.

Hot Working:

The hot working of aluminium material requires careful considera-

tion, for, with certain of the heat-treated alloys the mechanical properties can be seriously impaired, and in order to restore them a subsequent heat treatment process would be necessary. For this reason, the heat-treatable 51S and 65S alloys should not normally be subjected to hot work, but in certain circumstances 54S and B54S can be heated prior to working provided the temperature is carefully controlled, and does not exceed 400°C. Where local heating is necessary, temperature indication may be obtained by the use of heat-sensitive crayons or paints.

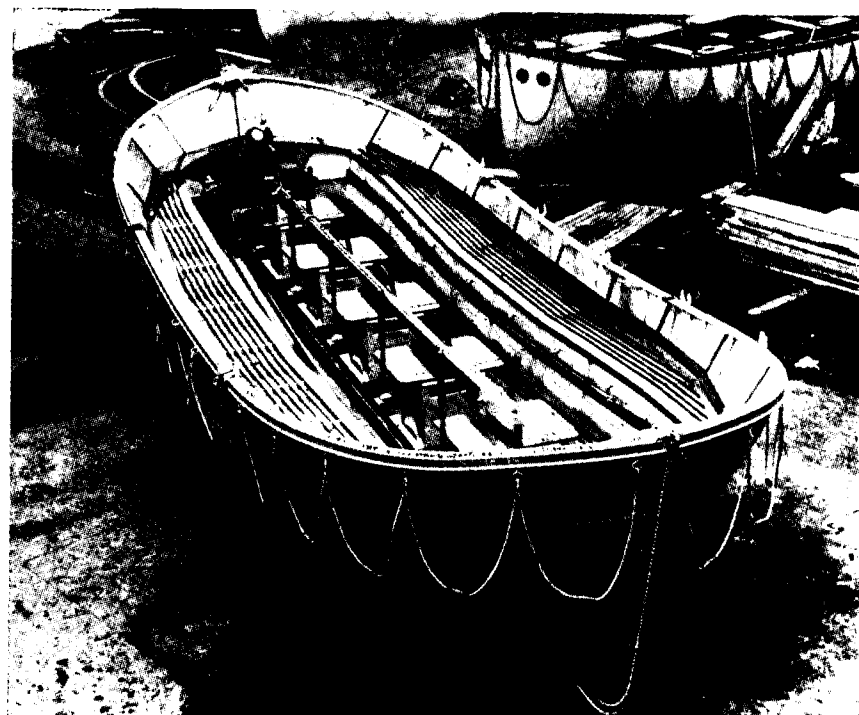
Joining:

Aluminium may be joined by most of the methods commonly employed for steel, but at present riveting is preferable for large structures and stressed parts. Although hot driven steel rivets have been used for large alumi-

nium structures, it is desirable that the rivets should be of the same material as the structure itself. During recent years considerable progress has been made in the development of the large aluminium rivets necessary for shipbuilding, and today such rivets are commercially available up to 1 in. diameter.

Mention has already been made of the aluminium alloys suitable for rivets: the following remarks are intended as a resume of points of interest in the technique of riveting.

Aluminium rivets require greater force, and are more difficult to drive, than their steel equivalents because the latter are driven hot. Experiments have shown, however, that by the use of certain shapes, such as the "Annular" or "Dimpled" head it is possible to cold drive rivets up to $\frac{3}{4}$ in. (22.2 mm.) diameter using ordinary pneumatic tools.



Where possible, squeeze driving is preferred, and may be performed with hydraulically-operated gap riveters. The pressure required naturally varies according to the diameter of the rivet and the shape of its point: it has been found that the Flat and N.A. Cone points are

Rivet Diameter	Type of Driven Point			
	Flat	N. A. Cone	Pan	Snap
$\frac{1}{4}$ " (12.7 mm.)	13 (13200 kg.)	14 (14240 kg.)	25 (25400 kg.)	25 (25400 kg.)
$\frac{3}{8}$ " (15.9 mm.)	20 (20320 kg.)	22 (22360 kg.)	37 (37600 kg.)	38 (38600 kg.)
$\frac{1}{2}$ " (22.2 mm.)	40 (40640 kg.)	45 (45810 kg.)	75 (76200 kg.)	80 (85730 kg.)

Pneumatic riveting calls for a heavier hammer than that used for steel work, and using standard points $\frac{3}{8}$ in. diameter (15.9 mm.) is the maximum size that can be dealt with by this method. For general use the Pan shape is satisfactory, being easy to form and giving a good point. With equipment at present available, it is not possible to form snap heads on rivets of more than $\frac{1}{2}$ " diameter (12.7 mm.).

Rivet research work in Canada has resulted in the development of the Annular or "Dimple" head,

most satisfactory in this respect. The Snap point is not recommended. In their Handbook, "The Driving of Large Aluminium Rivets", The Aluminium Development Association, London, give the following pressures required for squeeze-driving various shaped rivets in A56S alloy:

referred to above, which permits the closing of rivets up to $\frac{3}{4}$ in. diameter with pneumatic hammers. The point is formed by a circular rolling motion of the hammer, which is rotated at an angle of 5-10 degrees to the rivet axis. This type of rivet, pneumatically driven, has been successfully used in the all-aluminium bridge over the Saguenay River at Arivida, Quebec.

Owing to the cold work occasioned by driving, the shear strength of aluminium rivets is higher than that of the undriven

rivet material. The following ultimate shear strengths (to be applied to the hole diameter) may be expected.

A56S.—12 tons per sq. in. (18.9 kg/mm.²)

51S-W Solution heat-treated).—11 tons per sq. in. (17.3 kg/mm.²)

51S-WP (Fully heat-treated).—13 tons per sq. in. (20.5 kg/mm.²)

Where watertight seams are required, rivet spacing of 3-4 diameters should be used; elsewhere spacing of 6-7 diameters is sufficient. The edge distance should normally be 2 diameters, and never less than $1\frac{1}{2}$ diameters.

Holes for rivets may be drilled or sub-punched and reamed to size. The work should be well bolted up before reaming, and since there is no draw with a cold-driven rivet, care should be taken to ensure close contact of the surfaces before driving is commenced.

The hole clearance for aluminium rivets is more critical than that for steel rivets, and the recommended clearances (diametral) for large aluminium rivets range from about 1/64 in. (0.4 mm.) for $\frac{1}{4}$ in. (12.7 mm.) to about 3/64 in. (1.2 mm.) for $\frac{3}{8}$ in. (22.2 mm.) rivets. Owing to the lower shear strength of aluminium rivets, it is also recommended that the hole-sizes commonly used for steel rivets be retained, and that the rivets be manufactured to diameters appropriate to them. In this way, the shop work is simplified by continuance of standard drilling practice and, moreover, the shear area of the driven rivet is not reduced. The following actual rivet diameters are recommended:

Rivet	Diameter	For driving into
Nominal $\frac{1}{4}$ in.	.547 in.	9/16 in. hole
Nominal $\frac{3}{8}$ in.	.888 in.	11/16 in. hole
Nominal $\frac{1}{2}$ in.	.789 in.	13/16 in. hole
Nominal $\frac{3}{4}$ in.	.917 in.	15/16 in. hole

The hot-driving of aluminium rivets must be regarded with some reserve since this method introduces certain problems which do not arise with steel. Since aluminium does not change colour when heated, there is therefore no ready method of judging the temperature, consequently braziers cannot be used, but must be substituted by thermostatically controlled furnaces. At present the only alloys considered suitable for hot driven rivets are the non-heat-treatable A56S type. The practical hot-driving temperatures for these alloys lie between 400-500°C. Uniform heating is essential and the rivets should be brought slowly to the desired temperature, and then soaked for half an hour or so.

The technique of welding aluminium differs from that developed for steel, owing to the inherent differences between the physical properties of the two metals. Most aluminium alloys may be joined by welding, but it must be remembered that, due to the annealing

(Continued on page 74)

THE ALUMINIUM INDUSTRY IN INDIA

QUALIFIED OPTIMISM

By M. J. K. SULLIVAN

THOUGH the cost of Aluminium is artificially high in India compared with the normal level of world prices, it is cheering to see its use increasing substantially in many housewife choosing to use this metal for kitchen-ware as being the best for the price, who gave the industry a good start in India. Quite recently, its obvious suitability in the electrical field for conductor work, at a price far below that of copper, has assured it of a large market, whatever the price and availability of steel may be in the future. By and large, however, the infant industry, faced with the relatively cheap price of steel, has had a stern battle, and it is only comparatively recently that the special qualities and properties of Aluminium and its alloys have won them general popularity. For aircraft, of course, it has to be used and now it is encouraging at last to see it being adopted in large tonnages for rail and road transport, where the economics of weight saving are so evident and the higher initial cost of aluminium is soon written off. In light engineering generally, it is this quality of lightness and resistance to corrosion that are prime considerations.

It is now used extensively in the tea industry, for it is the only metal that ensures absolute cleanliness, strength and light weight at a comparatively low cost—it has a considerable price advantage when compared with stainless steel and plastic, now being tried out for various purposes. Moreover, it is easy to keep clean and does not, therefore, harbour undesirable bacteria. Its salts are non-toxic, so that even in the unlikely event of any chemical action, there is nothing to fear from poisonous contamination. The availability of aluminium alloys, already approved by the Scientific Department, Indian Tea Association, at little or no extra cost, provide that necessary extra strength required to withstand the severe treatment which certain of the extensive range of tea garden items have to face and we now find it used in most factories throughout the various processes of tea manufacture, whether for rung bowls, rung trolleys, fermenting beds and trays, sifters, bins, handling equipment of all types, containers and packaging.

The rubber industry also makes use of aluminium for its coagulating trays and tanks while for tobacco manufacture we find aluminium leaf-trolleys and drying trays. In the textile field because of its light weight and durability in other parts of the world the following parts have been made of it: rollers, pulleys and brake pulleys, lapets and separators, cheese-holders, winding cones,



Aluminium Kitchen-ware.

In the chemical and allied industries, the use of aluminium is attractive for many reasons other than resistance to corrosion. It is obvious, however, that the latter is the prime consideration. The

industries concerned require that the materials they employ shall be obtainable at a fair price, shall ensure an adequate life for the plant, and shall neither discolour the product nor form objectionable compounds with it. Aluminium in a very large measure fulfils these requirements: it behaves excellently in contact with a large range of chemical products; its salts are colourless and non-toxic: it has good thermal properties and it is handled and worked with facility. For the same reasons aluminium has found much favour with paint and varnish manufacturers.

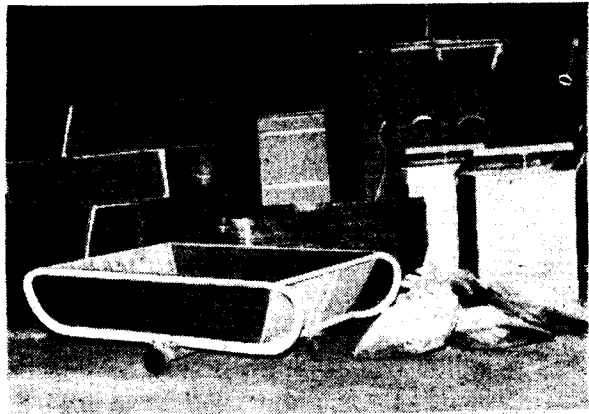
The following enumeration gives some indication of the uses to which aluminium has been successfully put: autoclaves, condensers, distilling plant, filtration plant, fume hoods and ducts, heating coils, storage tanks and vats, transport drums and tanks, varnish boiling pots and varnish churns, while extensive use is also made of it in the Fertiliser Plant at Sindri.

Nevertheless, bright though the picture may be on the whole, the industry is still facing considerable disappointments and frustrations and there are some end-uses for which huge tonnages are used in other parts of the world which at present cannot bear the high price of the material in spite of its obvious advantages. When one considers that the world production of aluminium is in the neighbourhood of 3 million tons per year and that that of India only about 7,000 tons according to the present production potential, it follows that

the economics of the industry in India must be both peculiar and difficult. Although India has abundant supplies of bauxite ore, she has so far been very short of power supply and hydro-electric power in particular, the cheapest source for the tremendous quantities required for aluminium production. Today the Government still finds it necessary to foster the local industry with a protective duty, amounting at present to 31½ per cent on the C.I.F. value. This immediately puts it out of court, or at any rate makes it too expensive for normal use in many cases. Indeed, for marine transport and in the structural and building fields really very little progress has been made at all so far, in spite of the most energetic efforts of all concerned. The price factor has proved too much. We know of an instance of a large fee being paid to an architect for the design of an orthodox roof truss in aluminium 5 years ago. Still no such truss has been built. The amount of aluminium or aluminium alloy used in the marine field in all these years, namely a few dinghies, life boats and a little decking and flooring, could almost be carried on one lorry.

Tariff Board Enquiries are convened regularly to examine this difficult problem but it seems clear that unless there is a radically new approach, little headway will be made: for until production has increased very considerably in India, aluminium and its alloys will still be sold at an inflated price. It is good news indeed that by the end of 1957 the Hirakud Project will have made it possible to step up indigenous production by another 10,000 tons and there is hope of a further 10,000 tons by 1960. By then, however, the present steel shortage will have been overcome and we shall still therefore face considerable difficulties for aluminium, vis-a-vis steel prices.

It is all very frustrating, for at the moment we are informed that India must import steel at the rate of one million tons per year for the next two years—if this quantity can be gleaned from the markets of the world. Aluminium too is now in short supply in the world, but how strange it is that earnest efforts are not being made to collect up as much as possible of this also as a contribution to India's great programmes of expansion. Some of the most alert brains of the country are examining this enigma and we must rely on their decisions to take action which will



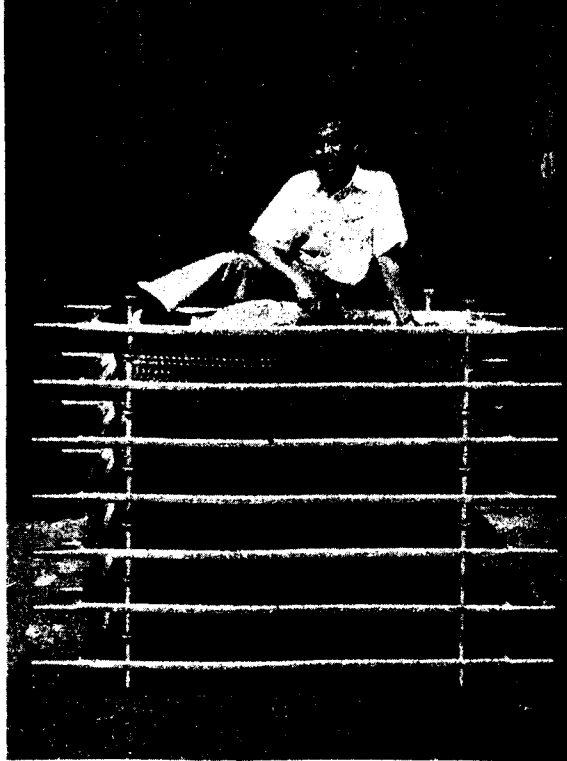
Tea Rung Trolley, Soops, Tea Chests, In the background—Trolley Linings, Fermenting Trays with Cast Handles, suitably designed for stacking.

build up for all time the goose which lays the aluminium egg and not leave her in jeopardy. How different is the problem in our neighbouring country, Ceylon, where there is no indigenous gosling to be fed and where the Government can allow the import of aluminium required for certain of its key industries at a more or less nominal rate of duty, feeding the general revenues thereby and still making it possible to make good use of this general purpose material.

Admittedly shortage of steel should give some fillip to the consumption of aluminium for the next two or three years. Even so, this means that the consumer and the manufacturer will largely be footing the enhanced bill. For it is already clear that the manufacturer here, time and time again, is under duress and has to forego his legitimate share of profit in his efforts to use aluminium. Nor is it abnormal for consumers to call for repeat orders in steel rather

than aluminium where aluminium is not absolutely essential and where the manufacturer cannot agree to cutting his prices further and thereby bridge the gulf—and at a time when steel is scarce!

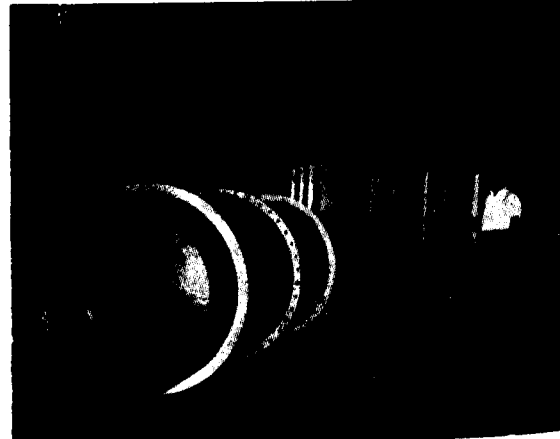
Looking at this picture in the light of the above one cannot help wondering whether it would not be wiser to reduce the import duty so that aluminium may be given a fair chance of being used where it is so much needed for purposes, now routine and standardised in other countries. A proportion of the reduced duty could then be given to the Indigenous



Self-Stacking Fermenting Trays.

Industry as a direct subsidy while the balance, credited to Government revenues would cover the administrative expenses involved. The Central Revenues would not lose, because even a 5 per cent contribution would amount to more than 31½ per cent of next to nothing and really this is the sad picture in so many cases where for certain obvious uses import of aluminium and its alloys have been conspicuous by their absence. Surely some such scheme would be workable to remove the present anomaly.

For anomaly at present there certainly is. Aluminium with its



Screen for Green Leaf Rotary Sifter in 14 s.w.g. Alloy, complete with baffle, M.S. angle circular frames, zinc sprayed, are made to order.

In the background—Prefab Tea Bin to be erected at site to any size required. Obtainable in panels measuring 2' x 2' x 1", complete with necessary holes for fixing and crosswise reinforcement of zinc sprayed steel, manufactured in 18 s.w.g. Alloy sheet.

high reflectivity and insulating quality, is ideal for tropical houses and buildings. Except for the ingenious improvisation of one engineer with his steel wire mesh structures, skinned with 24 gauge aluminium, a few corrugated buildings and remarkably small tonnages of roofing, where has India used this metal? Aluminium for its strength, durability and lightness is an ideal material for the river and marine transport India so much requires. Where has it been used? In her anxiety to build up in a tidy and satisfying way an industry from the bauxite so richly bequeathed her by the Gods. India is in fact and at any rate at present, in the middle of this Industrial Revolution depriving herself of much that could be obtained from aluminium generally.

ALUMINIUM IN SHIPBUILDING

(Continued from page 72)

action of the heat, the parent metal may suffer some loss of strength if in the work-hardened or heat-treated condition. Further, in order to remove the oxide film, always present on an aluminium surface, it is necessary to employ an active flux, and unless all residues of this are subsequently eliminated, corrosion of the metal may occur.

The commonly employed oxy-acetylene and resistance welding processes can be successfully employed for minor, unstressed parts, and interior work, but they are not recommended for structural applications.

Recent years have seen great progress made in the development of the argon arc process, and it is already indicated that welds—particularly in the aluminium-magnesium alloys—can be made with little, or no reduction in strength. The principal advantage of the argon arc method is that it obviates the use of fluxes, the electrode and weld pool being gas which prevents the re-formation of the oxide film. It is considered that, in due course, this process may be successfully used

on exposed structural work in aluminium with equipment suitable for the shipyard.

A further development of this process using an inert gas shielded arc has been developed and is used in the United States under the name "Aircomatic" process. This is similar to argon arc welding but uses a consumable aluminium electrode in wire form. The wire carries the welding current and the arc is shielded by a gas pocket. This process is now being used in American shipyards where good results are reported. The method operates at high speed and is suitable for positional welding.

Contact with other Materials:

When aluminium is placed in moist contact with certain other metals, electrolytic action may occur—and the aluminium may suffer galvanic corrosion. Such action is especially likely to occur when contact is made with copper, brass, bronze, and similar copper-bearing metals. Tin, zinc and cadmium are relatively innocuous, and little action is usually experienced with steel, though it is advisable that steel should be galvanized or cadmium-plated.

It follows that in order to obviate any danger of electrolytic action contact with the active metals should be avoided. Where this is not feasible, however, the dissimilar joints must be adequately insulated. This can be done by painting the facing surfaces with a suitable jointing compound, one containing zinc chromate being preferred. Dissimilar fittings may be bedded on an insulating gasket of felt treated with jointing compound.

Painting:

Although aluminium will successfully withstand marine atmospheres without any form of protective coating, it is customary to bring it into the general colour scheme in ships' structures.

The principal requirements for successful painting are surface cleanliness and suitable priming coats. Superficial grease and deposits should first be removed by swabbing with an organic solvent, such as white spirit. Then, in order to ensure good adhesion of the primer, the surface should be prepared, either by mechanical means, such as scratch brushing or sand blasting, or by chemical

treatment with etching solutions. Flame cleaning must be avoided.

Priming coats for aluminium usually incorporate about 30 per cent zinc chromate or barium chromate as inhibitors. Other primers such as red iron oxide are also satisfactory, but those containing lead pigments or bronze powder should not be used, since they may give rise to corrosion under marine conditions. In addition etch primers can now be obtained and may be recommended: these contain a chemical etching agent, so that the processes of keying and painting are performed in one operation, thus reducing time and labour.

Any of the finishing coats normally used for marine purposes may be applied, provided that they are compatible with the primer. Aluminium paint is recommended for many purposes, and possesses excellent covering power. Anti-fouling paints containing copper or mercury compounds are likely to promote corrosion and must, therefore, be avoided. Anti-fouling paints suitable for aluminium and containing organic toxins are available.

THE ALUMINIUM FOIL INDUSTRY IN INDIA

By SADHAN R. SARKER

IT is not generally known that India has its own aluminium foil industry. A wide variety of specifications of aluminium foil and tea chest linings is already being manufactured at the modern factory of Venesta Limited, located at Kamarhati in West Bengal. The major portion of India's requirements of aluminium foil is supplied from this factory, the manufacturing capacity of which is being expanded still further to make the country self-sufficient in this versatile material. It will interest readers to know this is the only Foil Mill in India and the quality of its products is equal to any imported material.

Aluminium foil can be defined as sheets or reels 2 m/m thick or less with varying degrees of thinness down to .006 m/m thick. The materials are rolled in precision rolling mills from aluminium coils, commonly known as foil stock, of .45 m/m thickness. Foil stock, although it is of commercial purity, is different from conventional aluminium coils in as much as the proportion of impurities has to be in certain ratios to give the coils the correct grain structure for superfine rolling. Foil is manufactured plain, lacquered, printed, protective coated, embossed and backed with various types of paper and polythene film.

PROPERTIES OF ALUMINIUM FOIL

The specific gravity of aluminium is one third that of the common industrial metals; hence aluminium foil is much lighter, and weight for weight has a much higher covering capacity than the common industrial metals.

It is non-toxic and is odourless and does not have any harmful effects when in contact with food.

It is a non-absorbent material and is quite impervious to gases, moisture and other organic solvents.

Foil, being opaque, is the ideal material for protecting substances which are liable to deterioration caused by the ultra-violet rays of light. It is also suitable for waterproofing and wind proofing buildings.

Annealed foil is pliable and dead folding and is very easily wrapped around amorphous objects.

Foil reflects 95% of radiant heat and light and is, therefore, suitable for thermal insulation.

Aluminium has a very high electrical conductivity, and foil can be successfully used for cable screens, condensers, electrical chokes, lining radio and television sets, filaments of photographic flash bulbs, etc.

USES OF FOIL

The versatility of aluminium foil and its excellent protective properties have led to its use for a wide variety of purposes, ranging from sari stars and bangles to thermal insulation for buildings.

One of the biggest uses of foil in India is for lining tea chests, both for the internal and export markets. Tea is a product that very easily picks up extraneous odours and moisture and it can also go "flat" unless packed in a proper medium. Tea producers have to ensure that blenders all over the world receive the tea in good condition.

Cigars, cigarettes and tobacco are very easily affected by climatic conditions. They may become too damp or dry, lose flavour and aroma and get discoloured, in which case they may become the smoker's displeasure. Aluminium foil preserves the natural smoking properties of tobacco and prevents deterioration.

The methods of supply of domestic milk in India are antiquated. In the majority of cases, goals deliver milk from door to door either by bringing the cow around or carrying the milk in containers. The cattle are kept and milked in unhygienic conditions, which in turn affects the quality of milk. The milk supplied by goals may be unwholesome, unhealthy and adulterated.

The improvement of the quality of milk and milk products is vital for a country like India, where many people are vegetarians. Consequently, the hygienic production and distribution of milk have been given an important place in the Second Five Year Plan, and many new dairies will be set up all over the country. A beginning has already been made and the Govts. of West Bengal, Bombay, and one or two private enterprise schemes are now using the most hygienic and up-to-date plant and equipment available.

In Western countries, large quantities of aluminium foil are used annually for capping milk bottles. Modern distributing dairies in India also use this material, the use of which is expanding fast. The caps are punched and fixed onto bottle tops by automatic machines, which fill and seal at the same time. The hygienic properties of aluminium prevent any harmful bacteria or dirt from contaminating the milk during handling operations thus preserving its nutritive value.

In the days when dairy products were packaged in paper, the dairymen and grocers were plagued with the problems of weight loss by evaporation and also rancidity due to ultraviolet rays. With the introduction of foil wrapping, these problems have been solved and aluminium foil is used extensively the world over.

The use of heavy gauge aluminium foil as taggers in tin containers is spreading. Besides economy, aluminium taggers are safer and look better.

A variety of confectionery products are wrapped in foil, notably chocolates, toffees, caramels, peppermint and so on. Cakes and pastries

remain fresh longer in foil cups. Specifications vary with end uses.

All over the world, substantial quantities of food are destroyed annually because of deterioration during storage. In India, as elsewhere, people like their vegetables, fish and meat fresh. If food products are wrapped in foil before storage, not only is the freshness preserved but also the flavour and taste.

In Western countries a variety of powdered products, e.g., soup, milk powder, dehydrated fruits, etc., are sold in heat sealed foil bags.

Medical tablets deteriorate by moisture absorption. Heat seal foil bags are used for wrapping these. The high protective properties of foil make it ideally suitable for a variety of medical and pharmaceutical wraps.

The high electrical conductivity of aluminium foil is an important factor in its extensive use in the electrical industry. Foil is used for manufacturing paper dielectric and electrolytic condensers as also for sheathing high tension multi-channel electric cables and lining microphone diaphragms, radio and television sets. For lining electrical chokes and a host of other engineering products aluminium foil is in general use.

An expanding use is for the packaging of retail tea and coffee. Both these products are very sensitive to atmosphere and storage conditions. Paper-backed aluminium foil not only provides a strong package but also protects the tea and coffee from contamination and deterioration caused by climatic conditions.

Aluminium foil has proved to be a highly satisfactory material for thermal insulation, waterproofing and dampproofing of roofs and floors and windproofing. The very high reflectivity and low emissivity of aluminium foil has led to its adoption as the standard insulating material. To be effective, all forms of insulation must be used in conjunction with an air space of about ½"—¾". Experiments carried out by the U.S. National Bureau of Standards have proved that two layers of aluminium foil give greater insulation, and a single layer in a wall cavity only slightly less insulation than 3½" of alternative materials.

Foil insulation is widespread in domestic, industrial and agricultural buildings, ships, railway rolling stock, automotive vehicles, domestic appliances, boilers, steam accumulators and pipes, aircraft engines and many other fields. In North America and other countries where seasonal wind velocities are high, foil is used for wind proofing. In countries subject to atmospheric and climatic dampness, foil is excellent for waterproofing.

A bitumen laminate of Kraft paper and foil has passed tests for superior industrial packaging. Industrial and surgical equipment

of all sizes and shapes, especially those for export, are liable to get rusty during transport due to moisture. Before being packed in cases, if these are lined with craft foil, deterioration caused by atmospheric conditions is considerably reduced, if not totally eliminated. India annually exports considerable quantities of textile materials. Often these arrive at their destination in an unsatisfactory condition, with consequent loss of money and materials. Lining the textile bales with Kraft foil before the final jute wrapping would prevent damage during transit.

Aluminium foil is very satisfactory for wrapping photographic films and plates and is universally used. Foil is also used for the filaments of flash bulbs.

The lustrous, shiny and decorative finish of aluminium foil makes it an excellent material for use as commercial and decorative labels. The textile industry in India uses large quantities annually for labelling its goods. Foil labels are also used on a variety of bottled products.

Aluminium foil is used in India in connection with the manufacture of glass and plastic bangles, sari stars and miscellaneous decorative wear for ladies.

Versatile aluminium foil has many other uses, e.g., lining hats, wrapping typewriter ribbons, display material, wrapping carbon papers, and decorating houses and buildings during festival seasons.

In Western countries the use of aluminium foil is not only high, but rapidly expanding. The annual tonnages of foil being produced in the main manufacturing countries are probably as follows:—

U. S. A.	... 100,000 tons.
U. K.	... 20,000 "
Germany	... 20,000 "
Switzerland	... 5,000 "
India	... 1,600 "

More and more varieties of food are being wrapped in foil or its laminates. Disposable foil cases are being used for ready-cooked meals, and service on aeroplanes. In the field of food, what the banana and sal leaves do imperfectly in India, aluminium foil does perfectly in the West.

Foil in India:

India's foil industry is in its infancy compared to Western countries. Although the use of foil is not big yet, the field is vast, and the potential great. Consumers are becoming discriminating, and people are getting quality, appearance and hygiene conscious—all these will lead to an expansion in the use of aluminium foil.

Venesta Limited, Kamarhati, are expanding their capacity not only to meet the existing demand for foil, but also to manufacture a wider variety of foil specifications which will undoubtedly be required in India in the near future.

ALUMINIUM PASTE IN THE PAINT INDUSTRY

By P. G. V. RAMANAN

COPPER, lead, iron, zinc and their alloys have for some considerable time been used as pigments in paint manufacture. Aluminium, however, is a comparatively recent entrant into this field, but in a short time has achieved considerable popularity, and indications are that in the not too distant future paints pigmented with this metal will play an increasingly important part in this essential industry.

Up to the end of 1951 aluminium paste required by the paint industry was imported, but in the same year a plant to produce it was set up in India. This plant produces all the paste that is currently required by the country which is 250 tons per annum. This is sufficient to make about 250,000 imperial gallons of paint and will cover an area of approximately two hundred million square feet. The industry is however looking ahead and, in anticipation of the demand increasing, is proceeding with plans to expand the capacity of its plant to 360 tons per annum. This additional capacity will come into operation by the middle of 1956.

Aluminium paint, like all other paints, consists basically of a pigment—in this case small metal flakes which provide colour, hiding power and protection—and a medium, often specially compounded of drying oils and resins, which serves to carry the pigment and “dries” into a hard film when applied. Aluminium paste is produced by the “Hall Process” which briefly consists of: (1) atomising molten aluminium of a minimum 99.5 per cent purity, (2) screening the powder, (3) grinding the granular powder into flakes coated with stearic acid in a ball mill and (b) mixing these flakes with white spirits to form a smooth paste. The following chart shows the various stages of production:



Packing Aluminium Paste in Drums.

Aluminium paint differs from others in that, when applied, the minute metallic flakes of aluminium of which the paste is made, rise to the surface of the paint film and arrange themselves in overlapping layers. They thus form an opaque metallic coating which presents an effective barrier to the penetration of moisture and other corrosive agents and thus protects the underlying surface as no granular pigment can. This characteristic which is known as “leafing” is of great importance to countries like India where we have extremes of temperature and torrential rains during certain periods of the year.

Among the manifold advantages of aluminium paint the following are the most important:

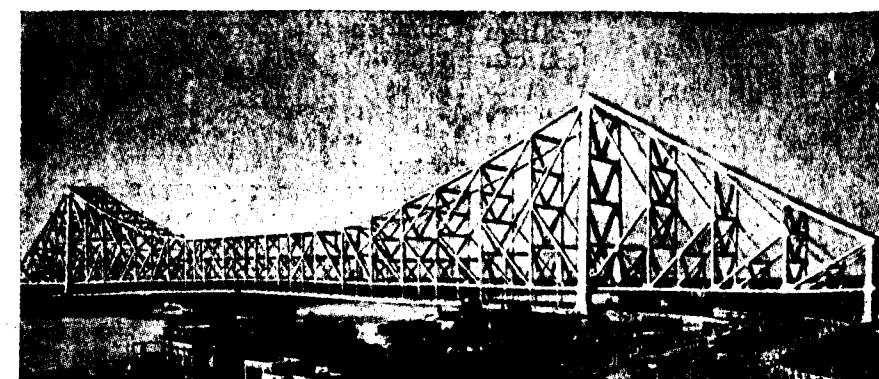
- (1) Due to its sealing efficiency it is an excellent primer both for timber and steel. One coat of it is sufficient to obliterate the underlying surface whatever its colour. Oil stains and tar surfaces of a type that quickly bleed through other paints can be successfully covered by it.
- (2) This paint has a very high covering capacity. Coverage varies with the consistency of the paint, the method of application and the type of surface painted, but generally speaking a gallon of it will cover about 700 sq. feet of smooth metal when applied with a brush, and about 600 sq. feet when sprayed. On some steel structures like bridges coverages of 900 sq. feet per gallon have been obtained in India.

(3) Its “leafing” property provides high reflectivity to light and heat and low emissivity. As a finishing coat it increases the visibility of objects at night like signposts, lamps, railway signalling equipment, bridges, fencings, gate posts, etc. This property is also invaluable for painting the interior of workshops and store rooms which lead to more comfortable working conditions. Because it reflects heat it is widely used for painting factory roofs, railway carriages, oil and paint installations in order to provide a comparatively cool interior. Its low emissivity reduces the amount of heat radiated from the painted surface, and this property is leading to its ever-increasing use for painting steam pipes, furnaces and boiler room equipment. The resistance of aluminium to sulphur compounds enables it to retain its lustre under conditions where others darken rapidly, while its smooth finish affords the minimum key for grime.

(4) Its price compares very favourably with other paints, it weighs less than half that of lead-base paints which is a very important consideration when painting large structures, it is non-toxic and can be easily applied either by brushing, spraying or roller coating.

The use of these paints for decorative purposes is limited at present as they are only available in one colour—the natural one. It is true the aluminium paints can be dyed but the processes are expensive and the unique property, viz “leafing” is lost. It may be that in years to come this problem will also be solved.

As a result of the above outstanding advantages, aluminium paint's popularity has been rapidly increasing, and with the growing industrialization envisaged in the National Plans, the demand for this paint should register a spectacular expansion.



Howrah Bridge is protected from corrosion by Aluminium Paint.

India's Foreign Trade

THE important feature of the changing pattern of India's foreign trade, as evidenced unmistakably in three successive years now, is a progressive increase in total trade, reflected equally in exports and imports and accompanied by a steady decrease in the adverse balance. It should undoubtedly prove a movement toward greater strength and stability, if only the up-trend is maintained by promptly pressing into service a viable strategy for export promotion and import regulation on a selective basis. It will be idle to believe that, flowing as it does from the planned expansion of the economy, foreign trade will automatically or continually adjust itself to produce a favourable balance.

During 1955, exports were valued at Rs 604 crores as against Rs 563 crores during 1954. To a smaller extent, imports showed a rise from Rs 616 crores to Rs 644 crores in the corresponding period. The country's total trade has thus risen from Rs 1,179 crores in 1954 to Rs 1,248 crores in 1955, representing a growth of Rs 69 crores. Though the adverse balance still continues, it is less at Rs 40 crores compared to Rs 53 crores in 1954. The adjoining table shows the part played by trade in merchandise in this development.

It is not difficult to see that the main contributory factor for the change from the appalling trade deficits of 1951-52 has been higher domestic production. The imports of raw materials and unmanufactured goods have shrunk from Rs 253 crores in 1952 to Rs 158 crores in 1955. Presently, a like reduction is taking place in the export of raw produce which is being pre-empted to a greater measure by internal demand generated by the tempo of industrial development.

There will also be considerable difficulty in enhancing the level of exports of manufactures and semi-manufactures owing to the enlarged home demand consequent upon the bid for higher living standards. Thus, whatever be the success with which the import bill was pruned and the balance of trade made more favourable, there still linger several valid doubts regarding the prospects of maintaining and increasing the level of exports. The dependence on a limited number of markets, as in the case of tea, wild fluctuations in export prices, as in the case of pepper, stiff foreign competition, as facing cotton and jute exports, are serious factors to be reckoned with.

The export figures may now be briefly recounted and analysed in greater detail. Food exports have risen sharply from next to nothing in 1952-53 to over Rs 2 crores in 1954-55, though this is an insigni-

ficant figure when compared to the earlier import bill in food grains. Tea exports were more by about Rs 45 crores at the end of 1954-55, than at the year beginning. Tobacco and spices have registered an appreciable fall during that year while sugar shows a smart rise from Rs 11 lakhs to Rs 22 lakhs. But large scale sugar exports do not seem to be a practical possibility in the near future, on account of prices above the world level. Hides and Skins have fetched more through better prices.

Exports in coal showed a disturbing tendency to slacken due to poor demand from Japan and Korea. Metallic ores tell the same story. Exports of manufactures and semi-manufactures have, on the whole, fared not badly, but to say that they show a steady improvement might be an overstatement. Fresh ground covered in export of cotton manufactures is less than proportionate to the rise in their production; in fact, exports have decreased during 1954-55. Jute has picked up after a serious fall from Rs 113 crores in 1953-54 to Rs 123 crores in the next year.

In sum, the prospect of making India's traditional exports yield more foreign exchange is not particularly bright. It is natural and necessary therefore to look for new lines of export. But such an endeavour is fraught with difficult hurdles. Manufactures of metal, rubber, and leather, electrical goods, light engineering products, etc., do have a market but in such markets as India has already entered, the scope is limited. The Middle East and Africa hold out great promise but the relatively inexperienced Indian exporters, faced with inadequate institutional sources of credit facilities and high shipping freight charges cannot really be expected to turn the scales against long-established western traders. Comparatively, South East Asia appears more inviting. If Indian industry can quickly gear itself up, a market can be built up in this region for telephones, bicycles, radio-sets, electrical equipment, etc.

Trade with Communist Countries is frequently mentioned as having opened up a new commercial horizon. But it is to be remembered, that these countries, with their integrated economies are economically less anxious than the developing countries, to promote foreign trade. Indeed, except for isolated transactions and special deals for surplus commodities, the record is so lean that it seems too early to harbour unqualified hope in this respect. Against the spectacular percentage rise in the Communist countries' trade with India this might appear pessimistic. But, such trade constitutes still only less than 2 per cent of the total

trade of this country. However, the growth in this direction along normal trade channels is devoutly to be wished for.

On the import side, there is currently the strong tendency against food grains, raw cotton, mineral oils, staple fibre, etc. But more marked is the demand for capital goods which, if anything, is only likely to increase during the Second Plan-period. This should be a direct conclusion, even if it be not possible to work out, precisely, the correlation between the input of capital under the Plan and the demand for capital goods generated by it. As industrial activity quickens and employment is sought to be provided on a large scale in rural areas, the requirements not only of machinery, but also of raw material, will increase; and this means a possible continuation, if not enlargement, of various imports particularly of the latter variety.

No change has come about in the

traditional position of the United Kingdom and the United States as India's most important suppliers and buyers. Indeed, India and the UK continue to be each other's best customers. Though the share of the UK and the USA fell slightly on the export side, during 1955, it stood higher on the import side. The latest reports show that imports from West Germany, Japan, Kenya, France, Iran and Pakistan were larger while those from Italy, Egypt, Saudi Arabia and Singapore fell slightly. Japan, Canada, Australia, Indonesia, China and the Netherlands have bought more from India than in 1954. Trade with Communist countries, though relatively small, show an up-trend.

While some consolation might be derived from the fact that more countries participated in India's foreign trade during the last year than perhaps ever before, the extent to which diversification in respect of commodities has been achieved appears to be negligible.



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TABLE SHOWING IMPORTS AND EXPORTS OF MERCHANDISE SUMMARY.

Imports.		(In Crores of Rupees)				Class I			
	1955.	1954.	1953.	1952.		1952-53	1953-54	1954-55	
						Rs.	Rs.	Rs.	
Class I:									
Food, drink, etc.	75.30	104.00	175.65	202.04	Fruits and Vegetables	16.55,03,477	13.85,12,529	13.01,61,960	
Class II:					Grain, Pulse and Flour	8,240	5,90,890	2,19,54,456	
Raw materials, produce, etc.	157.56	190.15	179.16	253.04	Tobacco	13,85,24,387	12,06,50,627	11,07,45,937	
Class III:					Tea	101,62,10,713	101,62,10,713	146,53,76,569	
Manufactures	382.07	297.60	276.37	339.71	Spices	20,84,05,736	16,87,04,298	11,30,70,148	
Class IV and V	2.69	3.40	4.30	5.35	Sugar	4,39,58,473	11,41,392	22,63,128	
					Liquors	5,63,464	5,11,116	6,62,096	
Grand Total of Imports	617.62	595.15	696.48	860.14	Provisions and Oilman's Stores	1,62,69,504	1,53,92,540	2,63,18,876	
Exports and Re-exports	588.57	556.80	553.77	701.75	Others	5,77,85,110	6,28,51,963	11,52,76,057	
Trade Deficit	-29.05	-38.35	-71.71	-58.39	Total Class I	143,30,48,524	152,48,70,074	198,60,28,923	
IMPORTS (Value)					Class II				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Grain, Pulse and Flour	155,51,89,027	63,64,90,866	68,00,00,309	Coal	7,38,66,699	4,10,32,750	3,63,04,263		
Fruit and Vegetable	9,30,92,838	9,89,53,962	9,54,75,706	Other Non-Metallic Minings	9,91,36,092	10,14,06,511	9,07,06,314		
Sugar	10,519	2,32,64,379	21,97,98,752	Gums, Resin and Lac	8,09,08,570	7,41,75,105	11,56,65,193		
Tobacco	1,79,99,026	79,46,288	1,17,90,135	Hides and Skins	5,69,31,745	6,09,05,414	7,13,27,745		
Liquor	1,62,27,062	1,53,80,525	1,53,19,096	Metallic Ores, Scrap Iron or Steel for Re-manufacture	37,94,55,489	35,58,63,232	19,05,18,788		
Provisions and Oilman's Stores	5,74,37,474	9,47,44,369	9,43,07,998	Oils, Vegetable, Mineral and Animal	25,13,62,559	6,15,25,475	21,14,54,183		
Others	4,10,32,216	5,67,18,417	4,40,99,635	Paper-making Materials	29,93,454	43,58,232	51,91,376		
Total Class I	178,09,98,162	93,74,98,796	116,08,46,630	Rubber, raw or crude	4,28,286	2,52,086	85,189		
				Seeds	4,71,82,702	2,37,22,116	4,05,46,645		
Oils—Vegetable, Mineral and Animal	81,81,41,322	92,36,10,749	90,00,67,088	Cotton, raw and waste	28,96,36,416	19,27,74,265	20,14,35,182		
Cotton—Raw and Waste	76,67,14,775	52,75,36,941	58,44,73,952	Silk	17,08,430	31,92,846	8,61,05,370		
Wool—raw	4,67,23,794	8,52,41,847	8,10,00,762	Wool	8,41,02,214	9,47,06,131	13,34,00,319		
Others	20,00,71,275	22,97,85,926	156,61,41,796	Others	3,12,06,619				
Total Class II	183,26,51,166	176,61,75,463	187,32,78,255	Total Class II	145,89,19,245	197,21,99,050	118,39,01,507		
IMPORTS (Quantity)					Class III				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Chemicals, Drugs and Medicines	24,95,11,962	25,82,82,211	31,87,89,311	Chemicals, Drugs, Medicine	4,12,50,847	4,36,96,034	4,47,37,294		
Cutlery and Hardware, etc.	14,27,77,898	13,04,04,180	17,71,83,129	Cutting, Hardware, etc.	2,20,04,960	2,45,33,369	2,33,42,475		
Dyes and Colours	10,45,04,336	18,56,64,935	19,08,68,779	Dyes & Colours	97,65,802	68,02,540	64,82,568		
Electrical Goods and Apparatus	15,29,27,446	13,45,67,696	11,32,39,320	Electrical goods and Apparatus	25,69,825	33,92,560	36,97,516		
Glassware and Earthenware	1,72,54,747	1,71,53,420	83,78,12,862	Glassware and Earthenware	26,96,149	23,91,647	22,74,143		
Machinery of all kinds	89,98,70,606	87,66,93,231	83,26,04,391	Hides, Skins (tanned or dressed) and Leather	20,35,99,798	25,35,65,378	10,03,47,789		
Iron and Steel	23,86,13,753	24,23,57,496	30,14,88,212	Machinery	76,75,480	69,74,381	51,70,121		
Nonferrous Metals	19,38,15,279	14,54,86,272	26,13,61,056	Iron and Steel	1,46,30,747	97,63,597	78,03,987		
Paper, Pasteboard and Stationery	12,84,76,713	12,77,37,379	13,67,45,141	Other Metals	2,66,53,655	1,81,10,679	1,25,16,712		
Rubber Manufactures	53,60,272	48,06,749	53,36,601	Paper, Pasteboard and Stationery	82,38,589	82,14,446	88,87,543		
Vehicles (excluding locomotives, etc.)	33,42,28,702	26,08,17,842	33,80,68,456	Rubber Manufactures	1,42,24,870	1,72,10,832	1,22,02,773		
Cotton Yarns and Manufactures	4,98,69,616	3,22,75,012	2,21,84,931	Vehicles (excl. locomotives)	16,58,307	20,77,995	22,85,086		
Silk Yarns and Manufactures	8,03,702	12,91,554	21,78,706	Cotton, Yarn and Manufactures	69,59,29,782	72,03,88,394	66,21,21,248		
Woolen Yarns and Manufactures	2,70,80,782	3,06,42,163	2,95,00,906	Jute	128,91,85,822	113,76,56,044	123,96,99,597		
Others	24,76,19,764	27,65,05,700	29,15,55,956	Silk	20,65,012	23,12,156	19,91,691		
Total Class III	279,24,15,578	274,77,46,840	304,48,72,054	Woolen	3,27,88,208	4,36,07,082	4,36,89,978		
Total Class IV and VI	4,30,53,158	3,97,93,857	2,69,54,899	Other Yarns	3,16,49,641	3,91,95,608	3,81,28,970		
GRAND TOTAL	644,91,08,064	549,12,13,956	610,59,61,802	Others	19,41,19,853	39,99,51,333	20,12,19,713		
					Total Class III	260,06,91,405	283,98,24,069	250,64,88,991	
IMPORTS (Quantity)					Class IV				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Living Animals	1,721	21,938	8,178	Living Animals—Class IV	50,45,434	49,50,450	53,23,190		
Books, etc.	35,727	34,178	27,166	Postal Articles	3,72,45,743	4,16,64,678	4,18,95,621		
Engineering and Building Materials (excl. iron, steel and wood)	1,83,359	93,990	2,01,266	Grand Total	553,49,50,351	518,35,08,330	572,30,37,232		
Chemicals, etc. (cwts.)	32,10,175	18,56,641	35,91,347						
Dyes (from Coal tar) (lbs.)	72,11,278	1,56,86,416	1,52,83,262						
Electric Lamps and Parts, bulbs, etc. (no)	3,40,68,033	2,70,49,780	2,45,83,142						
Cine Films (in feet)	26,05,88,350	21,83,18,782	21,27,59,462						
Wireless Apparatus	19,266	13,042	4,511						
Wireless Valves	5,67,825	4,27,506	6,35,504						
Oil Engines	17,715	1,163	1,470						
Sewing Machines	20,484	14,395	14,977						
Typewriters	17,792	11,336	9,239						
Aluminium (not ore) (cwts.)	1,21,386	1,09,103	2,47,609						
Copper (not ore) (cwts.)	4,11,818	1,70,641	5,39,561						
Iron and Steel (tons)	1,56,451	2,19,554	3,66,982						
Lead (not ore) (cwts.)	67,008	1,48,457	2,02,526						
Zinc (not ore) (cwts.)	4,61,149	5,95,567	8,99,714						
Tin (not ore) (cwts.)	40,572	62,948	78,701						
Paints and Colours (cwts.)	1,11,862	1,84,468	1,98,127						
Paper, Pasteboard (cwts.)	21,31,841	25,40,759	27,12,134						
Cotton Yarn (lbs.)	27,97,640	23,64,214	30,42,117						
Cotton Piecegoods (yds.)	45,51,278	51,92,541	32,50,112						
Thread (yds.)	13,80,718	7,66,930	3,48,945						
Yarn and Knitting Wool (lbs.)	10,45,236	21,89,002	36,80,446						
Cycles	1,97,565	90,363	89,414						
Motor Cars	5,164	5,816	10,546						
Motor Omnibuses	3,637	4,189	4,516						
Fruits, dried, salted, etc. (tons)	1,23,347	1,60,375	1,69,497						
Grain, Pulse and Flour (tons)	39,53,257	14,34,471	12,32,878						
Liquors (gals.)	15,91,751	18,43,501	17,24,451						
Tea (lbs.)	11,39,608	10,55,106	30,199						
Tobacco (lbs.)	55,50,192	24,55,786	32,37,501						
Gums and Resins (cwts.)	1,23,878	1,24,779	1,38,837						
Hides and Skins (cwts.)	1,02,865	1,78,125	1,64,959						
Manures (tons)	64,221	1,33,814	1,33,155						
Mineral Oils (gals.)	26,77,09,735	29,91,37,617	31,02,62,288						
Fuel Oil (gals.)	31,69,67,676	36,19,91,529	34,60,06,583						
Lubricating Oil (gals.)	6,10,76,476	3,79,69,951	5,63,77,815						
Petroleum, etc.	24,82,61,676	26,96,74,238	21,49,32,496						
Rubber (lbs.)	75,73,616	14,90,400	1,05,04,356						
Cotton (tons)	1,36,397	1,16,290	1,20,853						
Wool (lbs.)	24,06,274	46,90,258	28,03,473						
EXPORTS (Quantity)					Class I				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Coal (cwts.)	42,555	55,580	1,88,065						
Fruits and Vegetables (cwts.)	8,41,940	7,61,178	8,51,617						
Spices (cwts.)	5,21,735	5,62,384	5,63,801						
Tea (lbs.)	42,31,20,789	46,71,35,680	45,54,28,655						
Tobacco (lbs.)	8,11,93,656	7,20,96,652	7,63,56,609						
EXPORTS (Value)					Class II				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Coal and Coke (tons)	21,29,728	11,83,407	11,85,335						
Gums and Resins (cwts.)	91,316	1,16,581	1,23,792						
Hides and Skins, etc. (cwts.)	4,67,370	5,41,415	3,92,850						
Lac (cwts.)	6,69,987	5,36,827	5,36,007						
Manures (tons)	7,170	15,888	17,760						
Lead (Cwts.)	2,758	9,377	9,447						
Manganese Ore (tons)	14,39,678	15,07,949	9,44,877						
Total Metals, Ores and Minerals (tons)	30,45,262	34,24,233	23,54,436						
Oils (vegetable, essential and non-essential) (gals.)	3,43,26,786	78,83,928	3,74,00,218						
Raw Rubber (lbs.)	2,08,402	1,30,692	47,635						
Raw Cotton (tons)	70,877	3,94,946	29,887						
Raw Wool (lbs.)	3,78,66,018	2,06,94,052	3,08,06,184						
EXPORTS (Value)					Class III				
	1952-53	1953-54	1954-55		1952-53	1953-54	1954-55		
	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.		
Iron and Steel (tons)	4,94,961	2,45,864	1,23,446						
Cotton, Twist and Yarn (lbs.)	1,78,69,056	2,23,31,954	12,70,531						
Manufactures (yds.)	23,31,9,								

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The State Budgets

West Bengal

THE influx of refugees has created a problem, which is feelingly described as "tremendous, heart-rending and looks like a never-ending one." This problem has cast a permanent shadow over the economic life of the State and of India in general. Hitherto, West Bengal has spent by way of grants and loans to the refugees over Rs 67 crores, a sum which normally could have been turned to much-needed development expenditure.

It is sad to contemplate that no constructive solution has been forthcoming from any side. The Union Rehabilitation Minister has suggested the despairing possibility of a situation in which India may be called upon to accommodate the entire Hindu population of East Bengal. If this were to happen, conditions in Eastern India already not very satisfactory would become intolerable. It is a responsibility which belongs to the Union Government.

For West Bengal, deficit budget seems to have become the rule. It is some relief that the revised estimates for 1955-56 show a smaller deficit than the original estimates. In the revised estimates, revenue has gone up to Rs 50.69 crores from Rs 45.76 crores in the budget; the increase in expenditure has been less, with the result that the budgeted deficit of Rs 17.12 crores would be curtailed to Rs 15.09 crores. In the budget estimates for 1956-57, revenue is estimated at Rs 49.36 crores and expenditure at Rs 63.55 crores, leaving an adverse gap of Rs 14.19 crores. There is thus a small decrease in the annual deficit.

Provision for capital expenditure for 1956-57 is Rs 25.62 crores against Rs 14.42 crores in the revised estimate for the current year. Budgeted capital receipts amount to Rs 22.92 crores, leaving a deficit of Rs 2.70 crores. The Government have thus to face an overall deficit of Rs 16.89 crores. Outside the DVC, West Bengal's Second Plan is estimated to involve an expenditure of Rs 138 crores, out of which the allocation for the budget year is Rs 28.6 crores. The expenditure on DVC will take another Rs 11.67 crores, to be wholly met by a Central loan.

Actually, the size of the Second Plan for West Bengal is much bigger than is indicated by the amounts of State expenditure. Most of the heavy industries, which carry a large outlay, fall in the Central sector. It is for this reason that the total outlay in the State plan on industry and mining falls short of the all-India percentage. The outlay on irrigation and power, on agriculture and community development and on social services in the State plan is higher in varying measures than the respective all-India percentage. The fact that the State is already in a comparatively advanced state of industrial development has in no way

proved a handicap; compensating considerations have been given sufficient weight.

Outlay on the Second Plan for the year is to be financed by Central assistance to the tune of Rs 18 crores and a State loan of Rs 5 crores. For the rest, the Government intend to raise additional taxation. The Chief Minister has disclosed proposals for an entry tax on teas, or extending the coverage of sales tax and for irrigation rates. There is no assurance that he will not lay his hands on other sources. On the contrary, he hopes that additional taxation will bring in Rs 12.1 crores annually by the end of the Second Plan Period. This means that there will be a relentless search for new sources. In the meanwhile, the yields of existing taxes are expected to go up.

The new levies betray the general inadequacy of scope in the matter of adding to current revenues, through taxation. Commodity taxation in India is largely in a chaotic state. Hitherto co-ordination has not been seriously attempted and whatever attempts were made have turned futile. West Bengal also cannot boast of maximum yield from the sales tax. Extension of this tax must proceed apace with its vigorous enforcement. If the Union Government succeed in securing from the State governments the acceptance of uniform rates all-India for the sale tax, the effect on West Bengal's revenues may not be quite favourable. But that depends on where the rates are pegged.

One heartening feature is that the State-owned industries and services disclose a better showing. For the first time, state transport is paying its way. The State's total debt to the Union Government is expected to go up from Rs 136.65

crores at the end of 1955-56 to Rs 162.86 crores at the end of the next financial year. There is an internal debt of Rs 14.94 crores. These two amounts represent the long term liability of the State. In the five years, the internal debt is expected to increase by at least Re 5 crores a year.

The budget will ensure a higher pension for Government servants earning up to Rs 200, through a merger of dearness allowance with pay. Medical facilities to lower grades of Government staff are also to be stepped up.

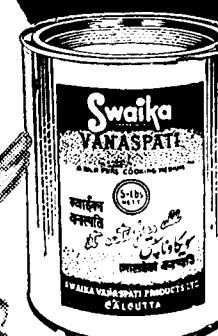
Expenditure is scheduled to be increased on education, by Rs 115 lakhs, on medical and public health by Rs 106 lakhs, on planning and development by Rs 130 lakhs, on veterinary aid by Rs 48 lakhs and on co-operation by Rs 37 lakhs and also on welfare programmes. Ninety-nine new NES Blocks and 25 Intensive Development Blocks at a cost of Rs 160.25 lakhs will be opened in the coming year. New irrigation schemes will cost Rs 393.5 lakhs and another Rs 519.9 lakhs goes to schemes already on hand.

If national income is taken as an index to economic prosperity, UP has fared well. National income in 1954-55 for the State was Rs 1,824 crores as against Rs 1,509 crores. The per capita income rose correspondingly to Rs 277 from Rs 249. The sole contributing factor is claimed to be the increased quantum of production. This prosperity has been shared by the working classes and the urban areas, though the cultivators' position was unfavourably affected by price variations in the last two years.

UP is confronted, like others, with the question, where is the extra money for the implementation of the Second Plan to come from? The State has to provide internally a total of Rs 42 crores for revenue expenditure and a net sum of Rs 45 crores for capital expenditure in the next five year period. The success which attended public loans floated by the State shows that additional taxation need not be the only way of meeting this challenge.

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Bombay

Bombay's budget with a small surplus of Rs 23.43 lakhs should have come as an agreeable surprise to those who had doubtful faith in the State's financial policy, the guiding principle of which has, perhaps, been the curtailment of non-development expenditure to a minimum. No new levy is proposed. Other States can take a lesson from Bombay's careful and efficient husbandry.

The budget places revenue receipts at Rs 78.10 crores and revenue expenditure at Rs 77.86 crores. Both revenue and expenditure are at a lower level, the former only to a meagre extent, than the revised estimates for the current year.

For the year the revised revenue estimate is less by about Rs 39 lakhs at Rs 79.72 crores than the original revenue estimate of Rs 8.10 crores. Correspondingly, expenditure also stands reduced by Rs 99 lakhs from Rs 79.88 crores to Rs 78.89 crores. But Dr Mehta hastens to add that this apparent reduction is due to the exclusion of some Rs 3 crores from both receipts and disbursement side, on account of the absence of provision for transfer from the fund for development schemes. Actually, the revised estimates show an increase of Rs 2.61 crores in receipts and of Rs 2.01 crores in disbursements. It can be seen that toward this increase in revenue, better realisation from sales tax, recovery of arrears, less provision for refunds and larger receipts from electricity duty and sugarcane cess have contributed.

On the basis of the revised estimates the capital expenditure of the order of Rs 17.6 crores breaks up mainly as follows:—major irrigation schemes Rs 2.49 crores; capital outlay on electricity schemes Rs 2.2 crores; civil works Rs 87 lakhs; housing schemes for displaced persons Rs 20 lakhs. To the extent of Rs 8.99 crores, this will be met by a loan assistance from the Centre and the balance from borrowing in the open market.

Incidentally, the record over the past five years of open market borrowing in mobilising resources is particularly encouraging. The First Plan target was Rs 25 crores and this has been exceeded by Rs 3.92 crores. The annual level of borrowing has increased from Rs 3.72 crores in 1951-52 to Rs 10 crores in 1955-56. The Second Plan envisages a target of net borrowing twice as large as that of the First Plan. This would mean that the centre of gravity of the campaign has to shift from large cities, which alone were hitherto drawn upon.

It is interesting to note the significant rise in the proportion of capital expenditure to total outlay from 40 per cent in the First Plan to 76 per cent in the Second. In absolute terms, capital expenditure has increased from Rs 8.13 crores in 1951-52 to Rs 28.77 crores in

1955-56. There need be little doubt whether the administrative organisation will be equal to the task of fulfilling the even higher level of spending envisaged in the future.

As for the budget for 1956-57, there is an apparent reduction of Rs 1.03 crores on the expenditure side as compared with the revised estimate of the past year. But if allowance is made for a change in classification and accounting procedure, there is actually an increase of Rs 4.29 crores under this head. Excluding schemes for State Trading, the budget provides a capital expenditure to the tune of Rs 26.74 crores. This apart, another Rs 3.55 crores comes from the State Road Fund to develop the roadways. The capital expenditure is proposed to be met from (1) a loan of Rs 9.79 crores from the Centre (2) withdrawal of Rs 2 crores from the fund for development schemes (3) Rs 39 lakhs from the Milk Fund (4) open market borrowing (5) the share from the small-savings scheme and (6) the State's own balances.

Highlighting the budget proposals is a pioneering scheme for the establishment of industrial estates, at an estimated cost of Rs 85.75 lakhs, for the plan-period.

Madras

In the 1956-57 Budget for Madras, there is a deficit of Rs 311 lakhs at the existing level of taxation. Additional taxation involving four items is expected to wipe out nearly half this amount, the remaining, larger half, estimated to amount Rs 166 lakhs, is left uncovered. This is about the same level of deficit budgeted for the current year. The current year's deficit has, however, gone up from Rs 166 lakhs to Rs 221 lakhs in the revised estimate.

Against Rs 4,792 lakhs of revenue budgeted for 1955-56, the revised estimate shows Rs 5,268 lakhs and against the budgeted expenditure of Rs 4,859 lakhs the revised estimate shows Rs 5,489 lakhs. The major deviations are an improvement in revenue under stamps of Rs 71 lakhs, explained

as the result of more suits being filed in Courts, after the lifting of the moratorium, Rs 60 lakhs increase under forests owing to higher price of sandalwood and Rs 50 lakhs increase under agricultural income tax. The principal increase in expenditure is Rs 150 lakhs on the outlay on cyclone relief and expansion and development of social services.

The budget estimate for 1956-57 shows both revenue and expenditure on a substantially higher level; revenue is estimated at Rs 6,078 lakhs, and expenditure at Rs 6,244 lakhs. Here, there is an intrusion of a revised procedure in accounting which renders the real increase largely fictitious. Hitherto, land cess and sur-charge on stamp duties payable to local bodies were deducted from the receipts under the respective heads. As per instructions from the Auditor General, the entire receipts from these heads are now being shown in the budget as revenue and there is a corresponding entry on the expenditure side covering the disbursements to the local bodies.

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with the result that figures on both sides are inflated.

The real increase in revenue consists, of Rs 40 lakhs from electricity schemes due to enlargement of the grid; Rs 50 lakhs from agricultural income tax and Rs 110 lakhs in Central Grants.

There is another change of procedure which has interfered with the dimensions of the revenue budget. Again, according to the instructions of the Auditor General, certain items of expenditure hitherto debited to the revenue account are now included in the capital account. The resulting relief to the revenue account in the budget is estimated at about Rs 350 lakhs. Under the old procedure the revenue deficit, with this amount thrown in, would have been about Rs 6½ crores. New taxes proposed include enhancement of the tax on diesel oil from As 1½ to As 4 a gallon to yield an additional Rs 30 lakhs per annum; an additional sales tax of one anna in the rupee on sugar at any suitable point to yield Rs 40 lakhs; 30 per cent increase in the rate for electricity supply in hydro-electric areas for bulk consumers and licencees to yield about Rs 45 lakhs and assessment of inam lands on ryotwari basis in lieu of quit rent to yield Rs 30 lakhs. The one tax relief proposed is exemption from sales tax of sale of palm gur at all points.

The transfer to the capital account of nearly 3½ crores of outlay hitherto met from current revenue leaves the liability on the revenue account more pressing; and the residual deficit of Rs 311 lakhs is too much to be left as it is. In respect of the increase in rate on electric energy, the railway administration and new industrial concerns, the latter for the first three years after the commencement of production, are offered exemption.

Against these enhancements and new levies, there is a solitary item of tax relief. Palm Gur is the beneficiary in this case. Sales tax on palm gur is to be lifted at all points. The Government are obviously interested in encouraging the consumption of palm gur at least as a matter of duty which is owed to the ex-toddy tappers.

Capital expenditure for the year outside the revenue account is estimated to be of the order of Rs 27.61 lakhs against Rs 20.56 lakhs in the revised estimate for the current year. This is made up of Rs 13.07 lakhs on Electricity, Rs 5.93 lakhs on Irrigation, Rs 4.15 lakhs on Roads and Buildings, Rs 1.91 lakhs on Industrial Development. Rs 1.33 lakhs on Public Health and Rs 1.22 lakhs on other items. Of the expenditure on buildings, a sum of Rs 85 lakhs is for the construction of quarters for police subordinates in the City and mofussil. The Government have drawn up a housing programme for policemen costing about Rs 5 crores to be implemented during the Plan period, "so as to ensure for the personnel of this Security Service fair living condi-

tions in all the districts." Another significant item in the Capital head is the provision of Rs 67 lakhs for the purchase of about 150 new motor vehicles for augmenting the City Transport.

Loans from the Centre and from the open market are expected to bring in Rs 34½ crores, which together with the opening cash balance and the net credit within the year under deposit heads, both amounting Rs 346 lakhs, would balance the capital expenditure, the net disbursements under loans and advances, repayment of debts to the Government of India and the public, and the revenue deficit.

Madhya Pradesh

The Madhya Pradesh budget for the year shows a much smaller gap than that of either Bihar or West Bengal. The revenue account at Rs 34.75 crores, leaving a shortfall of Rs 3.82 crores.

The policy of additional taxation which is bound to be put through on an appreciable scale during the

Second Plan-period, takes a cautious tone. The measures to augment revenue includes standardisation of land revenue assessment, betterment levy and increase in water-rate, introduction of multipoint-sales-tax system (instead of the single-point levy now in existence), levy of electricity duty on energy consumed for industrial purposes, increase in rates of motor vehicles tax and tax on passengers. These would strengthen the exchequer by about Rs 1.64 crores during 1956-57. A heavier fiscal burden may be expected to be imposed in the years immediately to come as the Government intend to raise some Rs 12 crores by way of additional taxation during the next plan-period.

The Revenue Minister gave no hint as to the shape or nature of fresh taxes which would make possible the realisation of this important plan-target. Apparently, the Taxation Enquiry Commission's recommendations are receiving serious thought at the hands of State Governments, which between them, have to raise Rs 225 crores during the next five years through

new taxes, to fulfil the Second Plan's financial requirements.

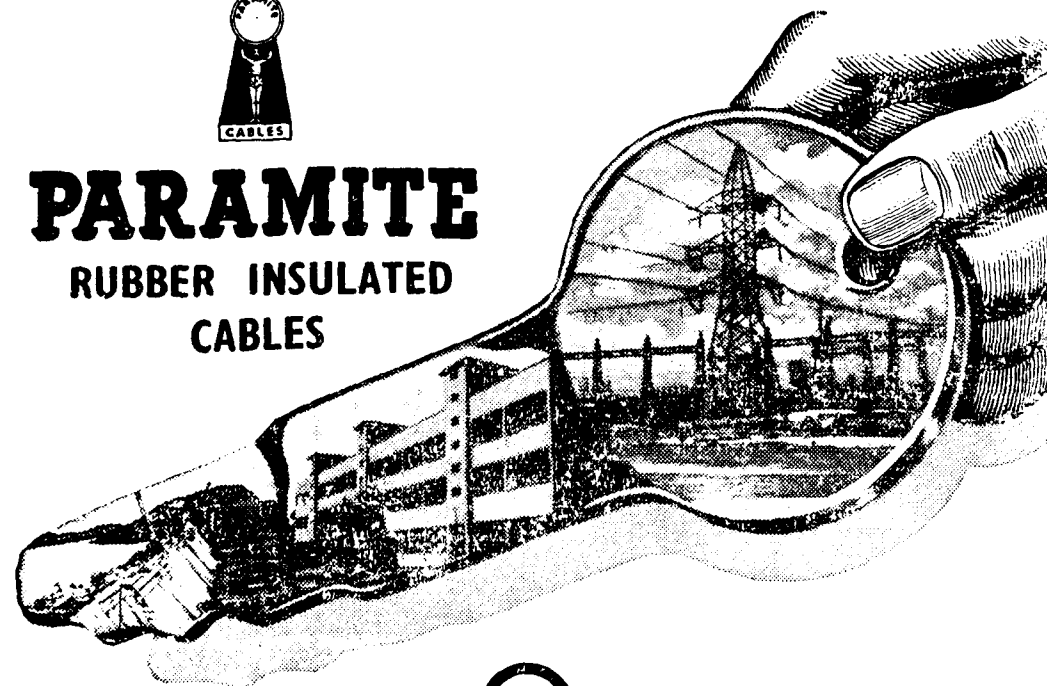
The State's Second Plan, to the extent the Planning Commission have approved of it, entails a financial outlay of Rs 123.3 crores. The emphasis would be on development of heavy industries, power and transport. The most important industrial projects are the steel plant at Bhilai and the coal fields at Korsa.

Significant among Government's new proposals is the construction of 2,000 residential quarters for industrial workers in Nagpur, and a smaller number each at seven other centres. Free education will be provided to all children in the State in the age groups 6-14. Primary schools will be more by 1000 in another year and their teachers will be upgraded from a monthly pay of Rs 30 to Rs 40. The policy of prohibition will be carried through in stages. Now that the insistence on uniformity in this regard for the different States is relaxed the programme can be so phased as to minimise its impact on the State's coffers.

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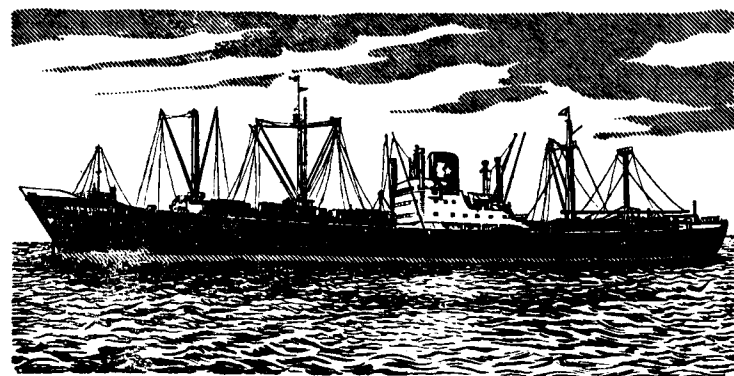
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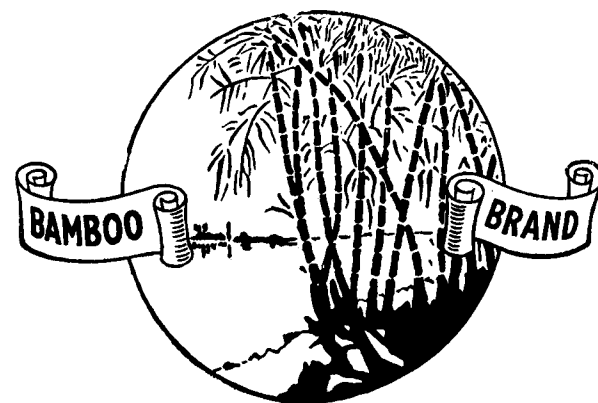
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Madhya Bharat

The Madhya Bharat budget for 1956-57 showing a small surplus of Rs 2 lakhs contains nothing spectacular. The estimate of receipts at Rs 19.07 crores, includes Rs 55 lakhs of 'additional revenue'. There is reason to infer that a beginning has been made in the implementation of Taxation Enquiry Commission's recommendations. Expenditure on revenue account is placed at Rs 19.05 crores.

There are several welcome features in the new budget. A sum of Rs 1.5 crores is provided for revision of the pay-scales of Government servants. Bus passenger fares in the northern region are reduced and brought to a uniform level. The policy of gradual introduction of prohibition will take another major step during the budget year.

The revised estimates for the current year show that both expenditure and receipts are at a lower level than originally estimated. Also a deficit of Rs 18 lakhs gets converted into a surplus of Rs 12 lakhs in the revised budget. The estimated capital expenditure of Rs 8.25 crores also suffers a shrinkage to Rs 7.40 crores. The capital outlay in the budget year is Rs 10.18 crores, but this is inclusive of Rs 4.41 crores for zamindari compensation.

Mysore

The estimates of Revenue and Expenditure for 1956-57 have been placed at Rs 2,577.53 lakhs and Rs 2,966.59 lakhs respectively with a deficit on Revenue Account of Rs 389.06 lakhs. Compared to the current year's Budget estimates, Revenue and Expenditure are higher by Rs 281.37 lakhs and Rs 260.56 lakhs respectively. They are also higher by Rs 178.08 lakhs and Rs 298.33 lakhs respectively than the revised estimates of the current year.

The Budget provides for a net capital expenditure of Rs 1,450.97 lakhs, a net disbursement under Loans and Advances of Rs 266.62 lakhs outside the revenue account and Rs 120.15 lakhs for the repayment of Central Government loans falling due next year. Adding to this the anticipated deficit on Revenue Account of Rs 389.06 lakhs the total of the State's commitments during 1956-57 will be of the order of Rs 2,226.80 lakhs. Against these the Budget assumes Public borrowings Rs 500 lakhs, Unfunded debt Rs 76.07 lakhs Central assistance Rs 1,200 lakhs and net income from deposits, surpluses remittances etc. Rs 325.17 lakhs making a total of Rs 2,101.24 lakhs and leaving a shortfall of Rs 125.56 lakhs which is proposed to be met from the opening cash balance.

It is, however, to be noted that the above calculation is based on the assumption that Central assistance to the tune of Rs 12 crores will be available whereas a firm indication of assistance has been received so far to the extent of about Rs 3 crores only. Mr Hanumanthaiya has pointed out that in the event of the failure of the State Government to prevail upon the Central Government to sanction the assistance assumed in full, there

will have to be a proportionate scaling down of the outlay on development schemes. In other words, the ability of the State to implement schemes under the Second Five Year Plan depends directly on the quantum of funds made available by the Central Government. The extent of the dependence of the State on Central assistance will become clear from the fact that the Chief Minister does not expect more than a crore of rupees from out of the state's resources throughout the entire period of the Second Five Year Plan.

That the tempo of developmental expenditure has considerably increased while revenue resources have comparatively remained inelastic will be evident from the following. The net revenue of the State which was about Rs 15 crores in 1951-52 now stands at Rs 18 crores. Public expenditure which stood at Rs 14.28 crores in 1952-53 has now increased to Rs 20.77 crores. The maximum increase has taken place under development expenditure.

Travancore-Cochin

The revenue for the next year is estimated at Rs 1889.90 lakhs and the expenditure at Rs 2198.38 lakhs, leaving a deficit of Rs 308.48 lakhs. The revenue estimates do not take credit for any new measures of taxation. With the sum of Rs 940.23 lakhs allotted under Capital, the total expenditure contemplated in the next year amounts to Rs 3138.61 lakhs, which is the highest ever budgeted for. The overall deficit is estimated at Rs 1000 lakhs.

The revised estimates for 1955-56 and the accounts for 1954-55 make interesting reading. As against a deficit of Rs 58.38 lakhs provided for in the estimates for 1954-55 the actual result was a revenue surplus of Rs 483.10 lakhs on account of the lifting of food controls during the year. Better collections have helped swell revenue by Rs 87.63 lakhs to Rs 1805.99 as against an estimated revenue of Rs 1718.36 lakhs in 1955-56. On the expenditure side, the Revised Estimate is expected to fall short of the budget estimates by about Rs 208.97 lakhs. The outlay

on Capital schemes is expected to stand at Rs 425.95 lakhs against Rs 621.55 lakhs originally budgeted for.

Among the achievements during the First Five-Year Plan, in the State, pride of place is to be given to development programmes of the State's Department of Electricity. The installed capacity has been increased from 28,500 KW to 109,500 KW. An additional installed capacity of 137,000 KW is fixed as the physical target of the Second Five-Year Plan period. It is expected that when these schemes are implemented fully the per capita consumption which was 14 units in 1952 would rise to 100 units in 1960-61. During the First Plan period utmost priority has been given to works relating to rural electrification. Against the target of 50,000, 46,000 consumers have already been connected up and it is expected the target will be exceeded before the close of the current financial year.

The rapid expansion of the installed capacity of electricity is a significant gain in the context of

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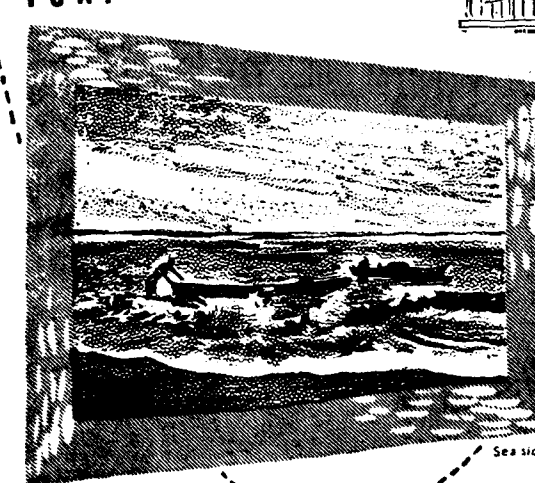
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the special emphasis laid on the development of cottage industries under the Second Plan. As it is now generally accepted that the supply of cheap power is one of the essential prerequisites to the expeditious setting up of small scale industries in rural areas, it may be confidently expected that its rapid progress in power development will stand Travancore-Cochin in good stead in coming years.

Punjab

The revised estimate for 1955-56 place revenue receipts and expenditure at Rs 2,808 lakhs and Rs 3,076 lakhs respectively thereby showing a gap of Rs 268 lakhs against the original deficit of Rs 77 lakhs.

The notable feature of the new budget is the remarkably high allocation of Rs 583 lakhs, that goes to education. This means an increase of over 300 per cent from the 1950-1951 level of Rs 187 lakhs and reflects an intensive educational drive in the rural areas.

In regard to capital expenditure, the budgeted outlay of Rs 2,748 lakhs, leaves an uncovered gap of Rs 801 lakhs. But Mr Mohan Lal seems confident that, though likely additional loans from the centre or a floating loan, together with securities of the value of Rs 121 lakhs with the Government, the shortfall would be made good.

The Finance Minister has also proposed a professional tax on non-agricultural incomes above Rs 6,000, for the budget year. The graded scale shows that incomes between Rs 6,001 and Rs 8,000 will be taxed at Rs 120 per annum, those between Rs 8,501 and Rs 13,500 at Rs 150, those between Rs 13,501 and Rs 25,000 at Rs 200 and those above Rs 25,000 at Rs 250 per annum.

Other tax proposals include levy of sales tax at double the rate, that is at Rs 6-4 per cent, on luxury goods. These three taxes, it may be noted leaves the lower economic classes severely alone.

The other tax proposals are increase on passenger tax by 50 per cent, increase on entertainment tax by 25 per cent and also an upward revision, within the ceiling already allowed, of rates of vehicles tax, both in respect of goods vehicles and State carriages.

These six taxes, between them, will bring in some Rs 73 lakhs which will enable the deficit on revenue account of Rs 47 lakhs to be converted into a surplus of Rs 26 lakhs. The revenue expenditure is estimated at Rs 3,075 lakhs and revenue receipts, before the additional taxation, at Rs 3,028 lakhs.

Kashmir

Kashmir's 1956-57 budget evidently stands in a category of its own. In three years, revenue receipts show an increase of over 22 per cent. Instead of a progressive swell in the tax burden, the Government could claim to have divested the fiscal system of some unpopular levies. No new item is proposed for the budget though a slight increase is made on road tolls and stamp duty. The

percentage of tax revenue to gross revenue works out to be only a little over one-fifth. The per capita revenue is perhaps the lowest for all States.

The revenue receipts for 1956-57, at Rs 673.67 lakhs, are a record for the State. In part, this is the effect on the financial resources of the State as a result of the implementation of development schemes. Central aid is also a substantial contributory.

Revenue expenditure at Rs 706.17 lakhs again is an all-time high. The increasing cost of administration is an aspect requiring tighter control. Corruption and red-tape are alleged. Increase in expenditure is, of course, more easily explained by more spending on education, medical schemes, agriculture, animal husbandary, N.E.S., panchayats and rural development, roads and buildings, electricity, irrigation and forests, on all of which solid progress has been registered.

Saurashtra

The Saurashtra budget for 1956-57 shows a deficit of Rs 106 lakhs, the revenue being placed at Rs 14.30 crores and expenditure on revenue account at Rs 15.36 crores. Some attempt has been made to cover the gap by a duty of half an anna per unit of domestically consumed electricity and, in a manner now familiar, an increase on the motor vehicles tax. These two increases will yield an additional income of Rs 7.5 lakhs.

The revised estimates for 1955-56 reveal expenditure at a higher level than in the budget year while revenue is lower at Rs 13.65 crores, leaving a deficit of Rs 2.82 crores. In the current year, there has been a spurt in rate of development expenditure. Corresponding rise in expenditure on administration is less than proportionate and this bespeaks practice of economy.

The Second Plan envisages a gross outlay of Rs 56.4 crores. Past

expenditure in floating loans might have prompted the Finance Minister to decide upon loans amounting to Rs 2 crores to be floated every year during the Second Plan period. In addition, it is proposed to rely on market borrowings to the extent of Rs 2 to Rs 2.5 crores and on small savings to the extent of Rs 1 crore.

Hyderabad

The dependence of Hyderabad's economy on agriculture has been brought out clearly in the State's Budget for 1956-57. Adverse weather conditions coupled with excessive rains had resulted in a marked decline in agriculture production. Land revenue had fallen by Rs 20 lakhs as large suspensions had to be granted in several districts where crops had suffered damage. The State's biggest single item of revenue (excise) also continued to follow a downward trend which began in 1952-53.



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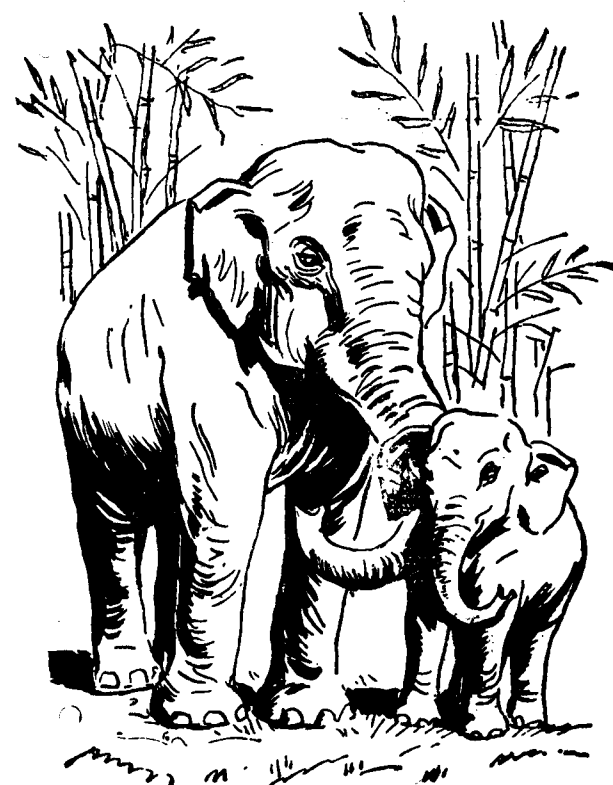
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The anticipated revenue receipts for the year are Rs 26.04 crores and revenue expenditure Rs 30.37 leaving a deficit of Rs 4.3 crores. The budget estimates for 1955-56 anticipated a deficit of Rs 2.21 crores but the deficit increased to Rs 3.21 crores at the end of the year. The anticipated revenue receipts shrunk from Rs 30.62 crores to Rs 24.75 crores, the revenue expenditure from Rs 32.83 crores to Rs 27.96 crores and capital expenses from Rs 12.04 crores to Rs 9.19 crores.

The budget estimates for 1956-57 provide for revenue receipts of Rs 26.01 crores as against the revised estimate of Rs 24.75 crores for 1955-56 which means an increase of Rs 1.29 crores, occurring under land revenue (Rs 15 lakhs), other taxes and duties (Rs 62 lakhs) Civil works (Rs 34 lakhs) and forests (Rs 10 lakhs). The expenditure of Rs 30.34 crores as against the revised estimate of Rs 27.96 crores thus recording an increase of Rs 2.38 crores. Of this Rs 1.57 crores are due to inclusion of grants for the new schemes to be undertaken under the Second Five Year Plan.

In presenting the Budget to the State Legislative Assembly, Mr Vinayakrao Vidyalkar, Finance Minister, pointed out that Hyde-

abad could not sustain the deficit of Rs 4.28 crores as the scope for raising fresh taxes was limited. He, had therefore, proposed to raise only about Rs 70 lakhs by certain adjustments in the existing tax structure leaving the bulk of the deficit uncovered.

The state's inability to raise internal resources by way of taxation, loans etc, is also borne out by the shortfall of Rs 8.36 crores in the expenditure on the First Five Year Plan. It is, however, to be noted that the difficulty experienced is due in a large measure to the need for diverting a considerable portion of the available funds toward meeting the demand of development departments. The rising trend of expenditure under this item is well brought out by the fact that whereas in 1950-51 total revenue expenditure on development plans amounted to Rs 9.54, it has risen to Rs 16.73 crores in the revised estimates of 1955-56.

Andhra

As against the revised estimate of Rs 22.40 crores, revenue in 1956-57 is estimated to amount to Rs 23.71 crores. Likewise anticipated expenditure is also not very much changed at Rs 26.95 crores against the revised estimate of Rs 26.37

crores. The estimates thus show a deficit of Rs 3.24 crores. Increases in revenue, occur mainly under Union Excise Duties, Land Revenue, General Sales Tax and Tobacco duties, partly offset by a decrease under income-tax. Under expenditure, there are increases mainly under irrigation due to provision for flood repairs, under Medical, under Public Health, due to larger provision for the national water supply scheme in rural areas and under interest on debt due to provision for interest on loans taken in 1955-56. The Finance Minister has disclosed that the Government propose to raise an additional revenue of Rs 2.16 crores by new taxation measures, thereby leaving an uncovered deficit of Rs 1.08 crores.

The expected yields per annum from new taxation measures under the various heads are as follows: levy of full assessment on inam lands Rs 46 lakhs; levy of additional single point tax on mill-made cloth and precious stones Rs 50 lakhs; levy of purchase tax on the manufacture of tobacco and sales tax on cheaper varieties of manufactured tobacco such as beedies, etc., Rs 60 lakhs; surcharge on land revenue Rs 45 lakhs and Revision of the scale of court fees and suits valuation Rs 15 lakhs. The surcharge on land revenue will be in force temporarily for a period of one-year and will be replaced by a

scheme of standardisation of land revenue and increase of water rates which together are expected to yield more than Rs 45 lakhs per annum.

The Government have also decided to raise the rate of cess on sugarcane from Re 1 to Rs 3 per ton. The anticipated additional revenue of Rs 12 lakhs from this is to be earmarked for being credited to a Fund which is designed to finance schemes for development of sugarcane cultivation. The Government also anticipate a small additional revenue of Rs 9 lakhs by increasing the rate of tax on motor spirit other than petrol from Rs 0-1-6 to Rs 0-3-0 per gallon.

A sum of Rs 15.48 crores has been provided in the budget for capital expenditure as against Rs 15.54 crores in the revised estimates. It is rather surprising that Mr Gopala Reddi has devised his capital budget for the first year of the Second Plan almost on the same lines as in the previous year. Outlay on electricity schemes involving over Rs 5½ crores and Irrigation schemes consuming over Rs 4 crores are the two major items. The other items of comparable importance from the point of expenditure are the outlay on multi-purpose river schemes (Nagarjuna Sagar) and capital account of civil works taking about Rs 1.81 crores each.

It is heartening to see that, on the eve of the Second Five-Year Plan, the Indian Railways reflect and foreshadow a steady and all-round increase in economic well-being. If the record of earnings in the last three years is to be a clue, railways have become a robust milch-cow of the economy. Gross traffic receipts show a steady improvement. From Rs 287 crores in 1954-55, they are expected to rise to Rs 314 crores in 1955-56; for 1956-57 the receipts are estimated at Rs 345 crores. Working expenses having risen at a smaller pace, it has been possible to secure an appreciable addition to the annual net surplus. Between the current and budget years, this surplus will take a high jump from Rs 9.59 crores to Rs 22.99 crores.

When it is remembered that the appropriation to Depreciation Reserve has been raised from 30 crores in 1954-55 to Rs 45 crores in the revised estimates for 1955-56 and is proposed to be maintained at that level for 1956-57 and that the dividend to general revenues has to be raised from Rs 34.96 crores in 1954-55 and Rs 39.67 crores in the budget year, the residual surplus of nearly Rs 23 crores would bespeak an excellent performance. It would be all the more so in view of the fact that there is only a single increase in rates, a sur-charge of one anna in the rupee on freight traffic. Grains and pulses, fodder, manure, khadi, newspapers, newsprint and books are exempt from this sur-charge. The anticipated yield of this increase is Rs 11.6 crores.

The new levy thus makes a 50 per cent contribution to the total net surplus. That it does so without any serious addition to the freight incidence is indicated by the fact that the increase will not amount to more than about 8 pies per maund or less than ¼ of a pie per seer. The Railway Minister claims that in the case of individual movements the increase in freight would be small and should cause little or no hardship. On vegetables and fruits, which are carried at concessional rates the incidence will be considerably less.

It is evident that the Government are keen to avoid increasing the burden on passengers or freight. The sur-charge on freight has to be looked upon as something unavoidable and as the least that could be expected by way of additional charge for service. For, the Railways are confronted with the need to foot a bill of Rs 375 crores out of their own earnings if the relatively modest allocation of Rs 1.125 crores for the Second Five-Year Plan has to be met. Against the total demand for Rs 375 crores, the Depreciation Reserve Fund is expected to provide Rs 225 crores while another Rs 100 crores would be found from revenue. This would still leave a gap of Rs 50 crores; and this is reason for the loan budget proposal.

THE RAILWAY BUDGET

There is obviously disappointment over the curtailment of expenditure on the Second Plan for the Railways from Rs 1,480 crores to Rs 1,125 crores, the Ministry is anxious not only to bridge this gap but to augment resources further, so that the outlay on development and expansion could be enlarged. Under the revised allocation, additional transport capacity would go up by 15 per cent for passenger traffic and 47 million tons for goods. These increases will be inadequate, if passenger traffic and freight are to increase as anticipated. For this reason, the Ministry is not inclined to accept the allocation as final. In this attitude it is encouraged by the assurance given by the Planning Commission that the position would be kept under constant review with the door open to whatever adjustments were found necessary as the Plan progressed.

The Government have therefore proposed to proceed with the survey of new lines on the original programme of 3,000 miles and to keep the position ready for new construction work whenever extra funds became available. This is undoubtedly a laudable outlook and policy. There is also the gentle hint of further attempts to find funds. These, however, will be postponed for some years to come.

Meanwhile, there will be no soft-peddalling of efforts to improve passenger amenities. The Railways still face acute over-crowding in most of the sections; and the extension of amenities and incentives for travel have to be co-ordinated with the provision of new trains, additional carriages, and, wherever possible, new lines.

In fact we could think of scarcely another budget with an equal number of new proposals in the direction of passenger amenities and a quicker flow of goods traffic. To the latter sphere belongs the introduction of express goods trains in which wagon loads and smalls would be carried on the important trunk routes within a guaranteed period on payment of an extra charge; if the guarantee was not fulfilled the extra charge would be refunded.

By far the most significant announcement the budget contains is in respect of labour relations. The Minister could record with pride the uniform cordiality which the Railway Board was able to maintain with the National Federation of Indian Railwaymen. The proposal to send a special team including representatives of railway workers, on a study tour to foreign countries where workers' participation in management has been tried, contains the promise of a radical change in the relationship between the Railway workers and the Government. The Minister has made no secret of the fact that workers' participation in the management of Railways was under consideration. He has now disclosed Government's decision to take a few important steps in the direction of such participation. The experiment would probably begin with the railway workshops. As harmony between the workers and the Government is a fundamental pre-requisite of economic progress, the Government are to be wholeheartedly congratulated on this move. They are also setting a fine example to private industry, confronted with the same problem.

RAILWAY BUDGET AT A GLANCE

	Actuals	Budget	Revised Estimate	Budget
	1954-55	1955-56	1955-56	1956-57
Gross Traffic Receipts	286.78	282.50	314.10	345.00
Working Expenses	206.09	206.80	214.41	224.80
Net Miscellaneous Expenditure	6.63	7.40	8.95	13.04
Appropriation to Depreciation Reserve Fund	30.00	35.00	45.00	45.00
Total	242.72	249.29	268.36	281.34
Net Railway Revenues	44.06	43.21	45.74	62.66
Dividend to General Revenues	34.96	36.07	36.16	39.67
Net Surplus	9.10	7.14	9.58	22.99

Already operating performance has recorded spectacular improvement; thanks to an intense drive started from November 1954, there has occurred over the first nine months of the current financial year an 8½ per cent increase in the tonnage lifted on the broad gauge and an 18 per cent increase on the metre gauge. With the further improvements contemplated under way an additional increase of 10 to 20 per cent is deemed attainable during the current year. It is also noteworthy that the net ton miles per wagon during the year over the broad gauge reached the record figure of 483, representing an 8 per cent improvement over the wartime peak of 451, which had hitherto held the field.

Similar satisfactory results are also observed in the net ton miles per day per engine both on the broad gauge and the metre gauge. In the light of these improvements, it is indeed tragic that mob-violence has sometimes led to large-scale destruction of railway property and rolling stock and set the clock of progress back. If the behaviour of the public were less harmful, the Railway Protection Police might not have had to play so conspicuous a role as it is now being called upon to do; but there is also a more agreeable side to the picture. Pilferers and thieves are having a less easy time; and in 1954-55 compensation paid by the Railways was

Rs 50 lakhs less than in the previous year.

The long distance passenger is offered new concessions. If he travels between the 15th July and 30th September, he can take advantage of return tickets for distances over 300 miles at 1½ single journey fares and with a graded period of availability. The student community should be thankful for

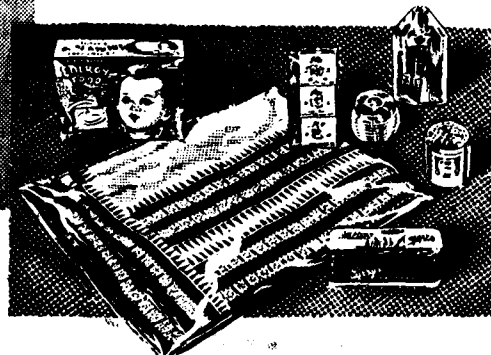


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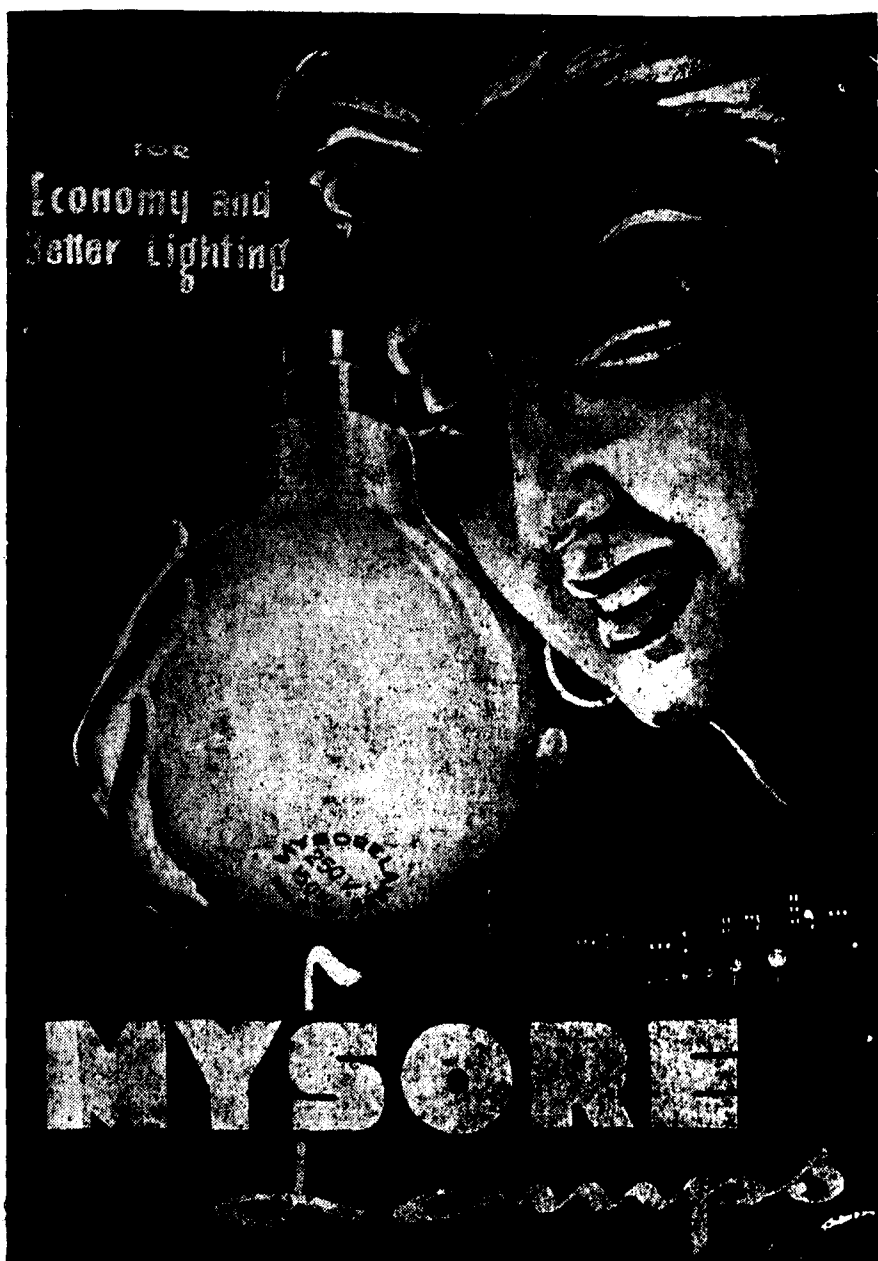
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JUTE AND JUTE MANUFACTURES

THE Jute industry holds a unique position in the Indian economy and is an important factor in the well-being of the country. The fortune of this industry has undergone a complete metamorphosis ever since the partition of the country. When the partition came, acute shortage of raw materials distressed the industry too much, and the simultaneous supply of raw material by Pakistan to industry's rivals on the Continent enabled them to consolidate their position. The Indian mills, suddenly cut off from their principal source of jute for several years, had thus great difficulty in obtaining raw materials; the production of jute goods declined and, with the increase in demand on the outbreak of the Korean War, an acute shortage developed and prices soared.

Overseas customers, no longer able to rely on supplies of Indian jute goods at reasonable rates, were forced to turn elsewhere for their requirements. With the result, a great impetus was given to the use of other packaging materials such as paper, the introduction of bulk handling methods and—most significant of all—the development of foreign jute industry. Not only were the Continental mills, for the first time, in a position to offer serious competition in the American market; but new jute industries were set up in countries which had formerly relied on India for their requirements of jute goods. The fact was that, while jute goods lost part of their markets to substitutes, the basic economic advantage of their being a cheap packing material remained unaffected.

As far as the Indian industry was concerned, crippling rates of export duty and the high cost of raw material were responsible, to a large extent, for the decline in exports, although the performances improved as soon as the prices of raw jute ruled at a relatively stable level and the export duties were lower.

As a matter of fact, 1954 was quite a satisfactory year from the point of view of exports. There was a marked recovery in Sacking exports, which increased to 430,000 tons from 324,000 tons in the previous year. Hessian exports declined to 370,000 tons from 388,000 tons in 1953, due largely to a decline in the off take of Argentina which had booked an order for an abnormally high figure of 103,000 tons of Hessians in 1952. Thus, the overall position was good.

In 1955, too, the industry found itself in a better position in the world markets; and this improved position was the result of increase in exports of jute manufactures which, in turn, led to an increase in production also. The total quantity exported, during the year,

was 895,000 tons, which is the highest figure since partition. Production for the same year stood at 11 lakh tons, which was 10 per cent higher than in 1954.

An important factor, which helped exports, was the total abolition of the export duty on jute goods which the Government announced immediately after Pakistan devalued her currency last year. The abolition was dictated by the fact that the advantage, which the Indian industry had on account of the exchange rate, disappeared with the devaluation. Export earnings from jute goods amounted to Rs 126.29 crores in 1955 as compared to Rs 121.27 crores in 1954.

Overseas demand was particularly heavy for gunny bags, which accounted for 465,000 tons valued at Rs 57.51 crores as compared to 439,000 tons worth Rs 53.98 crores in 1954. Shipments of gunny cloth also rose from 361,000 tons valued at Rs 62.89 crores in 1954 to 377,000 tons worth Rs 63.46 crores in 1955. Exports of other varieties of jute goods also improved by 10,000 tons to 52,000 tons, valued at Rs 5.32 crores.

The following table shows the monthly—wise stock, production

and export figures for 1955:—

STOCKS				TOTAL EXPORTS INCLUDING INTERNAL CONSUMPTION			
1955: End of	Hessian Tons	Sacking Tons	Total* Tons	1955:			
January	24,000	51,200	75,400	January	31,600	42,800	74,400
February	26,700	55,100	81,800	February	29,400	43,400	72,800
March	34,000	59,900	93,900	March	27,000	47,500	74,500
April	39,000	62,900	101,900	April	28,300	45,300	73,600
May	40,600	52,900	93,500	May	30,200	56,600	86,800
June	48,600	36,000	84,600	June	26,800	54,600	81,400
July	42,100	36,500	78,600	July	40,700	45,800	86,500
August	41,600	34,400	76,000	August	33,500	46,000	79,500
September	34,400	32,300	66,700	September	42,300	49,400	91,700
October	29,700	29,000	58,700	October	36,300	47,200	83,500
November	27,900	30,800	58,700	November	36,000	48,100	84,100
December	23,500	35,100	58,600	December	38,500	52,800	91,300
				Total for 1955	400,600	579,500	1,018,300
				Total for 1954	389,800	536,500	950,000
				Total for 1953	402,500	457,500	884,000

*Includes also Other Varieties.

Price movements in both Jute and Jute Goods markets, during the year 1955, were mostly influenced by the speculative activity in the Phatka market. The year's highest levels were touched in February and the lowest in September and October.

Apart from other factors, it was the renewed firmness in raw jute prices which brought about renewed strength to the manufactured goods section during most part of the year. Mills, however, could not take full advantage of



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the ruling high prices as the prices of both raw jute and jute goods were almost on par with each other. When foreign buyers were not willing to pay high prices, mills found themselves in a very embarrassing position. It seemed as if foreign buyers were inclined to live from hand to mouth until the raw material supply position improved and manufactured goods became cheaper. Moreover, the instability in prices gave them very little encouragement to do much business.

JUTE GOODS:

Let us take Jute Goods first. Market circles believed that, in as much as enquiries from overseas buyers had remained rather indifferent and slow toward the closing months of 1954, the stored-up demand would materialise itself to stimulate both turnover and prices in the New Year. While, on the one hand, there were reports that Burma had called for tenders for the supply of sacking goods for January-February delivery, on the other, the decision of the Philippine Government drastically to curtail imports of sacking with a view to protecting the indigenous jute industry had the effect of reducing total exports to the Philippines. There were also reports that Pakistan was making rapid progress in increasing her jute manufacturing capacity; that the Middle East countries were setting up jute mills; and that Turkey and Egypt had asked Pakistan to assist them in

establishing jute mills. It was thought that these new mills and the increased output in Pakistan would raise consumption of Pakistani jute. Thus, price movements, during the first quarter, were rather irregular due to speculative manipulations, although the undertone remained firm.

Trading, during the second quarter, remained generally dull and the market developed a weaker tendency. Although there was a recovery in mid-May following the news of the Argentine Order for 59,500 tons, higher levels could not be retained for long due to the absence of any real business following certain adverse factors. A major bearish factor was, no doubt, the prospect of a very large crop, both in India and Pakistan. Foreign buyers were generally inclined to enter into commitments only to the extent of their immediate requirements in expectation of a bumper crop. Also, fears were entertained that the political developments in the Argentine might delay shipments of Hessians, contracted for by that country.

But the industry did not seem to be alarmed by the lack of buying by foreign consumers in view of better statistical position of jute goods. Moreover, the crop reports, issued at the end of June, provided sufficient ground for the belief that there would be adequate supply of raw jute in the 1955-56 season. Conditions, therefore, turned brighter in the beginning of the third quarter. The reports of floods

in Assam and the Government announcement of the total abolition of the export duties on jute goods had a bullish effect on market sentiment. It was felt that, with the abolition of the export duties, the industry would have the chance of competing effectively with the rest of world. It was also expected that it would help the production of raw jute and enable the mills to share the financial benefit accruing to them with the raw jute producers. Thus, the news of the abolition of the export duties, the devaluation of the Pakistani Rupee and the continued strength of the commodity markets, induced speculators to boost up prices till the first week of August from when the market turned again weak with prices developing a downward trend.

The downward trend, noticed from the middle of August, was mainly due to conflicting opinions expressed with regard to the outlook for the Indian jute industry. A certain section of the operators felt that mills would be able to put increased challenge in foreign markets. Another section, however, felt that Pakistan would be able to underquote Indian jute goods very substantially in addition to offering goods made of superior quality raw material. As a matter of fact, overseas buyers were reluctant to enter the market, especially when Pakistan started underquoting Hessians in the UK and the Continent. Also, restric-

tions imposed by Australia on imports of jute goods and the recurrence of trouble in the Argentine enabled bears to dominate the market and push down rates toward the end of the third quarter when the lowest levels for the year were touched.

While the market, in October, was thus reduced intrinsically weak, bulls had neither the capacity to stop the rot nor the power to stem the tide by holding on to their stocks. The recommendations made by the Industrial Tribunal regarding mill-workers' wages also caused some worry to the mills. But for the relative steadiness of raw jute, manufactured goods prices might have shown a further decline from the September-end levels. Conditions, however, turned brighter in November when prices developed a firmer tendency as operators began to corner Sackings in view of the low stock position. The only restraining factor were the rumours that the industry might soon decide to increase production by the unsealing of looms. But, when it was announced, in the middle of December, that the IJMA had decided to unseal only 2½ per cent of the looms, bears had to rush in to cover their sales, resulting in a steady recovery in prices toward the end of the year. The improvement in prices was, however, more pronounced in Hessians than in Sackings, thanks to expectation of a squeeze in the former class of goods, the revival of

interest shown by the Argentine and rumours of business with Russia.

RAW JUTE:

There was considerable speculative activity in the Raw Jute market during most part of the year due to frequent talks of shortage of the commodity. There was speculation as to whether the mills would, in the 1954/55 season's obtain all the jute they would require. It was believed that the total world supply of jute was far beyond the actual requirements. This factor induced Pakistan to make a bid for as much gain out of the situation as it was possible for her.

The renewed strength of the market and the persistent rise in prices in January and February presented a problem to the mills. Imports into local markets fell considerably, while stock-holders were pushing up prices on continued shortage of the raw material. There was a growing feeling that the industry would not be able to maintain the 48-hour week in view of the persistent widening of the disparity between raw jute and jute goods prices. Also, there was a feeling that imports of Pakistani jute might fall short of their requirements due to the ban on exports in Kutch bales. In March, however, all the stories about shortage were gradually fading out and prices reached a level which had a better relationship with the prices of manufactured goods, thanks to the cautious handling of the market by the mills. Sellers also showed some anxiety to dispose of their holdings; and their apprehensions with regard to the fall in prices were based mainly on three factors: (1) preference shown by mills to Pakistani jute than to Indian jute in view of the small difference between the prices of the two fibres; (2) reports of rain in some of the jute-growing areas and (3) steady increase in arrivals into Calcutta and mill stations.

Except for a steep decline in prices in September, the market ruled generally steady during the second and third quarters of the year. Although there was not much demand, sellers resisted any cut in prices on reports of the virtual stoppage of imports, the detention of jute in flats and the decision by the Pakistani Government to destroy sowings in excess of 55 lakh bales. Despite the increase in the export duty on raw jute from Rs 3 to Rs 4 per maund, announced by the Pakistani Government, and the limited interest shown by the mills, rates continued to rule steadier in August on reports of floods in Assam, Cooch Bihar and many upcountry centres. There was, however, a steep decline in prices in September when the lowest levels for the year were touched. This was mainly due to the complete absence of any buying by mills on prospects of a large supply of crop in the coming months.

The market again firmed up in October due to various factors. Although there were reports of a substantially large crop in Pakistan, the supply to India was made difficult by various regulations. The reports of the depleting stocks of raw jute with the mills, lower arrivals into mofussil centres and the decision to maintain minimum prices by Pakistan, were also factors, contributing to the firmer tendency in prices till the end of November. One of the main reasons was that a number of mills made substantial purchases and, in making these purchases, they specially asked for very early delivery. This gave the impression that they needed fibre quickly. Sellers, in consequence, felt that their own bargaining position was to that extent stronger.

In December, however, sellers again showed some keenness for business and prices, as a result, displayed a slightly easier tendency. This change in sentiment was attributed to the increase in arrivals. Also, there was a general feeling among the mills that ample supplies were available and it would not be difficult to get additional supplies to meet increased production by the unsealing of 2½ per cent of the looms. Toward the closing stages of the year, the market displayed a steadier tendency following the reports of the transport difficulties and the lack of booking facilities to bring jute from the upcountry centres. One notable development in the market was the large price difference in the prices of Indian and Pakistani jute. Due to the reluctance on the part of stock-holders of Indian jute to reduce their rates, mills were compelled to divert their attention to Pakistani jute which, at the then ruling price, was considered to be a more attractive proposition.

On the whole, the outlook for both Hessians and Sackings during 1956 is considered to be bright; and the prospects have been brightened following the announcement of the Indian Jute Mills Association to unseal 2½ per cent at the first stage and five per cent at the second stage of the total loomage of its membership out of the 12½ per cent kept sealed since 1949 under the Working Time Agreement.

Despite the general uncertainty in the market, trade circles still entertain the hope that the increase in production will not affect the prices of jute goods and that foreign buyers will have to enter the market sooner or later as Calcutta rates are much lower than those quoted by the Continental mills. In support of these expectations, reports have already come to the effect that the competitive position of the Indian mills in the US market is the best in 10 years and the efficiency of the working facilities has been improved by the steady progress in modernisation.

Although the firmness of raw jute prices and the growing pro-

duction of the Pakistani mills are still a matter of some anxiety to the mills, it is still believed that the increased output, which the mills have planned from the 20th February, will be marketed without any difficulty whatsoever. Of course, the decision to keep the remaining 5 per cent of the looms sealed for the time being is evidence of the IJMA's anxiety with regard to the availability of the raw material. In this respect, it is encouraging to note that arrivals

of raw jute at mill stations are reported to be sufficiently large for this time of the season and this fact, coupled with the reports of rains in all jute-growing areas, have encouraged the mills to hold off purchases for the time being. In general, jute circles are looking forward to the day when the uncertainty with regard to the supply will no longer exist. The remedy for this lies in more output of the domestic fibre and an improvement in quality.

JUTE AND JUTE MANUFACTURES PRICE TRENDS.

	1955 Opening	Highest	Lowest	1955 Closing	1956 January- end	1956 February- end
	Rs a	Rs a	Rs a	Rs a	Rs a	Rs a
Hessians:						
40" x 10 Ozs. . .	44 2	48 12	38 0	41 12	40 9	40 2
40" x 8 Ozs. . .	36 14	39 4	31 4	33 0	33 0	33 10
40" x 7½ Ozs. . .	33 14	36 8	28 14	30 14	30 12	31 4
Sackings:						
B. Twills . . .	120 8	133 12	101 8	116 8	112 4	113 12
Hay Ceers (Grain) . . .	119 0	131 0	104 0	112 2	112 4	112 0
Cornsacks . . .	121 8	137 0	104 0	114 0	115 0	116 4
Cubans . . .	146 0	157 0	129 8	134 0	134 8	142 0
A. Twills . . .	151 0	163 8	128 0	137 0	140 8	136 8
L. Twills . . .	141 8	151 0	116 8	129 12	129 8	128 8
D. W. Flours . . .	143 0	151 0	121 0	140 0	135 0	132 4
Sugar Bags . . .	132 0	148 8	115 0	131 8	128 8	132 0
Raw Jute (Bottoms Basis):						
Assam . . .	30 0	40 0	22 8	27 4	29 0	29 8
Dhubri . . .	32 0	38 0	23 0	27 8	29 0	29 8
Indian Northern . . .	32 0	41 0	23 6	27 8	29 0	29 8
Biml F.A.Q. . .	27 0	34 8	21 0	25 8	27 4	27 8
Raw Jute (Middles Basis):						
Assam . . .	40 0	43 0	26 8	30 8	32 0	33 0
Dhubri . . .	40 8	41 6	27 0	30 8	32 0	33 0
Indian Northern . . .	40 8	42 0	26 0	30 8	32 0	33 0

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INDIAN TEA

EARLIEST, perhaps, of the soft drinks, as we now call them, might have been Tea. Going back to history, we find that, as lately as 1830, China was the only country which supplied tea to the world. A little earlier, however, during the 18th century, samples of China tea seeds and specimen plants found their way to India. By 1859, as many as fifty private companies were engaged in cultivating tea in India.

The important tea-growing areas at the present day in India are in Assam and in West Bengal, in the environs of Ranchi and Dhera Dun, in the Kanga Valley, in the Annamalais, in central and southern Travancore, in Malabar, in Mysore, in the Nilgiris and in the Wynaad. Northern India accounts for much the larger portion of the Indian production.

The predominant position occupied by this country in the tea world will be evident from the fact that nearly 50% of the total output is accounted for by the North and South Indian gardens, and that over 70 per cent of the increase in production in the past decade and a half has been due to the Indian estates. The slight decline in 1953 was due to the regulation of production in North India as a corrective measure against the price slump of 1952. In South India, however, the increase in production was not due to extension of acreage so much as it was to increase in yields. The acreage expansion seemed to have been at an average rate of about 2,000 a year.

In 1955, the tea crop in the major producing countries of the world recorded an increase of more than 24 million pounds. The total amounted to 1,182.2 million pounds as compared to 1,159½ million pounds in 1954. Output of tea in India rose to a new record figure of 662.2 million pounds as compared to 642.1 million pounds, showing an increase of more than 20 million pounds. While North Indian crop at 533.2 million pounds showed an increase of 19.6 million pounds, tea output in South India was slightly better at 129 million pounds as against 128.5 million pounds in 1954.

Ceylon also produced a record crop of 380 million pounds in 1955 as against 366.7 million pounds in the previous year. The increased production in India and Ceylon was partially offset by lower output in Pakistan and Indonesia. Outturn of tea in Pakistan declined from 54.6 million pounds in 1954 to 52 million pounds last year, while the Indonesian tea crop up to the end of November, 1955 at 88 million pounds showed a decline of 6.6 million pounds.

Meanwhile, the trend of the tea market, during 1955, was so very

different to that of 1954 that one was amazed at the sharp manner in which the fortunes of tea either rose or fell in each successive year. So far as the year 1955 was concerned, it was a case of decline in prices; and the primary cause of the troubles was the fact that the production by all countries was a record and this was not sufficiently appreciated until the middle of the year. Coupled with this uncomfortable full supply position, the Government restricted the amount of Northern India teas for offer in the London auctions to a total of 140 million pounds. It was also unfortunate that the intentions of the UK Treasury could not be anticipated since the "credit squeeze", which had to be applied in that country, had a considerable effect on buyers' purchasing power in the Calcutta market. In many instances, this restriction of credit

had the effect of reducing the normal forward purchasing operations from a supply programme of twelve weeks to one of eight weeks, or a reduction of 33 per cent. In consequence, the UK buyers had been more inclined to expend the resources at their disposal on the better qualities of tea and adopted a hand-to-mouth policy for the remainder.

To make matters worse, the weather during November 1955 was so favourable that the Indian crop advanced abruptly and without warning. As a result, Ceylon and India suddenly found themselves with an estimated 37 million pounds of increase in their crops. The stock position in the UK was also much higher than what it was in the previous year. Thus, while production everywhere was higher, the consumption was lower. Between January and mid-April,

prices of tea had heavily slumped in London auctions. The fall in three months was as much as 33 per cent. Toward the end of April, tea had almost become unsaleable at the auctions and as such auctions had to be suspended for a week or so. When auctions were resumed from May, the results were extremely disconsolating. There was absolutely no demand for Common sorts of tea; and the prices of qualities, that were taken up, recorded a fall of one shilling per pound, that is, by another 14 per cent over the price of January or 25 per cent over the price of April. Thus, there was a gradual systematic fall of prices with a little halt in the month of October due to artificial restriction of offerings.

The following table shows the trend of auction prices for various grades of tea during the past two years (price per pound):-

	PRICE TRENDS.											
	1954*			1955			1954			1955		
	Rs. a. p.	High	Low	Rs. a. p.	High	Low	Rs. a. p.	High	Low	Rs. a. p.	High	Low
Export Sale:												
Clean Black Pekoe	1 15 0	3 13 6	2 1 0	2 1 0	3 12 6	2 8 6	3 12 6	3 12 6	2 8 6	3 12 6	3 12 6	2 8 6
Plain Broken Pekoe†	1 5 0	2 8 6	1 7 0	1 7 6	..	..	..	..	..	..	..	..
Medium Assam B.P.	1 7 6	3 14 0	1 9 0	1 10 0	3 11 6	2 3 0	3 11 6	3 11 6	2 3 0	3 11 6	3 11 6	2 3 0
Best CTC Assam B.P.	Unquoted	4 4 0	2 5 0	2 3 0	3 15 6	2 7 0	3 15 6	3 15 6	2 7 0	3 15 6	3 15 6	2 7 0
Dust Sale:												
Medium Doonars	1 8 0	2 10 6	1 6 6	1 5 6	2 10 0	1 12 6	2 10 0	2 10 0	1 12 6	2 10 0	2 10 0	1 12 6
Medium Assam Grains	1 9 6	2 12 0	1 7 6	1 7 6	2 11 0	1 13 0	2 11 0	2 11 0	1 13 0	2 11 0	2 11 0	1 13 0
Best CTC Assam	2 14 0	3 5 0	2 2 0	2 3 0	2 13 0	2 0 0	2 13 0	2 13 0	2 0 0	2 13 0	2 13 0	2 0 0
Leaf Sale:												
Clean Common B.P.	Unquoted	Unquoted	Unquoted	Unquoted	2 8 9	1 11 0	2 2 6	2 2 6	1 11 0	2 2 6	2 2 6	1 11 0
Medium Assam B.P.	Unquoted	Unquoted	Unquoted	Unquoted	2 7 6	1 12 6	2 4 0	2 4 0	1 12 6	2 4 0	2 4 0	1 12 6

*Rates quoted on the 6th March, 1946.

†Started quoting from June, 1955 onwards.

There were four main causes responsible for the fall in prices:

(a) Increased export duty as against the comparatively lower duty prevailing in other countries which put Common and Low Medium teas at a disadvantageous position in world market;

(b) Larger offerings in Calcutta auctions due to limitation of direct exports for sales in London auctions without corresponding increase of buyers at Calcutta or elsewhere;

(c) Absence, up to the end of October, of even the normal

operation on behalf of the UK buyers who generally start buying in Calcutta from August; and

(d) Anticipated larger production in India and Ceylon. In view of the dull conditions of the market, the Calcutta Tea (Continued on page 98)

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THE TEA INDUSTRY

THE Tea industry is one of the mainstays of India's economy and, is contributing largely to the national wealth. It gives regular employment to more than a million and a quarter workers. A century back, it was not expected that the Indian tea industry would attain such dimensions and that, long before other industries achieved their stature, this plantation production would prove to be beneficial to the economy in so many ways. Time was when it was difficult to secure even the necessary tea garden labour and protect it from the hardships of a difficult terrain. Working conditions in recent years have, however, vastly changed.

The special feature of the tea industry and trade during the post-war period was, that Government policies, liable to more or less arbitrary change, were added to the intrinsic instability of a commodity of general world wide consumption. The changes in bulk purchase, rationing and similar measures necessitated by war-time conditions were themselves factors of no small importance. But there was also the difficulty felt by an important pre-war producer like Indonesia to restore production and regain her place in international production.

World consumption, on the other hand, kept on increasing. Though the International Tea Agreement was in force, it was worked through increases in the export quotas, and not by the kind of restrictive measures for which it was brought into being. With the cessation of bulk buying in Britain and the reopening of the London auctions, Indian tea found itself at a disadvantage. The consumer was free to indulge his preference for quality teas. Thus, a number of estates found themselves in difficulties and an official team was deputed by the Government of India to study the conditions in the tea industry and make recommendations.

1952 was a year of severe crisis for the Indian tea industry and the reliefs recommended by the official Committee were welcomed. But the tea industry owed its revival to the rapid improvement in the demand for tea in the world markets. In 1953, no one could even dream that the situation in the industry would, to a great extent, be galvanized before the turn of the next twelve months; and one of the most important factors hastening the surprising recovery of 1953 was the crop regulation programme.

That the industry had definitely turned the corner was amply proved by its excellent performance during the year 1954 and the improvement in its position surpassed the most optimistic expectations. Thus, the transformation, that occurred since those dark days of 1953, was complete. With increased

consumption throughout the world, attended with shortages of and consequent high prices for other competitive beverages, tea commanded a very strong market. In that year of booming tea prices, Common tea touched the high level of 7sh a pound at Mincing Lane.

Thus, the foreign exchange earned by tea during 1954-55 was Rs 147 crores as against only Rs 73 crores in 1949-50; Rs 37.3 crores in 1944-45 and Rs 26.3 crores in 1939-40. This brings out how rapidly the importance of tea in our foreign trade is gradually increasing. The foreign exchange earned by tea during 1954-55 formed 25.7 per cent of the total foreign exchange earned by the country and was by far larger than

the foreign exchange earned by any other commodity.

Again, exports of tea from India, during the five years from 1950 to 1954, averaged about 446 million pounds against the average for the five years from 1940 to 1944 of about 360 million pounds. Thus, over a decade, the quantity of tea exported from India has increased by roughly 80 million pounds and, during the same period, production in India increased by about 140 million pounds.

The swing of the pendulum is now to the other extreme; and the boom disappeared as suddenly as it had appeared. In 1955, prices rocketed to such heights that consumers in overseas markets, particularly in the UK—the mainstay of India's tea exports—began

clamouring for relief. Consumers' reaction was so strong that British housewives even started a campaign for reduced consumption of tea. They raised their voice of protest against the high prices of tea in the wake of Ceylon Prime Minister's pricking the bubble of it, while the trade in the UK saw no other alternative left than to become responsive to it. They clearly perceived the growing signs of rot imminent in a buyer's market for tea. Initiated by the Typhoo Tea Company, a host of leading units in the British trade such as the Lyons, the Brooke Bond, etc., voluntarily brought about a cut in the retail prices of tea. The impending slump in tea prices was too soon confirmed by tottering prices of tea at the auctions in both Mincing Lane and Mission Row.

As a matter of fact, foreign exchange earned by tea declined sharply to Rs 111.86 crores in 1955 from Rs 131.29 crores in the previous year. Lower exports and a decline in tea prices were mainly responsible for the sharp fall in the value of exports. The quantum of tea exported from India in 1955 was estimated at 363.57 million pounds as compared to 450.4 million pounds in 1954. The decline in prices was due to:—(1) lower demand from the UK following the limitation of credit facilities there; (2) seasonal arrivals of low quality rain-teas; (3) the glut on the Calcutta market and (4) expectation of higher production in the world. The restriction placed by the Government of India on the quantum of tea that might be shipped to London for auction also contributed to the decline in tea prices.

The trend toward a depression in the price factor was unmistakably manifested in the sales at Calcutta auctions in the course of the ending months of 1955. In the context of boom of 1954, these figures proved to be depressively below. For, during 1955, a number of countries joined the race of planting new areas under tea and reaching record outturn. The dark clouds indicated a gathering storm for Indian tea even in Australia and New Zealand where the Ceylon tea, with maintenance of quality, gained the upperhand over India. While production everywhere was higher, the consumption was lower; and there was indeed a scramble for selling production at any price.

Thus, there was absence of free outlet on the Calcutta market and there were heavy withdrawals in the auctions held toward the end of the year. With ample world supplies, it appeared that the auctions could not absorb even 60,000 to 65,000 chests of export teas weekly. It was felt that, if such a quantity was not absorbed weekly in Calcutta, not only would the

Companies:	NORTHERN INDIA GARDENS											
	1954			1953			1952					
	Outturn (Mds.)	Average Price (Rs. a. p.)	Price (Mds.)	Outturn (Mds.)	Average Price (Rs. a. p.)	Price (Mds.)	Outturn (Mds.)	Average Price (Rs. a. p.)	Price (Mds.)	Outturn (Mds.)	Average Price (Rs. a. p.)	Price (Mds.)
Ananda-Bag	6,474	3 10 7	5,969	2 3 5	6,266	1 10 9	..	..	..	..	..	..
Betjan	8,331	3 11 7	7,740	2 4 11	8,231	1 11 3	..	..	..	..	..	..
Bishnauth	46,985	2 14 6	41,805	2 5 1	44,594	1 12 7	..	..	..	..	..	..
Chamong	1,764	3 14 0	1,335	2 10 9	1,573	1 15 11	..	..	..	..	..	..
Dufflaghur	11,889	3 0 6	10,781	2 4 2	11,613	1 14 0	..	..	..	..	..	..
Eastern Cachar	4,894	2 6 6	4,681	1 11 11	6,106	1 1 5	..	..	..	..	..	..
Ethelburi	9,548	2 7 9	5,743	1 12 9	6,313	1 0 3	..	..	..	..	..	..
Gairkhata	9,534	2 15 4	11,308	2 1 7	13,059	1 4 2	..	..	..	..	..	..
Grob	16,574	2 15 7	14,612	1 15 8	15,572	1 5 10	..	..	..	..	..	..
Gungaram	16,506	2 1 1	19,211	2 1 3	19,418	1 3 6	..	..	..	..	..	..
Hantapara	38,610	2 12 10	40,410	2 3 2	36,920	1 7 9	..	..	..	..	..	..
Hattikhira	21,999	2 3 0	18,052	1 11 5	14,563	0 14 7	..	..	..	..	..	..
Huograjuli	5,834	3 1 5	5,180	2 1 11	5,242	1 8 6	..	..	..	..	..	..
Hulidibari	20,092	2 10 5	22,070	1 11 3	21,533	1 1 7	..	..	..	..	..	..
Jullibari	8,174	3 9 4	8,159	2 3 4	9,565	1 9 2	..	..	..	..	..	..
Kunchunpor	4,256	2 12 8	4,308	1 15 4	3,691	0 9 8	..	..	..	..	..	..
Murphulani	4,497	2 11 11	3,891	1 15 5	4,353	1 11 10	..	..	..	..	..	..
Nagalsuree	14,169	2 12 5	13,169	2 1 10	11,836	1 5 8	..	..	..	..	..	..
New Doonars	19,405	3 1 3	18,535	1 15 5	26,604	1 7 8	..	..	..	..	..	..
Runglee Rungliot	2,259	3 10 0	2,156	2 8 8	2,434	2 5 4	..	..	..	..	..	..
Sajuli	4,601	3 7 5	4,884	2 4 9	5,322	1 11 2	..	..	..	..	..	..
Teesta Valley	5,512	3 0 9	4,550	2 6 2	4,808	2 3 7	..	..	..	..	..	..
Tengpani	6,625	3 10 9	6,231	2 4 9	7,137	1 13 7	..	..	..	..	..	..
			Outturn Average		Outturn Average							

	SOUTH INDIAN TEA GARDENS.											
	1953			1954			1955					
	Area (Acre)	Outturn (lbs.)	Ave. Price (As.)	Area (Acre)	Outturn (lbs.)	Ave. Price (As.)	Area (Acre)	Outturn (lbs.)	Ave. Price (As.)	Area (Acre)	Outturn (lbs.)	Ave. Price (As.)
Alageswar (Yr.—June)	478	279,027	192 cts.	478	320,257	209 cts.	471	330,068	246 cts.	..	..	..
Chenbra (Year—March)	1,335	629,079	20.45 cts.	1,336	851,624	28.41 cts.	1,336	1,072,643	35.80 cts.	..	..	..
Coorg (Yr.—Mar.)	415	261,378	161 cts.	415	280,870	162 cts.	415	309,440	252 cts.	..	..	..
Devon (Yr.—Mar.)	479	268,948	178 cts.	473	222,248	175 cts.	450	253,177	216 cts.	..	..	..
Kurchimala (Yr.—March)	150	114,929	13.2 cts.	183	154,152	19.0 cts.	183	149,806	.. cts.	..	..	..
Midland (Year—March)	1,115	1,127,204	.. cts.	1,121	1,250,501	181 cts.	1,121	1,263,566	236 cts.	..	..	..
Miamally (Yr.—March)	508	81,618	98 cts.	508	457,100	170 cts.	524	461,770	264 cts.	..	..	..
Neelamalai (Yr.—June)	1,890	1,324,165	1.14 cts.	1,515	1,639,981	2.50 cts.	1,515	1,265,197	2.74 cts.	..	..	..
Nilgiris (Year—March)	574	344,700	2.00 cts.	574	352,092	2.30 cts.	574	404,527	2.13 cts.	..	..	..
Non-such (Year—June)	809	750,098	229 cts.	809	783,833	256 cts.	809	857,185	277 cts.	..	..	..
Parkside (Yr.—Yr.—June)	562	578,300	197 cts.	562	627,030	249 cts.	562	592,150	281 cts.	..	..	..
Periakaramalai (Yr.—March)	3,409	3,827,311	27.84 cts.	3,409	3,674,714	30.61 cts.	3,409	3,984,382	38.85 cts.	..	..	..
United Nilgiri (Yr.—March)	1,061	746,000	222 cts.	1,061	844,000	225 cts.	1,072	1,111,097	292 cts.	..	..	..
Waterfall Estates—(Yr.—June)	891	925,152	1.12.3	891	1,050,000	1.15.10	891	1,110,000	2.10.1	..	..	..

warehouses have to carry capacity stocks, but much of the crop still on the gardens would have to remain stored there for a considerable time in 1956. It was also felt that, if offerings at the auctions required to be reduced, the position would get even more difficult and ultimately that the 1955 teas should find in competition with new season's teas next June. It was, therefore, suggested that the Government should decide on some modification of their policy regarding the direct shipment of tea to the UK.

Another important innovation, introduced by the Government of India during the year, was the "slab system" of duties on teas exported from India, under which the rates fluctuated from As 4 to As 14 per pound, according to the weighted average of the London sale price for Indian teas in the previous month. The application of this slab system influence shippers and buyers for outmarkets to regulate their activities toward the end of a particular month to take advantage of a fall or to avoid a rise in the export duty. While, therefore, the slab system was preferable to a fixed duty, it also introduced fresh complications.

In order to afford relief to the industry, the Government of India,

in the middle of February during the current year, decided to allow free export of unsold North Indian teas to London auctions up to May 31, 1956. Their aim of gradually increasing sales of tea for export met with some measure of success. For, up to February 7, auctions in Calcutta amounted to over 170 million pounds against 159 million pounds in the corresponding period of 1954. Despite this improvement in the export auctions, large stocks of tea still accumulated in Calcutta godowns as well in the gardens. In this connection, the Financial Times, London, even stated that the Government's decision to remove their restrictions on the amount of tea, that might be sold in overseas auctions during the rest of the current season, had come too late. The paper added that, had the Indian Government relaxed their restrictions a little earlier, they might have received some benefit from the higher prices in London.

It was, however, satisfactory to note that, from the middle of February, that there had been a good demand for selective grades, though stalky teas and inferior grades had been difficult to sell and proved a drag on the market. It was estimated that about 100 million pounds of this season's tea

still remained to be sold at the Calcutta auctions. It was felt that if the current rate of offerings—estimated at 90,000 packages—at the weekly offerings was absorbed, the 1955 crop was expected to be sold by the end of May, 1956.

North-Indian tea producers hold the view that the Government of India's decision to allow exports of 480 million pounds of tea out of the 1955 crop and to withdraw the restriction on exports to London auctions are likely to give some immediate relief even though they may not affect the world market to any extent. There is very little difference now between London and Calcutta prices; and even if more tea is offered in London, the Indian producers are not likely to get much benefit. They also hold the view that any attempt at voluntarily restricting the crop will merely encourage other producers to take full advantage of it and that Ceylon will come in on the scheme in any case.

With a market which has been highly discriminative during the last few months, there has been a wide gap between the price of good and bad tea; but the gap has widened even further during the last few weeks. This is a factor which the producers will do well remember when framing

their manufacture programmes for 1956. This differential has now become an established feature of the price structure, and must continue to exist while world production inclines to outstrip demand and consumption.

If India is to hold her own in the world markets in the face of keen and ever-increasing competition, improvement in quality is of the greatest importance. It is hoped that the voluntary regulation scheme, which is now being studied, will before long be given a final shape and put into effect for the new season. This is a step in the right direction and, apart from taking off any possible surplus of ill-manufactured tea from the world markets, will almost definitely ensure the much-needed improvement in the standard of manufacture and thereby ensure India's competitive position in the world markets.

Improvement in quality together with regulated offerings at the principal auction markets will go a long way in maintaining stable conditions in the industry. Special attention should be directed for exploiting the potentiality of the vast home market. If this can be done, many of the major ills, which plague the tea industry from time to time, will be a thing of the past.

The main point of interest for the future centres on the regulation of the 1956 crop. Trends during the current season have impressed the fact that, if the industry is to be stabilised, it is necessary to regulate output and exports at the international level. Unless, therefore, the future production possibilities are guessed with some approximation to exactitude, the whole problem of promotional arrangements at home and abroad will appear to be rather premature.

Any propaganda for Indian tea must have two ends in view, namely, holding the existing market, and expanding them or finding new markets. As for holding the existing markets, publicity campaigns will have to follow given lines like those followed by the Tea Bureau of London. But campaigns for expansion or opening new markets abroad cannot be formulated or implemented until the production required additionally for such markets is also planned. Again, production programme should be framed with greatest circumspection, and also greater attention is to be paid in the direction of improvement in quality. The improvement in quality together with regulated offerings at the principal auction centres will go a long way in maintaining stable conditions in the industry.

Meanwhile, the complete withdrawal of restrictions on shipment of teas for London auctions for the current season is a very good gesture to India's largest and most important consumer—the UK—though it has come too late in the season to be of any great advantage. It is expected to relieve the congestion in the Calcutta warehouses and to assure faster movement of teas, making possible a somewhat earlier close of the Calcutta auctions. To this extent, it is likely to help in the clearance of unsold stocks before the new season's teas begin to arrive on the market in any quantity, thereby providing the 1956 season with an opportunity to open on a stronger note.

Ceylon crop during the month of January 1956 was 2.3 million pounds behind 1955=end level, and a further short-fall of 5 million pounds is forecast for the month of February as a result of the unfavourable growing weather and the severe drought conditions which have been experienced in the tea districts of Ceylon during this month. Although this deficit in Ceylon's crop may perhaps be made up at a later stage, this short-fall will have a healthy reaction on the world buyers and may have, if only to a very small extent, the effect of helping the clearance of the present surplus on the world markets.

RUBBER CONSUMPTION EXCEEDS OUTPUT

DEMAND on the Rubber industry is bound to increase at an unprecedented rate during the Second Plan period when the target, set in the Plan, is expected to be achieved by the various sections of the industry. Although the role of the various sections of the rubber manufacturing industry is ancillary, their contribution, particularly to transport—rail, road and air—on which the success of the plan mainly depends, is of paramount importance.

The target of production of automobiles involves an increase of 185 per cent—from a production of 20,000 units for the current plan period to 57,000 at the end of the Second Plan period. It is clear how a proportionately increased production of tyres and other automobile rubber components and latex foam products is involved. When it is realised that 67 per cent of the rubber consumption for January/November 1955 was accounted for by the tyre manufacturing section, it will be obvious that increased transport facilities themselves will make a substantial demand on the rubber industry in the next five years.

Most of the world rubber magnates are of the opinion that 1956 will be a year of too much prosperity for the rubber plantation industry in view of the increased demand for rubber and the industry's inability to raise production to the extent of the increased demand for the commodity. In this connection, the January bulletin of the Natural Rubber Bureau has predicted that world production of all kinds of rubber will exceed world consumption by 150,000 tons, which it calls a relatively small surplus which will go into over-depleted stocks. The bulletin adds that natural rubber output, during the current year, is expected to show a slight drop from 1,875,000 tons and a rise in synthetic output from 1,030,000 tons to 1,135,000 tons. The greatest potential increase in synthetic production will not, however, come until after May or June. Thus, the major portion of the surplus will not occur until the second half of 1956.

As far as the Indian Rubber industry is concerned, it faces a challenge—a challenge to increase its natural rubber output to meet the increasing demand within the country for the commodity. There was a gap of over 4,000 tons between production and consumption during 1955. Although production showed some improvement over 1954, it failed to keep pace with the steady advance in consumption. There was the problem as to how production should be increased to meet the growing demand. It was pointed out that growers of rubber, who accounted for about 40 per cent of the output, did not get the

benefit of the fair price fixed by the Government; because their circumstances compelled them to sell the rubber to local dealers at whatever price was available. The commodity passed through several dealers before it reached the consumer. With the result, the price secured by the small producers was far less than the price allowed by the Government. To make things worse, the Sales Tax on Rubber, which was formerly collected only at two points, was then collected at all points of dealings. Thus, dealers and small growers had neither the chance of selling their stocks directly nor the benefit of a fair price.

In general, the buoyancy of the rubber market, during the most part of the year 1955, was mainly due to a strong statistical position, though prices showed a slightly easier tendency toward the close. The market had, in general, been sensitive to small changes in the balances of supply and demand; and this was scarcely a matter for surprise. One contributory reason for the sustained strength of the market lay in the progress made in selling US synthetic plants to private enterprise and the consequent feeling among American consumers that they might have to pay higher prices for synthetic rubber and to face some uncertainty about the continuity of supplies.

In the middle of February, the Government decided to increase the price of Group I rubber by Rs 12 per 100 pounds with suitable adjustments for other grades. This decision was made, partly to meet the increase in the cost of production and partly to enable producers to put by adequate funds for the replanting of rubber, which had to be undertaken on a considerable scale and for new plantings, if necessary. The price increase was considered substantial; and the Government's eagerness to encourage replanting was also evident from the fact that they were considering a scheme for assisting growers in the matter. It was, however, stated that the price increase was valid for three years, but could be revised if the cost of production during this period showed a variation of 10 per cent over the ex-factory price of Rs 85 per 100 lbs.

The first quarter of the year witnessed a further widening of the gap between production and consumption. While production dropped to 3,464 tons, consumption went up to 6,771 tons as compared to 3,524 tons and 6,344 tons respectively in the corresponding period of the previous year. This low rate of production was, however, due to increased rate of felling of old and worn-out trees for replanting, labour troubles in some of the rubber plantations

early in the year and dry weather conditions.

During the second quarter, however, a considerable rush in planting was going on throughout Travancore-Cochin, and more lands were brought under rubber. Also, it was satisfactory to note that production showed a slight increase in the first five months of the year at 7,826 tons as compared with 7,561 tons in the same period last year, while the gap between production and manufacturers' off-take widened further. As production was not expected to exceed 26,000 tons, the question arose as to how such a wide gap was to be covered. Certain manufacturers even suggested establishment of synthetic plants in this country to produce what was needed to cover the shortage in production.

Despite the improvement in output in July, the stocks with the growers and dealers went very low, at 1,887 tons by the end of the month as against 3,352 tons in the corresponding month of 1954. Also, with the world price of rubber ruling over Rs 225 per 100 pounds by that time, there was a scramble for available supplies; and, as a matter of fact, the manufacturers were vying with one another in courting rubber-growers.

Toward the end of the third quarter, prices in foreign markets displayed an upward trend, which was attributed to the rumours that Russia would buy more natural rubber and that the ban on deliveries to China, imposed by the United Nations, was to be lifted. Against this background of higher prices ruling for world rubber, the price at Rs 150 per 100 pounds, fixed for Indian rubber in February, was considered unsatisfactory. The Government of India, therefore, again decided to raise further the price by another Rs 5-12 to Rs 155-12 per 100 pounds, while the growers demanded a further revision of the statutory price to the extent of the increase in excise duty to Rs 6/4 per 100 pounds, levied in early August. Also, the Government decided that the import policy of raw rubber, during the July/December 1955 period, would continue to be the same as during the licensing period January/June period.

Although the unusually heavy rains affected production in September, production in October showed a marked increase and the total for the ten months ending October 1955 amounted to 17,015 tons showing an increase of about 550 tons over the same period in

(Continued on page 101)

INDIAN TEA

(Continued from page 96)

Regulation Committee, representing the main tea-production associations of North-East India, decided to introduce a scheme for the regulation of tea crop during the current year. The Committee also agreed to ask the constituent associations to recommend to their members that all tea waste should be destroyed on the gardens and all residue teas of doubtful quality should also be destroyed to prevent such grades of tea having further depressing effect upon prices. It was felt that the suggestion, that producers should voluntarily agree to destroy two per cent of their output or at least prevent it from coming to the auctions, could be a useful stabilising influence on prices. Moreover, the London Regulation of Sales Joint Committee also recommended to regulate offerings at the London auctions as a suitable corollary to the regulation in Calcutta. The intention in the UK was to limit the total offer for each week to an average of 6½ million pounds and each producing country would be allocated a certain proportion of this total.

Also, the Government of India decided to allow 480 million pounds of tea for export during the 1955-56 season as compared with a total release of 464.9 million pounds in the previous season in order to

bring relief to the industry, as large stocks of tea were lying undisposed in Calcutta godowns and gardens. The total export quota, during the current season, therefore, amounts to about 69.3 per cent of the crop basis. Expressed in terms of the Standard Export Quota, the release comes to about 138 per cent as compared to 135 per cent, the maximum permissible under the International Tea Agreement.

In the initial stage, an export quota to the extent of 50 per cent of the crop basis, amounting to about 365.65 million pounds, was declared in March, 1955. A second interim release of 10 per cent of crop basis was made in August. This increased the export quota by about 52.24 million pounds, bringing the total release to 417.89 million pounds. Tea circles were, however, doubtful if all the additional quota would be used considering the none-too-encouraging foreign demand. They felt that by going beyond the limits set under the International Agreement, the Government's intention, besides giving relief to the industry, was to inform Ceylon that India considered the agreement as dead. It was also felt that the Government of India were preparing to allow exports on a much more liberal scale in future.

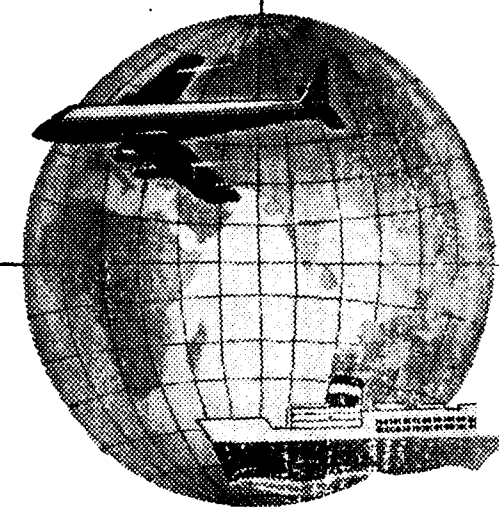
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Calcutta Stock Exchange

1955—ONE OF THE BOOM YEARS

THE year 1955 will go down in Stock Exchange history as one of the boom years. For the first time, since the prosperous year of 1946, investors in industrial shares were benefited considerably, thanks to the Government's practical policy for the economic development of the country and the helpful attitude toward private sector. There was a steady rise in the level of economic activity. National income, agricultural output and industrial production increased; prices had been stable despite deficit financing; and the balance of payments was comfortable. The balance-sheets and dividend announcements of companies showed that, despite the limitation of official economic policy, it was still possible for corporate enterprises to work profitably.

From the beginning of the year, the market enjoyed hectic activity and gently rising prices, resulting in a further improvement in sentiment that was noticed toward the closing stages of 1954. Although the advent of February brought a trend which was quite in keeping with the state of things that would generally prevail in the pre-Budget period, the market was in a constructive mood on expectations that the Central Budget would not turn out to be discouraging from the stock market angle. As a matter of fact, the market gave the Budget a good reception, operators being enthused over the announcement of the 25 per cent Development Rebate on new plant and machinery, the provision to carry forward losses indefinitely and the inflationary potential of deficit financing to the extent of Rs 318 crores. Thus, the bullish forces generated by the Budget proposals, continued to assert themselves on the market and the upward movement in prices gathered further momentum in March.

During most part of the second quarter, the market had a dull and listless passage in the absence of any fresh influence. There was a general lack of enthusiasm to go in for any further buying due to certain adverse factors. Mainly amongst these were, the approval by Lok Sabha of the Constitution Amendment Bill, reports that the extra profits earned by steel companies from higher retention prices would not go to shareholders, tight conditions in the market, a continuous fall in the prices of agricultural commodities and the abrupt development of an ominous outlook for the tea industry. But trading in June was highlighted by some buying of the most popular scrips, being influenced by dividend announcements, the proposal by the Stock Exchange Committee to include two more scrips—Indian Copper and TEXMACO—in the forward list and the cornering activity in certain scrips.

The market's performance, during the third quarter, was impressive though price movements were rather irregular. Prices did not make much headway in July following the announcement of the Government decision to nationalise Kolar Gold Field and Mining companies and the consequent fears in some quarters that other industries would also be nationalised. Brisk

trading was, however, noticed in August following two important announcements—the devaluation of the Pakistani Rupee and the total abolition of the export duties on Indian jute goods. The Finance Minister's announcement that the Government had decided to permit the issue of bonus shares provided an added fillip. But activity, in September, was of a squaring-up

nature due to the anxiety with regard to the size of the forthcoming dividend by Indian Irons.

The market presented an uncertain front during the last quarter of the year and the little enquiry, that was noticed, was mostly confined to the Engineering and Miscellaneous sections. The announcement, in October, of the maintenance of the dividend by Indian Irons was, at first, expressed by a sharp setback in share values; but there was a subsequent recovery due to the excellent performance made by the company during the year 1954-55. The IJMA's proposal to increase the production of jute goods and the news of the Tata-Kaiser pact also aided the bullish sentiment. But this was only short-lived and the market took a nose-dive at the beginning of December due to heavy bear pressure. The Finance Minister's speech about the proposed measures for regulating share trading, the anxiety whether the issue of new shares by the TISCO would be at par or premium, persistent suggestions of cuts in foreign aid, talks of increased taxation, a discouraging coal policy and the uncertainty regarding the outlook for the tea industry—all these factors gave sufficient ground for bears to dominate the market and push down rates, while bulls were unable to stem the tide of selling pressure. Thus, conditions, at the close of the year, remained uncertain as operators were indulged in stonewalling tactics.

Of all the sections, Engineering shares commanded a good deal of genuine investment attention throughout the year under review, although the price movements in Indian Irons were subjected to speculative activity. Companies, which were mainly engaged in construction, structural and fabricating jobs, were mostly favoured. It was believed that the setting up of steel-making units, buying of domestic products by the Railways and various schemes for manufacturing machinery, would increase the scope of engineering concerns, which must expand and modernise their plant and equipment to keep pace with rising demand for their products.

Jute shares ruled barely steady, suggesting that the competitive position of the Indian jute industry in world markets was not yet satisfactory. Although prices touched the highest levels in November, they could not be retained till the close due to quieter advices from the jute goods market and the growing disparity between raw jute and manufactured goods prices.

A notable feature of trading, during the year, was the impressive performance of the Coal section where prices, despite the Government decision not to give up the idea of nationalisation, resisted any

downward trend due to selling pressure. There was a general feeling that the production of metallurgical and high-grade coals would have to be increased due to the rapid expansion of the steel industry and consequently the ceilings on the output of these grades would have to be removed. It was also felt that the fears regarding nationalisation and increased Governmental intervention had been exaggerated to a certain extent and that the industry would have its share in the general level of prosperity.

Tea shares showed a steady rise till the end of August from when they were subjected to renewed selling pressure due to various adverse factors. Mainly amongst these were, congestion of stocks at the Calcutta warehouses, over-production, falling trend in auction prices both at London and Calcutta, reports of labour demanding higher wages and the Tea Board's recommendations to the Government to restrict the transfer of Export Quotas.

Sugar shares ruled generally quiet on reports of the serious turn in the industry's situation due to glut of stocks. In spite of increased output during 1954-55, the profits of mills were adversely affected by the fall in the commodity price. Transport difficulties were also a contributory factor.

Textiles, after remaining depressed during most part of the year, gave a better performance during the last quarter following encouraging advices from the cotton and piecegoods markets. Despite the controversy over the Amber Charkha, shares met with a good support at every decline in view of the excellent profits reported to have been made by most of the mills during the year under review.

The Miscellaneous section continued to be the most popular counter of the market, mainly due to expansion and modernisation schemes planned by a few companies in order to meet the increasing demand for their goods.

The market for Giltedged securities ruled quietly steady on lack of sustained support from institutional investors.

Bank shares improved substantially from the low levels, touched in the beginning of the year, on reports of satisfactory working results.

The market, however, began the year 1956 in a subdued mood and prices fell substantially on heavy selling. The nervousness was caused by threats of a bank strike, a strong police action again "kerb" trading, the Planning Commission's proposals for an annual tax on wealth as a complement to income-tax and estate duty, uncertainties regarding the rights issue of the TISCO and the Associated Cement Companies, the move for nationalising life insurance companies and the news of the political disturbances connected with the re-

organisation of the States. Apart from the fear that a large amount of support for the market, provided by insurance funds, might no longer be forthcoming as a result of nationalisation, confidence in the future of the private sector was badly shaken. To make matters worse, there was a settlement crisis on the Calcutta Stock Exchange where only squaring-up transactions in clearing shares were only allowed.

The tendency of the market continued to be nervous in the early part of February when the bull operators were not able to muster courage even at the prevailing low levels. In view of the heavy losses suffered as well as the obscure political outlook, chances for any appreciable recovery appeared to be remote. Moreover, the slump in values on the Bombay Stock Exchange due to the cumulative effect of the release of the revised final draft of the Second Plan and the developments on the political fronts by way of deliberations in the Congress Session at Amritsar, also affected sentiment. Market circles were, therefore, inclined to await the Budget proposals.

On balance, the market entered the Budget week with a technical position that was sounder than that on any Budget-eve before. Though there was a general feeling that most of the bearish factors, which the Budget was expected to contain, had already been discounted in prices, operators as well as investors were in no mood to extend their commitments till the Budget proposals were actually announced.

The first reaction to the Budget proposals for 1956-57 was a sharp marking down of prices, as operators were inclined to attach a bearish import, mainly to the two proposals—the tax on bonus issues and the imposition of super-tax on dividends above 6 per cent. But, second thoughts on the Budget appeared more reassuring; and operators were inclined to the view that the new tax proposals were not so much bearish as they had been earlier expected, especially with regard to the following:—(1) much-feared ceiling on income did not figure in the Budget; (2) fear of a tax on wealth and a levy on capital gain had been removed; and (3) there were no excise duties on various commodities.

Thus, the change in the tone of the market from the beginning of March was regarded as a reflection of the more hopeful view of the outlook for established companies under the Second Five-Year Plan. With the expected increase in corporate earnings, it is generally believed that the capacity to pay dividends will not, in any way, be impaired by various taxation proposals. The steady improvement in prices, noticed from the post-Budget session, received an additional prop from a wave of short-covering in the wake of the general impression that the market was oversold immediately after the Budget.

RUBBER CONSUMPTION EXCEEDS OUTPUT

(Continued from page 99)

1955. Also consumption, during the same period, rose by over 5,200 tons, or an advance of 3,200 tons over the increase in production.

Toward the end of the year, there was a sharp fall in world prices, mainly due to a higher estimate made by the Rubber Study Group. From a peak of Rs 281

per 100 pounds, the price of sheet rubber dropped down to around Rs 210 in London. With the sharp fall in world prices, there was again some questioning as to production facts.

The following table shows the production, consumption and stock monthly-wise (figures in tons):—

PRODUCTION, CONSUMPTION AND STOCKS.

(Figures in Tons).

Month:	Production	Consumption	Stocks with Estates and Dealers	Stocks with Manufacturers
1955:				
January	2,400	2,256	4,686	3,444
February	2,400	2,072	3,372	3,107
March	2,400	2,443	2,828	2,537
April	2,400	2,140	3,088	2,901
May	2,400	2,175	4,195	2,545
June	2,400	2,594	2,864	3,517
July	2,400	2,368	2,932	3,418
August	1,756	2,208	3,222	2,702
September	2,210	2,845	3,355	2,943
October	2,450	2,214	4,515	2,027
November	2,680	1,837	4,452	2,936
December	2,787	2,721	4,758	2,696
1956:				
January	2,083	2,450	4,822	2,258

Recent developments in international markets indicate the growing popularity of synthetic rubber. The fact that world production of natural rubber has been consistently running below consumption levels appears to have necessitated increased output of the synthetic material. It is estimated that world production of man-made rubber will, within the next five years, have to be increased by 50 per cent over the present level, because consumption of all kinds of rubber is expected to exceed 3 million tons by 1960, whereas no expansion in the production of natural rubber from the present level is considered likely.

The secret of the success of the synthetic product lies in its price advantage. The domestic price of synthetic product in New York is about 24.10 cents a pound as against 44 cents a pound for natural rubber. Naturally, many programmes for the expansion of synthetic rubber production have now come up.

The gap between the production and consumption of raw rubber in India is estimated at around 8,000 tons per year and as such the Indian rubber goods industry will, for the first time, be importing synthetic rubber in January/June 1956 period. Imports of 4,600 tons are allowed for that period and are divided on an equal basis between natural and synthetic rubbers. Thus, the balance of about 3,500 tons is likely to be imported in the second half of 1956.

Production for 1956 is now estimated at 24,000 tons as against a consumption of about 30,000 tons. The Indian Rubber Board is, therefore, going ahead with its scheme of research. The number of registered growers has increased from 14,000 to 26,000 as a result of the Board's new drive to get all the rubber growers registered. Thus, the new area covered with rubber plants, during 1955, is estimated at over 30,000 acres, allowing for failures.



TRANSPARENT CELLULOSE FILM

SINCE Independence, various productive factors in India have manifested their ability to manufacture within the country almost all the consumer and semi-durable goods, if given the opportunity and proper support by the Government. Within a short period, a good number of medium and big sized productive units have sprung up and are supplying to the various consuming sections innumerable variety of products. Every productive unit is a vital link in the long chain of India's economic progress. Every producer is not only striving hard to better the quality and reduce the cost of production, but is also trying to present the products in the most attractive and convenient form, so that the consuming public will have the minimum of trouble in making their purchases.

Packing goods in the right way with the kind of wrapper is an important factor in selling most of the consumer goods effectively. Transparent Cellulose Film, which is clean and strong, has become very popular as an ideal packaging medium for a large variety of articles—like Silk, haberdashery, cosmetics, toilets, confectionery, sweets, pharmaceutical products and an array of other items.

At present in India, The Travancore Rayons Limited is the only manufacturer of this valuable, and at the same time cheap, Transparent Cellulose Film. This factory, located on the banks of river Periyar, at Rayonpuram, 12 miles east of Alwaye, in Travancore Cochin State, started production of Transparent Cellulose Film in early 1950.

HOW TRANSPARENT CELLULOSE FILM IS MADE

Even though the manufacture of Transparent Cellulose Film is highly technical, it is extremely interesting to know how, by various chemical processes, this film is made. The basic raw material used is cellulose, the main constituent of plants. Trees like Southern Pines, Hemlock, Spruce and blue-gum contain a large proportion of cellulose. The basic idea in the manufacture of Cellulose Film is to separate the Cellulose matter from the plant cells and get it in the form of a continuous sheet. This is not an easy job at all. For, this wood containing cellulose is pulverized to form what is commonly known as wood-pulp which is white in colour and looks like thick blotting sheets with uni-

form grade and thickness. This solid pulp containing cellulose is soaked in Caustic Soda solution.

This process is called steeping. The soaked pulp sheets are passed into a kneader and then through the shredder transferred to a crumbling machine, fitted with several revolving blades, which cut these soaked pulp into small, fluffy, saw dust-like crumbs. These crumbs are known as alkali-cellulose.

The next process is called aging where these fluffy alkali cellulose crumbs are kept in aging cellers, so that the caustic soda solution can permeate uniformly and react through every particle of pulp. After aging these crumbs are transferred to rotating churns where Carbon Di-Sulphide is added gradually under a specified room temperature. This is known as Xanthation. The colour of the crumbs gradually turns from white to attractive orange. These orange coloured crumbs are now ready to be dissolved in Caustic Soda solution. When it is dissolved it forms a dark brown solution known as viscose. This solution is aged further under constant temperature, and the aged viscose is filtered using vacuum to remove all the air bubbles. Viscose Solution thus prepared gets coagulated when comes in contact with acid. The neutralisation of Caustic Soda in the Viscose Solution by acid results in the precipitation of cellulose in the solid form.

In order to effect this regeneration of dissolved cellulose, viscose solution has to be pumped at a uniform rate into a bath containing heated sulphuric acid. By continuous and uniform pumping, the viscose solution is ejected through a very long narrow slit, called the casting head, into the bath containing the neutralising solution where a continuous sheet of cellulose film is formed. This film is passed through various baths and rollers so that the film is washed and dried. The dried film is wound on rollers and is later cut into desired sizes. The film that comes out from viscose solution is highly transparent, hygienic and strong. This, in short, is the story of how wood pulp is chemically transformed into beautiful Cellulose Film.

The initial installed capacity when Travancore Rayons Limited ventured in the manufacture of cellulose film was 1½ tons per day. When introduced into the market, the outstanding characteristics of this transparent cellulose film found ready acceptance and great patronage from various packaging centres. In no time, the public realised the advantages and con-

veniences of buying things packed in transparent cellulose film and the demand for it soared upwards.

The Travancore Rayons Limited realised the need for greater production and increased the productive capacity to 2 tons a day from

March 1954. Further to this addition, in order to diversify production and cater to the specific needs of various users of Transparent Cellulose Film, the Travancore Rayons Limited installed an additional plant very recently and is expected to reach its maximum productive capacity of 4 tons per day shortly.

VARIETIES OF TRANSPARENT CELLULOSE FILM

There are different varieties of Transparent Cellulose Film. The most common type is the plain transparent cellulose film, as described above, which is widely used for packing most of the consumer goods. But certain items like cigarettes, confectioneries and others require moisture proof film and it is gratifying to know that the firm which started manufacturing Transparent Cellulose Film in India is starting production of moisture proof film. This moisture proof film, coupled with heat-sealing characteristics, renders a versatile usage, for this film requires no adhesives as in the case of ordinary Cellulose Film.

It is possible for both ordinary and moisture proof Cellulose Film to be produced in different colours. Goods packed in appropriate colours will be pleasing to look at, and will add to the sales appeal.

It is understood that the pioneer manufacturers of Cellulose Film are planning to produce Cellulose Film in different colours to meet the specialised requirements of certain customers, particularly those in the sweets, toffee and cosmetic production trades.

Even though at present most of the packing in this country is done by hand, The Travancore Rayons Limited have installed a latest automatic bag-making machine capable of producing bags of different sizes. It is also possible to print in various colours and different designs. This, of course, is an additional service to the users of transparent cellulose film and helps display the various products packed in these bags more attractively and neatly to the public, enabling the promotion of a wider sales appeal. Modern India can feel proud that it is attaining self-sufficiency in a new field—Transparent Cellulose Film.

CONSUMER PACKAGING

INDUSTRIES manufacturing paints, toilet goods, printing inks, baby foods, cooking fats, pharmaceuticals and confectionery need a supply of technically sound, and attractively decorated containers as a basic necessity for development. The quality and cheapness of their packaging is an important factor in determining the safety of their products from deterioration and adulteration, the physical extent of their markets, and the volume of their sales. The design and manufacture of containers technically suited to their contents, capable of preventing attempts at adulteration, and at the same time attractively decorated to catch the eye at the point of sale is now a major industry, using expensive machinery and the skills of the sheet metal worker, the chemist, the artist and the printer.

Till recently the four gallon tin, manufactured for the most part in the oil company installations, was the only form of metal packaging produced in this country, and nearly all the consumer packaged goods in Indian shops were imported. The pioneer in the development of modern packaging was the Metal Box Company of India Ltd, which set up its first factory in Calcutta twenty two years ago; and now a well developed industry supplies a variety of excellently designed and decorated containers, that compare favourably with metal packaging anywhere else in the world.

The importance of cheap and efficient packaging in this country lies very largely in its ability to prevent the adulteration, and infestation of the goods packed. The incidence of adulteration is very wide spread indeed. In a recent survey made by The Union Ministry of Food and Agriculture, in which samples of ghee were taken from bulk packs in shops all over the country—it was found that 33 per cent of the samples contained no ghee at all, and a very large proportion of what remained was heavily adulterated.

The establishment of ghee grading stations and the Popularisation of the AgMark does not provide significant protection, so long as ghee is packed in four gallon and similar bulk packs, which are easily tampered with. The only real solution is to encourage the marketing, both of ghee and vanaspathi in consumer packages; small pilfer-proof tinplate containers which are sealed by the producer and unsealed only in the home when the contents are consumed. The use of small consumer packages—tamperproof tins is the only way of preventing adulteration and substitution. It is also the precondition of the establishment of the brand habit, both among manufacturers and consumers.

The small branded consumer pack, which is being marketed on an increasing scale is the means for the manufacturer to build up a market on his reputation for integrity and quality; and for the consumer, the means whereby he may encourage the producer who serves him honestly. The hold that the bulk pack continues to exercise over retail markets rises from the cost of tinplate which makes the pilfer-proof container too expensive for universal use. Indian manufacturers of tinplate containers, pay for tinplate supplies a price significantly higher than that paid by manufacturers anywhere else. UK fabricators pay approximately Rs 800 per ton, compared with the Rs 1,150 for Indian tinplate in Bombay.

In a country of distances the high freight charges on tinplate and tinplate containers add significantly to their cost, and places this kind of packing outside the means of the manufacturer situated at any distance from the large towns. The high cost of tinplate inhibits the use of the small pilferproof tins and is an element in the price of a wide range of goods which the urban population uses—cooking fats, processed fruit's and vegetables, toilet goods, pharmaceuticals baby foods, paint and confectionery. It inhibits the growth of these industries and prices them out of possible export markets.

Where tinplate has been available at reasonable prices a major change has taken place in the commodities that enter human consumption, and in the agriculture and industry which produces these goods. Agriculture and the fishing industry in Europe and the USA send a very large proportion of their production

into canneries. This development is not limited to the advanced countries. Prosperous farms are growing up in long backward areas like Kenya, and Malaya whose canned products sell on the world markets. Tinplate production has become a large industry—it is estimated that more than half the sheet steel production in the UK is used for the manufacture of metal boxes, and a number of ancillary industries have grown up to produce the machinery, the special printing inks and chemicals that this industry requires. The final result is seen in the new range of goods available for general human consumption in tinplate containers.

An indication of the extent of the canning industry in its present state of development is given below. It is important to remember that this refers only to canned food—and excludes the much larger number of cans used by other industries.

THE CANNING INDUSTRY IN 1953—IN MILLIONS OF CANS AND NUMBER OF CANNERS.

	Output of Cans	Canneries	Average Output of Cans
Malaya	52	14	37
U.K.	2,285	380	60
South Africa	370	105	35
Holland	350	160	22
Australia	1,000	96	104
British West Indies	38	11	35
Palestine	20	30	7
U.S.A.	19,200	3,500	55

An example of the inhibiting effects of high tinplate prices and high freight rates is seen when the Indian canning industry is compared to the industry abroad. For sometime now, cans of high technical quality have been available to this industry, in small quantities when necessary, and at the lowest

prices commensurate with the price of tinplate. The industry has failed by and large to establish itself and progress to date has been disappointing. In 1955 the total off-take was a mere 3 million cans filled by 108 canning establishments, with an average annual off-take of 30,000 cans. Most of these establishments, are small and considerable ingenuity is required to adopt modern high speed equipment and technique to meet their small and often unpredictable requirements. The table below gives an indication of the size of the canning industry

THE CANNING INDUSTRY IN INDIA—1953, NUMBERS OF CANS AND CANNERS

Output of Cans	Number of Canneries
BELOW 5,000	4,999
5,000 to 10,000	9,999
10,000 to 25,000	24,999
25,000 to 50,000	49,999
50,000 to 100,000	99,999
100,000 to 150,000	149,999
150,000 to 250,000	249,999
250,000 to 500,000	599,999
ABOVE 500,000	600,000
	Nil

Indian canners are pioneering under difficult circumstances an industry with very interesting prospects. A very high proportion 15-25 per cent of the annual production of vegetables and fruits goes to waste because of the lack of any preserving facilities. Under the Second Five-Year Plan it is understood that there will be a shift in emphasis from cereals to protective foods—milk, meat, fish, fruits, and vegetables. There are certainly very many important opportunities in this situation, but development will depend on the Food Preservation industry's ability to maintain high standards of quality, and to make products that appeal to the tastes of masses. Lower tinplate prices and lower freight rates for both filled and empty containers will be required



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before a pack is produced which is within the means of the people.

Encouraging progress has been made on the technical side of this industry, in laying foundations which will develop when conditions are more favourable. The technical problems of the packaging industry make a fascinating study. The design and decoration of a container, within the rigid limitations imposed by costs and materials is a specialised function. Distinctiveness has to be created by decoration where the necessity of rapid production imposes standardization of containers. The one gallon rectangular tins, in which a variety of insecticides and lubricants is sold, frequently provides excellent examples of the designers art. The designer lays the way open, for low costs involved in long manufacturing runs of a standard

product, while at the same time providing each customer with completely distinctive containers.

The confectionery and tea trade often require highly decorated and unusually shaped containers, and the artist has to make allowances for extreme distortions of the flat surface on which his drawings will be printed, before the container is fabricated. A very high degree of skill has been achieved, and some of the containers proudly advertised by confectionery and tea firms in the Indian press are fine examples of a specialized branch of the commercial artist's skill. The actual printing of tinplate creates a number of problems concerning printing inks, lacquers and other finishes. A great deal of research has been done abroad, but there are a number of problems peculiar to the Indian conditions.

To meet these specific problems, which are created by the quality of Indian tinplate, the Indian climate, and the lack of certain synthetics and other material not locally available, a Research Division has been set up in Calcutta by the Metal Box Company of India Ltd. This service is backed by the extensive research facilities of the company's British associates, which continues to advise, among other problems on complicated chemical questions in formulating lacquers to prevent chemical interaction between the can and its contents. The problems of preserving Indian fruits and foodstuffs receive attention at the Central Food Technological and Research Institute at Mysore, which publishes a monthly journal recording its activities, and books detailing the processing of a variety of Indian foodstuffs. Recently

the Institute has decided to extend the range of its services to industry, by creating a packaging research section.

A crucial consideration in can making equipment is the necessity of producing cans in very large quantities at very short notice. Food stuffs for example, are invariably so perishable, that it is not possible to store them. They have to be processed and canned rapidly. This characteristic frequently creates situations in which large quantities of cans are required, at very short notice. The solution is provided by the modern bodymaker and a fine example of modern high speed manufacturing technique. The lithographed sheets of tinplate, are slit to very close tolerances and then fed on to the bodymaker, which forms the body and locks the side-seams with remarkable rapidity. A modern bodymaker produces made up cans at a rate of 300 a minute and above.

The formed bodies have one end seamed on, and are supplied in cartons to the customer. Where long range transport is necessary, the body, after it has been formed, and its side seam well soldered, is mechanically flattened, and shipped in this form, with the ends supplied loose. Simple and inexpensive machinery provided, by the can maker, at the filling point, will reform the can, flange, and seam on its ends. The finished can is a marvel of precision engineering. A container manufactured at high speed, capable of being filled and closed with high speed machinery, and of protecting its contents, and its appearance, over a protracted shelf life in very trying climatic conditions.

It must be emphasised that all the latest techniques are available here in India, in Calcutta, Bombay, Delhi and Madras. Arrangements between the largest Indian tin box manufacturer and its associates in the US and the UK provides a constant source of the most upto date "know how". This refers particularly to the manufacture of tinplate containers, and closures (screw caps and crown corks), but covers in addition packages made from aluminium (rigid and collapsible tubes) and recently polythene film.

The tin box manufacturer has acquired an exceptional knowledge of sheet metal fabrication, and of late he has been turning this ability, which he displayed so outstandingly during the World War II, to supplying mechanical industry with a variety of complicated components including those involving deep stamping. Industries manufacturing motor cars, cycles, electrical equipment, typewriters, and duplicators are finding in the specialized "know how" of the tin box manufacturer a solution to many of their production problems. It seems certain that the tin box maker will play a vital role in the industrialization of the country.

Tea Machinery Industry

By S. C. MITTER

WITH a view to studying the requirements of Tea machinery and equipment, it is essential in my opinion, to be quite clear in one's mind regarding the sequence of processes involved in the manufacture of Tea, from the plucking of Tea till it is finally finished. Tea today is recognised as an indispensable material in the culinary list of modern civilisation yet it was not till the late nineteenth century that Tea drinking could establish itself so universally.

As a non-alcoholic beverage, Coffee is certainly a formidable competitor; but here in India, as well as in England, coffee, though showing signs of getting a foothold among the aristocrats, seems to have no chance to hold on against Tea—mainly because of its wide range of prices, its comparative cheapness and ready availability, and the simple process involved in its preparation.

The word "Tea" owes its origin to the Chinese local Amoy patois 'te' which is pronounced "Cha" in Cantonese. The people living in Western Europe, particularly the Dutch, the British and the French, have borrowed the amoyan word, while the countries of the East, including Russia, have more or less chosen to incorporate the Cantonese word "Cha" in their respective vocabularies. The first recorded reference to Tea is found in a work of Confucius of about 500 B.C. though Chinese legends trace the origin of Tea to as far back as 2737 B.C. From China the cultivation of Tea rapidly spread to Japan. It is curious to note that in both these countries there is a legend connecting the origin of Tea with a Buddhist priest of Indian descent. It is recognised in an unambiguous form that Tea tempers the spirit, harmonises the mind, dispels lassitude, reduces fatigue, awakens thoughts, prevents drowsiness, and lightens and refreshes the body.

The most notable political event of the eighteenth century prior to the French Revolution, i.e., the War of American Independence is curiously connected with Tea. The adoption of certain measures by the British Government against the American Colonists was the immediate effect of the casting off of three hundred and odd chests of tea into the sea by a group of Boston 'hotheads'. These repressive measures led straight to the Declaration of Rights and the outbreak of the War of American Independence. There would not probably have been any widespread rebellion in the Thirteen Colonies against the Chancellor of the Exchequer if he had abolished the duty on tea as he did with regard to glass and paper. The influence exercised by tea on the American people does not cease here. Since the inhabitants of the USA had to

depend on British imports for their consumption of tea, they looked for an alternative beverage and this they found in coffee which was produced on a large scale nearer home in Brazil. The fortune of Tea, as far as the United States was concerned, sank forever henceforward and coffee soon took its place.

MANUFACTURING PROCESS OF TEA

After the leaf has been plucked and weighed it is spread in Leaf Houses to wither, a process which takes about 18 hours. One of the objects of withering is that the leaf may be prepared for the subsequent process of manufacture. Even on a dry day about 75 per cent of the fresh leaf consists of water and nearly half of this has to be got rid of before the fibre of the leaf will stand the strain of rolling without breaking up. A chemical action also takes place during the period of withering, but the main object is to make the leaf sufficiently flaccid to be rolled without becoming a mass of tons fragments in the rollers.

When the process of withering has been completed the withered leaf is taken to the rollers. Originally in India, and still with hand made tea in China, leaf was rolled by hand. The machines in use at present have been designed to intensify the action of hand rolling, although a new type of machine giving a continuous method of rolling is now under test in the Indian Tea Association Experimental Station in Assam. The object of rolling the tea leaf is to break up the cells in the leaf and to allow fermentation, and oxidation of the juice expelled during rolling. This process of oxidization is continued

after rolling has been completed by laying the rolled leaf on fermenting beds in a cool room. The total process of fermentation, counted from the time rolling first commenced, takes between 2½ to 3 hours, the actual amount of time depending on various factors. During this time the leaf loses its original green colour and takes up a coppery hue.

After fermenting has been completed, the fermented leaf is dried in drying machines. The first object of this process is to arrest fermentation and then slowly to desiccate the leaf in such a way as to extract the moisture without scorching the tea, but at the same time preserving all the desirable characteristics of the tea. This is usually done by firing in two machines, the tea coming out of the first machine "Twelve of Fourteen Annas" fired, and being fully fired in the second machine. Although the tea has not yet been sorted, it would now be recognised by a layman as the tea of commerce.

It is now necessary to sort the tea into various grades, and the fundamental principle of this is to use machine-operated sieves, some Rotary and others having the action of hand sieving. After the tea has been sorted by passing through different sized meshes in the sorting machines, it is then stored in bins until a sufficient amount has been accumulated to pack a "break" of that particular grade.

The Tea manufacturing processes already outlined are carefully controlled to bring out the best qualities. During these processes an important aspect is the condition of the atmosphere in which they are carried out.

The initial withering stage can be helped by ensuring a good air flow through the leaf racks to help in drying. This can be accomplished by a properly designed fan system. During the rains, however, the air is nearly saturated and an adequate wither takes a considerable time. Controlled withering is now being achieved by the use of heater batteries arranged in conjunction with fans to supply heated air for this drying process.

In the rolling operation a considerable amount of heat is generated by the action of the machine which results in increased leaf temperature. Also the leaf itself generates heat whilst fermenting it has been established that the high temperatures produced by this heat generation are detrimental and superior teas are made when some means of cooling is provided. In most cases an evaporative cooling plant will give the necessary cooling effect but the air supply must be carefully applied. It should be mentioned that these evaporative cooling plants consist essentially of an air washer, which is a chamber containing nozzles supplied with water under pressure, through which air is drawn by a fan and thence delivered by a duct-work system to the rolling machines and fermenting room.

Due to the expense, refrigeration for cooling has not been generally adopted so far, but experiments are being made with fermenting chambers using small refrigeration units. These have the advantage over evaporative cooling plants as temperature control may be applied irrespective of external conditions.

During the final stage of tea sorting the sieving processes re-

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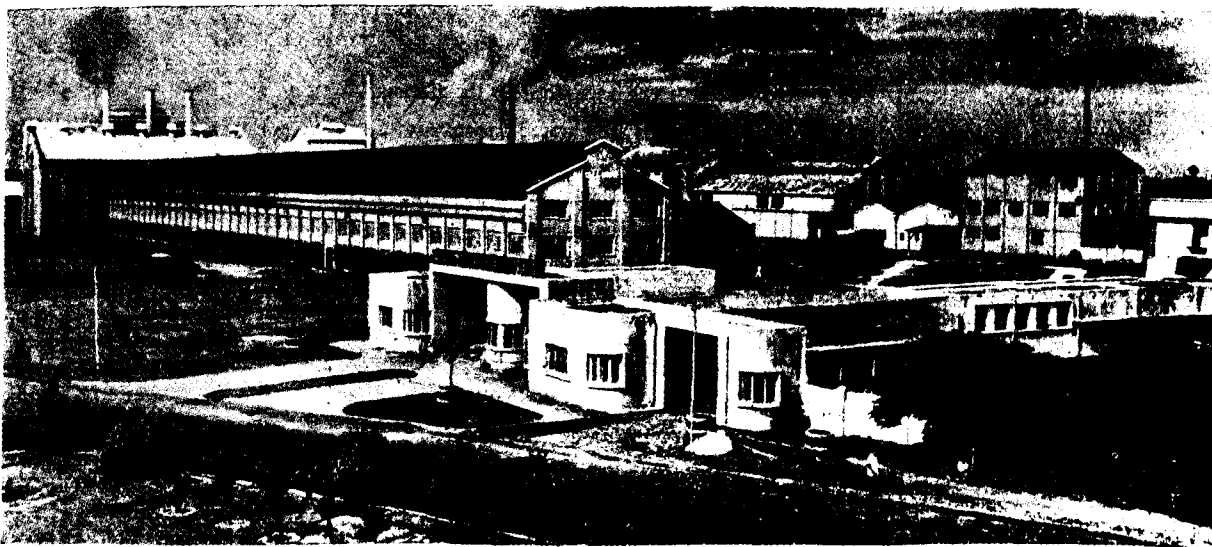
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lease fluff and fibre into the atmosphere making bad working conditions and also contaminating, as it settles, the finished tea. To overcome this, extraction plants are used. These plants consist of carefully designed hoods for the various machines, arranged to collect the fluff and fibre as it arises, it is then conveyed through ductwork to a suction fan from where it can be safely discharged to atmosphere or collected as required.

AGRICULTURAL SIDE OF THE INDUSTRY

A number of implements are required for the agricultural side of the industry including Flat Hoes, Cheeling Hoes, Transplanting Spade, Forks of different types, Pruning Knives, etc. The manufacture of these stores have been standardised under the auspices of Gillnot Small Scale Industries. a Subsidiary of Gillanders Arbuthnot and Co., Ltd. The products are marketed under the Trade Name of Gillnot under the direct supervision of a highly qualified Metallurgist and Experienced Engineers. The Gillnot Scheme extends to quite a number of Small Factories by providing them with specially selected raw materials, Expert Technical Supervision enforcing rigid inspection and immediately on delivery of the stores and ultimately marketed

under the Trade Name of Gillnot. This registered name ensures that the buyer receives stores made to rigid specifications and dimensions so that, by reference to the catalogue code number, interchangeable replacements are always supplied.

Tools and implements, whether for agricultural or for other purposes can be produced in quality and in price only if the relative productive operations follow correct specifications, use correct types of raw materials and are supervised properly at every stage of actual production. The importance of correct specifications will be evident from the fact that recently a sub-committee of the Indian Standards Institute in consultation with the ITA technical expert and the Small Tools Association affiliated to the Bengal National Chamber of Commerce, Calcutta are drawing up the specifications for a number of items required by the Tea Gardens. The selection of the right type and quality of raw materials and their correct processing into the finished articles were also the subject matters of considerable discussion.

Pruning Knives for example should preferably be made from Carbon Steel of Eutectoid composition i.e. having a carbon content of .9%C, which is more or less a completely pearlitic steel. The forged knife should be oil hardened and tempered so as to arrive at Troosto-Sorbite Structure with more of stable sorbite in which case the knife will be tough and have a cutting edge which will retain its sharpness for a considerable time even after rough use. In the case of Hypo-Eutectoid Steel containing Carbon much lower than .89 or .9%C micro examination of structure will reveal much of ferrite along with pearlite. This ferrite which is obtained after heat treatment cannot retain a good cutting edge being softer than sorbite or troosto-sorbite grains.

In the case of the Tea Machinery considerable progress has been made and these machines are being manufactured by Britania Engineering Ltd.—a managed Company of McLeods and Co., Ltd., in direct collaboration with Marshall and Sons. It is quite possible some of the many parts now being manufactured by Britania Engineering Co., Ltd., could be produced by a number of Small Scale Factories to be used in the final fabrication of Tea Machinery and Equipment. Dispersal of factories will no doubt be conducive to the best possible results because in the Community Project Areas sponsored by the Government of India large number of Small Scale Factories are being encouraged into existence and these factories under proper control could play a useful part in supplying needs and requirements of big factories. I cannot but lay too much emphasis on this aspect of the problem, interlinked as it is with the genius of the people of the soil as also the existing socio-economic traditional environment.

The ACC's Sindri Cement Factory

HOW SINDRI CAME TO BE CHOSEN

THE plan for producing chemical fertiliser in the country first took practical shape when the Government of India appointed a Technical Mission in 1943 to explore the possibilities. After making a careful assessment of the raw materials available in India, the Mission finally decided that the fertiliser to be manufactured should be ammonium sulphate, produced by the interaction of calcium sulphate and ammonium carbonate. Several possible sites were indicated by the Mission, Sindri being one of them.

During its deliberations, the Technical Mission came into touch with the Associated Cement Companies Ltd., and both examined the possibility of cement manufacture from calcium carbonate sludge—the final choice of the fertiliser being ammonium sulphate. The ACC agreed to take over the cement undertaking and in 1952, after several meetings with the Government, an agreement was signed for the installation of a cement factory at Sindri.

CEMENT MANUFACTURE AT SINDRI

Sindri has already made a name for itself in the modern industrial history of India. The giant fertiliser factory with its daily production of 900 tons of chemical fertiliser and the Associated Cement Companies' modern cement factory function cheek by jowl at Sindri. This ingeniously designed, modern cement factory opens up new fields for the manufacture of Portland cement in India. Here, there are no traditional limestone quarries or stone-breakers or mills for pulverising the raw materials before they are processed for the manufacture of cement.

Calcium carbonate sludge, which results as a by-product in the manufacture of ammonium sulphate in the fertiliser factory, forms the principal raw material for cement manufacture. As far as is known, this cement factory which uses this type of raw material is the second of its kind in the world today. Three purposes are served usefully by this method of using calcium carbonate sludge. For the fertiliser factory the problem of disposal is taken care of; the cement manufacturer is supplied with one of the chief raw materials for the manufacture of cement. The chief advantage however is, that the money acquired through the sale of calcium carbonate sludge to the Associated Cement Companies' helps to a large extent to bring down the price that the former has to pay for the chemical fertiliser.

CAPACITY OF THE SINDRI FACTORY

The ACC's Sindri factory has been designed to ensure a production of 2,00,000 tons of Portland cement every year. The manufacture of cement here depends upon the capacity of the fertiliser factory to produce ammonium sulphate, and at present the output of 900 tons of calcium carbonate sludge is just about enough to produce 600 tons of cement per day.

The Associated Cement Companies have made adequate provisions for future extension of their cement factory, but this will depend largely on the expansion of the fertiliser factory and its capacity to produce more ammonium sulphate by the present process viz. by the interaction of gypsum and ammonium carbonate.

HOW ACC CEMENT IS MADE AT SINDRI

As stated earlier, the principal raw material for cement manufacture at Sindri is calcium carbonate sludge. This sludge is pumped from the fertiliser plant direct to the cement factory in the form of a "slurry" containing about 80 per cent water.

At the cement factory, this thin slurry is transferred to a Dorr Thickener where the moisture content is reduced to about 40 per cent. From the Thickener the sludge goes to silos in which controlled quantities of correcting materials such as clay, separately washed and ground are added. This mixture is then poured into a large basin where it is thoroughly blended and is kept in a state of agitation so as to effect complete homogenisation before being fed into the rotary kilns.

These kilns are mounted at a slight incline in order to facilitate the downward flow of the slurry. The slurry then progresses down the kiln and is burnt at a temperature of about 2,700 degrees F by means of a roaring blast of flame produced by pulverised coal. After a complete chemical transformation which takes place during the burning, the slurry emerges from the discharge end of the kiln in the shape of dark hard pellets called "Clinker".

The clinker, after its discharge from the kilns, is rapidly cooled in a modern Fuller type of cooler and is then transported to the crane storage by means of an inclined drag chain conveyor. The clinker is allowed to season for a time in the crane storage, and is then picked up by an 8 ton overhead grab crane and delivered into hoppers. From here, the clinker is taken to the finishing mills where it is ground to extreme fineness. During this operation a predetermined quantity of gypsum is added in order to control the time of setting and hardening of the finished product viz. Portland cement. The resulting cement is conveyed pneumatically by a combination of air-slide and a pneumatic fluxo transporter pump to large storage silos.

bination of air-slide and a pneumatic fluxo transporter pump to large storage silos.

STORING AND PACKING

Automatically controlled modern methods are employed for the storage of cement in the silos, its withdrawal for packing into bags or into bulk wagons. Cement is filled into bags and weighed by automatic machines, thereafter conveyed by rubber belt conveyors and delivered into railway wagons or motor trucks or stored on the packing platform when transport is not available. Railway wagons and motor lorries are often used to despatch large quantities of cement.

The ACC engineers had the unique opportunity and privilege of designing the entire plant at this modern factory—most of the machinery being fabricated in the ACC's own Central Workshops.

LABOUR WELFARE

The employees at this factory are well looked after and the ACC, in keeping with its policy, has provided them with such amenities as a modern, well-laid-out and attractive colony, canteen, dispen-

sary etc. These are all maintained at the high level of ACC standards.

The speedy completion of the ACC's Sindri factory was largely effected by the co-operation and help of the officers and the staff of the Sindri Fertiliser factory during the construction period.

The Bihar area is assuming a growing importance in the industrial development of India—this being the third ACC cement factory to be established there. These industrial projects and several others that will soon be established in Bihar will no doubt help to solve the Indian economic problem.

Cement means better living for all and the ACC continues to make more and more quality cement. It is not the aim of the ACC merely to make large quantities of cement. Its guiding principle can be understood best in the statement made by the late Mr F. E. Dinshaw ".....not to attain a monopolistic position. Its primary object will be to make and deliver cement as cheaply as possible." The progress made by the ACC and the policy which it follows today fully justify Mr Dinshaw's confidence and faith.

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FOUNTAIN PEN AND INK INDUSTRY

By "ANURADHA"

THE remarkably high wave of nationalism which swept our country after the advent of independence and the Government's policy toward their avowed aim of self-sufficiency gave impetus to the setting up of many industries in this country for the manufacture of foreign products. These same factors prompted Mr Paranjothi A. Sanjeevi, an enterprising young industrialist of Madras, to think of setting up of a factory in this country for the manufacture of high grade Fountain pens and inks.

As a first step in giving practical shape to this idea, Mr Sanjeevi contacted the Principals of the Pilot Pen Co., in Japan during one of his business visits to that country and succeeded in making them agree to the establishment of The Pilot Pen Co. (India) Ltd., styled after the parent concern, with the factory located at Kathivedu, a suburb of Madras. The opening ceremony of this factory was performed on 28-9-52 by the Hon'ble Mr C. Subramaniam, Finance Minister to the Government of Madras.

The Factory started with the manufacture of Pilot Ink first, and thanks to the quick work of the Japanese technicians and the extraordinary local talent in the young men recruited by them, it was possible to make available this ink in the market in about six months time; and, in a short time thereafter, fountain pens with every part manufactured at the factory were ready to be put into the market.

In an article of this kind, it may perhaps be interesting and instructive to know some details about this industry. Superior quality barrels and caps of Fountain pens are made of high grade celluloid while necks and feeders are made of ebonite. Metal parts such as clips, bands and other ornamental parts, are made of gold plated metal. Nibs of the best quality are made of carat gold while cheaper varieties are made of a special alloy plated with gold. The nib points are generally made of Iridium, but the Japanese have evolved a particular composition of this alloy which is very hard and at the same time capable of offering smooth writing comfort. Writing luxury and delight, which only highly expensive pens afford, are now provided in the Pilot range of pens at a comparatively low cost.

Blue Black ink is fundamentally a colloidal solution, its particles being charged with electricity. On account of the Brownian Motion in the solution, the constant impact of the particles possessing opposite

charges causes them to aggregate ultimately resulting in sedimentation. The Pilot ink manufacturers have been successful in overcoming this difficult obstacle of sedimentation by the invention of a special chemical. This chemical changes the negative charges of the particles to positive and when all the particles are of a like nature, sedimentation is eliminated, giving the maximum fluidity to the pen. This unique characteristic of elimination of sediment in the Pilot ink was certified to by Professor Dr Lidial of Cambridge University on the 25th January 1932.

The Pilot inks have been subjected to analytical tests at the Central Government Test Institute, Alipore and certified as satisfying the Indian standard specifications. The public will be greatly interested to know that in the manufacture of both Pilot pens and ink, the processes and principles adopted are identically the same as those by the parent firm of Japan.

The Pilot Pen Co. (India) Ltd., had to contend against great odds in the beginning as are incidental to the starting of any industry. Originally, the Government of India were not in favour of the



manufacture of cheaper varieties of pens by this factory, but subsequently, this restriction was removed. The Company now produces a choice variety of quality pens in attractive colours at prices ranging from Rs 4-8 to Rs 35—an

achievement over which our nation can justly feel proud. The Government of India's anxiety in making the industrialists use only indigenous materials for their finished products, as reflected in their Import Policy, is resulting in the compulsory use of raw materials which are not up to the standard. In view of this great handicap the Government of India may adopt a more liberal policy in the matter of import of high quality raw materials and certain other essential parts which are absolutely incapable of being manufactured in this country at present, of course, subject to the condition that the manufacturers give them the assurance that such imported materials will not be misused or traded in for other purposes. The Government must also intensify measures to prevent the smuggling of Japan manufactured Pilot pens which are still somehow finding their way into this country.

The most astounding feature in competition in this line of business, as everybody knows, is the availability of attractive looking pens at very low prices in small shops and pavements, but fortunately this need not be an alarming factor, for sooner or later, it will be realised that these pens are more to be toyed with than thought of as dependable instruments of writing intended to last for some considerable time. With the manufacture of the best quality pens at moderate prices, the principals of the Pilot Pen Co. (India) Ltd have realised their fond ambition of making them the most ideal and popular pens of this country.



The General Electric Co. of India Ltd.

THE General Electric Co. Ltd. of England has now been represented in India for nearly 50 years by its subsidiary, The General Electric Co. of India Ltd. Its interest in the local manufacture of certain of its electrical products had its genesis in the well-equipped workshop in Magnet House, Chittaranjan Avenue, Calcutta, to which the local Company moved its head office in 1932. This workshop was set up in the first place for the repair, servicing and testing of the Company's products, such as fans, motors, household appliances and measuring instruments; but it very soon started the manufacture and assembly of switchboards, LT Switchgear, overhead line material and various accessories.

About 1938, it was decided to separate the workshop from the purely manufacturing activities, and plans were formulated to set up an entirely separate factory for the manufacture, in the first place, of ceiling and table fans. A modern and well equipped single-storey works building of approximately 18,000 square feet was erected for this purpose in Garden Reach, Calcutta, and the works was ready to go into production toward the end of 1939. Meantime, however, World War II broke out and, at the Government's request, plans for fan production were shelved and the works was turned over to the production of specialised equipment for the Defence Services.

POST-WAR PROGRESS

Until almost the end of the war, the works was thus engaged; then, at the Government's request, the question of producing fans was revived. AC electric motor manufacture was commenced on the termination of the War and, to cope with this, the works building was extended. By 1946, it had grown to three times its original area, to 54,000 square feet. Three years later, it was decided to extend the range of products manufactured in India so as to include the assembly of radio receivers and assembly - cum - manufacture of electric meters, manufacture of power transformers, household appliances, industrial fans etc. To provide the additional space required for this, the construction and equipment of a three-storey building was commenced in 1950, which was to add a further 54,000 square feet of factory floor space plus ancillary buildings for foundry, stores and repair shop, totalling a further 30,000 square feet. The completion of these additional manufacturing resources was effected in 1953. To ensure the smooth running and efficient organisation of this works, a separate subsidiary company, The General Electric Co. of India (Manufacturing)

Ltd., was created. The name "Paharpur Works" is derived from the district in which it is situated.

FANS

Ceiling fans were the first articles to be produced at Paharpur Works in accordance with a regular manufacturing schedule. Today, a full range of AC induction and capacitor type ceiling fans as well as 16" fixed and oscillating type table fans and 16" Pedestal fans are being produced. Only high quality electrical steel sheet for the stampings, and electrolytic grade copper for the rotor windings, are used in their construction: this ensures that a high efficiency is maintained throughout their life. GEC fans made in India comply with the appropriate BS and ISI specifications and for many years have been accepted by the Govern-

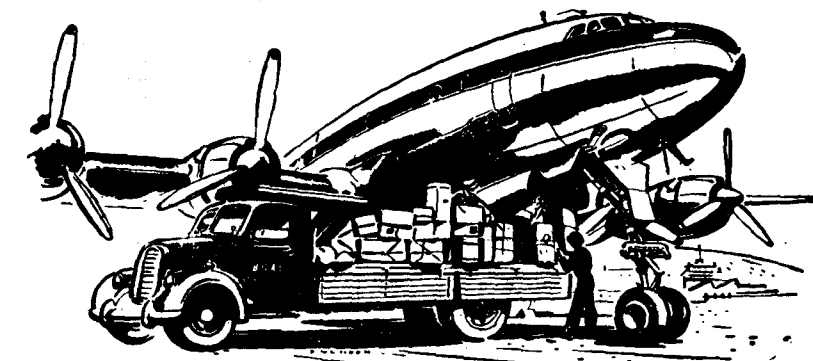
ment for supply against successive DGS & D Rate Contracts. The latest addition to the range of fans manufactured at Paharpur Works is the "Everest" AC Capacitor ceiling fans—a highly efficient fan, of modern streamline design and low current consumption, the credit for whose development is to a large extent due to the Calcutta works. Already, the demand for it is exceeding production. The other two additions in our already large range of fans are the 60" and 56" sweep Capacitor Ceiling Fans brought into production at a reasonable price to meet every pocket.

Further, our Paharpur Works has recently embarked on a programme for the manufacture of Industrial fans. These fans, commonly known in India as Exhaust Fans, have heretofore been imported from Messrs Woods of Colchester limited, an Associate Company of The General Electric Co., Ltd., of England. Production has commenced by importation of basic components leaving winding and manufacture of a die cast rotor on a locally produced shaft to be completed in India. In addition, available indigenous components such as bearings are also fitted. At the moment, production has commenced on two sizes only, 18" and 24" diameters. Some features of these fans are the high quality obtained by extensive use of die casting, and the efficiency which is maintained by ensuring that all impellers are formed at a set profile in aerofoil shape by pressing all the individual wings. The fans are resiliently mounted to give trouble-free operation and to prevent any possibility of transference of vibration to surrounding walls or other equip-

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ment. Another point of note is the provision on the 18" size of an in-built condenser which gives neatness of appearance and great facility of mounting.

HOUSEHOLD APPLIANCES

The initial stage of manufacturing household appliances in India has been to import components of Electric Irons, Coffee Percolators and Kettles, and assembling them in our Paharpur works. The first series of the production have now been completed. Gradually, more and more of the components will be manufactured locally until, eventually, the import of parts from the UK will cease, and these household appliances will be manufactured entirely in our Paharpur works. Our Principals in London are working on new designs which will simplify the process of manufacturing household appliances and will, therefore, be very suitable to be introduced in the Indian Market.

AC MOTORS & POWER TRANSFORMERS

The production of AC motors was a natural follow-on to that of AC fans and, today, motors from 1 to 50 HP are being manufactured at the Paharpur Works. In addition to standard AC, 3-Phase, screen protected, squirrel-cage motors, the present range of locally-made motors also includes totally enclosed, cowl-cooled types as well as slip-ring and loom motors. Motors made at the Paharpur Works are normally tested

to IS, 325/1951 but special tests required by customers can also be arranged.

In addition to fans and motors, the original single-storeyed building of the Calcutta factory is also utilised for the manufacture of power transformers. Manufacture commenced early in 1953 and, already, the range being produced includes three-phase power and distribution transformers upto 1500 KVA at 11 KV on the HT side. These are manufactured to customers' individual requirements and special consideration is given to ensure that the transformers are suitable for operation under the arduous climatic conditions prevailing in many parts of India. All transformer designs are based on technical information compiled by the Research Laboratories and Works of the GEC in Britain and those of 6 KV and above are specially strengthened to withstand switching and lightning surges. Transformers are normally tested to BSS but any other special tests required by the customers are complied with.

The future policy of the Organisation is to expand the works so that transformers upto 2500 KVA can be manufactured in the near future. The fabrication and assembly of all types of switchboards, distribution boards, fuseboards, busbar chambers and busbar trunking to customers' specifications are also undertaken in the Paharpur Works. The works is

starting the manufacture of IC switch fuses, knife switches and transmission line equipment.

HOUSE SERVICE METERS

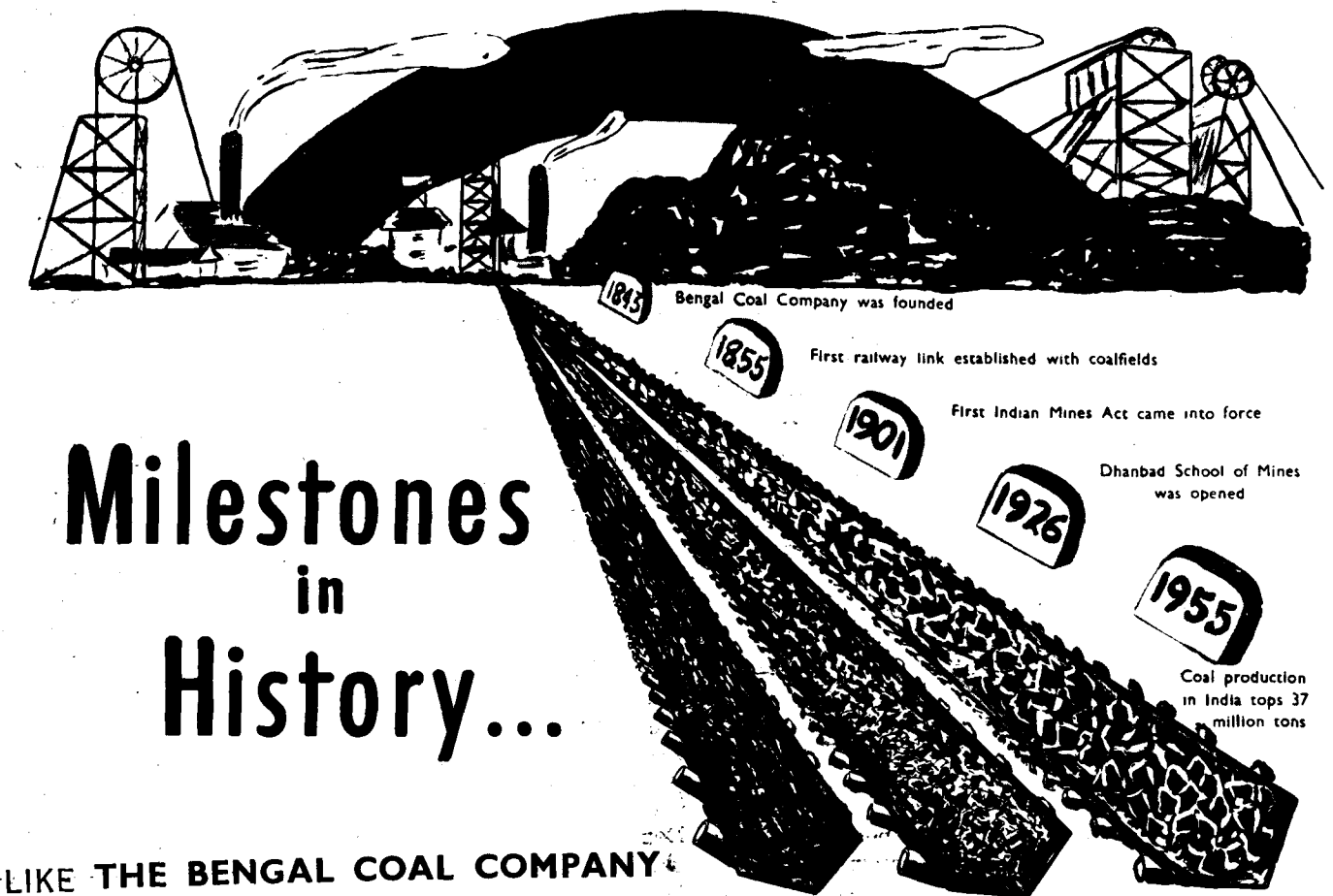
In the new three-storey extension building, one whole floor is devoted to the assembly of house service meters. These are being produced in collaboration with Messrs Chamberlain & Hookham Ltd., one of the leading manufacturers of meters and allied equipment in Great Britain and an associated company of the GEC. Production commenced with the assembly of entirely imported components, but the proportion of local-made components is being continually increased, the ultimate goal in view being that as great a proportion as possible be Indian-made. The present capacity of this section of the works is 50,000 meters per annum, but there is room for further expansion should the demand necessitate it.

An essential feature of an electricity meter is that it should maintain a high standard of accuracy over a reasonable period and this entails that the original design should be basically correct and that the utmost care should be taken in assembly and testing. This section of the Paharpur Works is air-conditioned and laid out on the most modern lines. The Test Department is equipped with specially designed Test Panels of the latest type and the delicate and extremely accurate Precision-

Grade Test Meters are calibrated against instruments of first grade accuracy, which are duplicated so that one set can be checked at any time against instruments of sub-standard accuracy. This not only provides a continuous check on the quality of the workmanship but also ensures that all meters produced have the same high standard of accuracy.

TRAINING FACILITIES

There are now over 1,000 operatives employed in the works who are under the supervision of highly qualified technical officers, both British and Indian, who have been trained in the Works of the GEC Ltd., in the United Kingdom. Facilities are provided for the training of both trade and engineering graduate apprentices; and, from time to time, selected members of the staff are sent to the UK for further training in the various works of the parent company. The products of the Paharpur Works are made to the same high quality and rigid standards as have been established for those manufactured in the UK. To ensure that these high standards are maintained, not only are regular tests carried out during the course of manufacture but samples are sent to the UK from time to time for further tests. They comply with the applicable British Standards, ISI or other Government specifications and carry exactly the same guarantee as the articles made in England.



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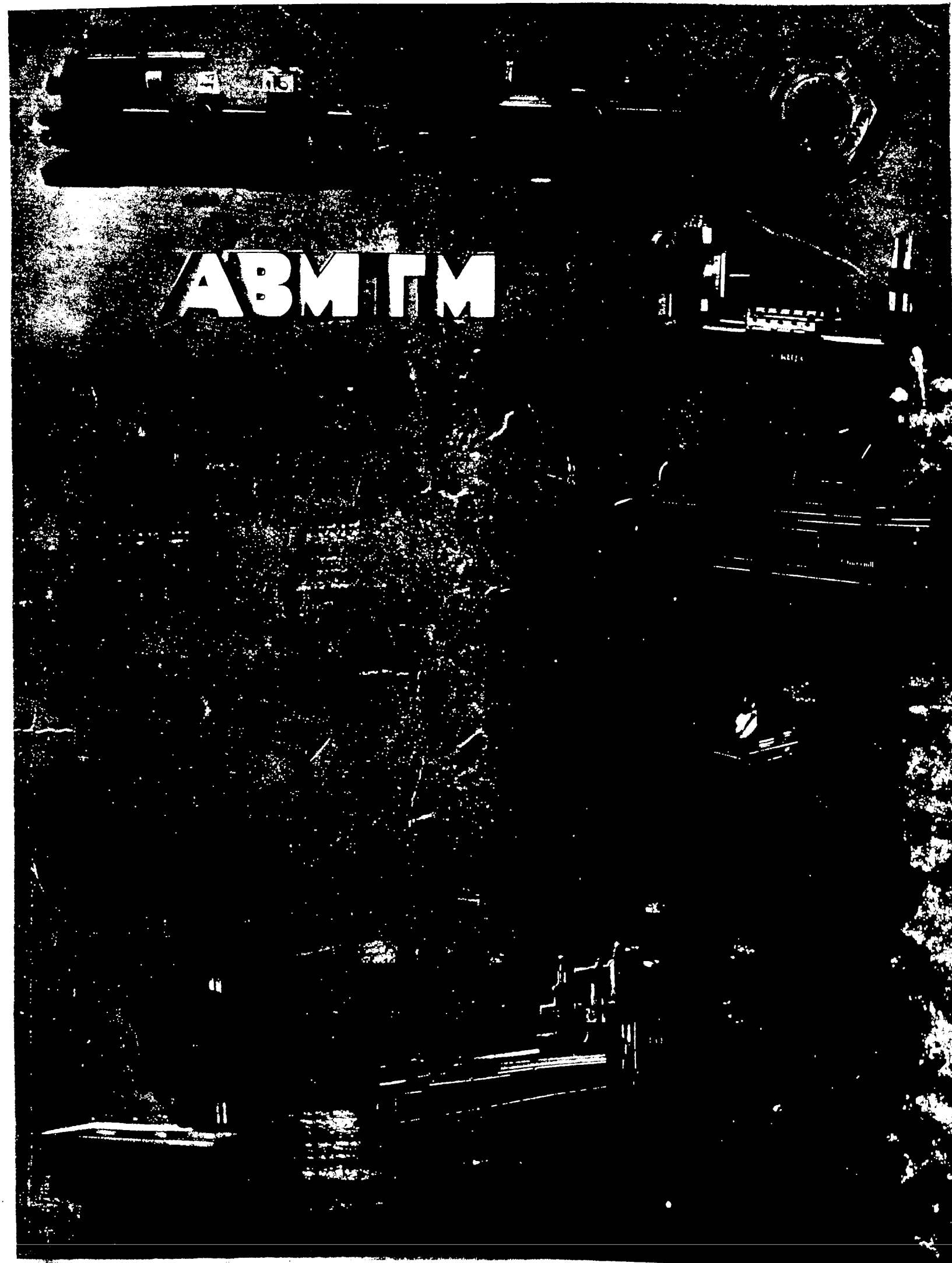
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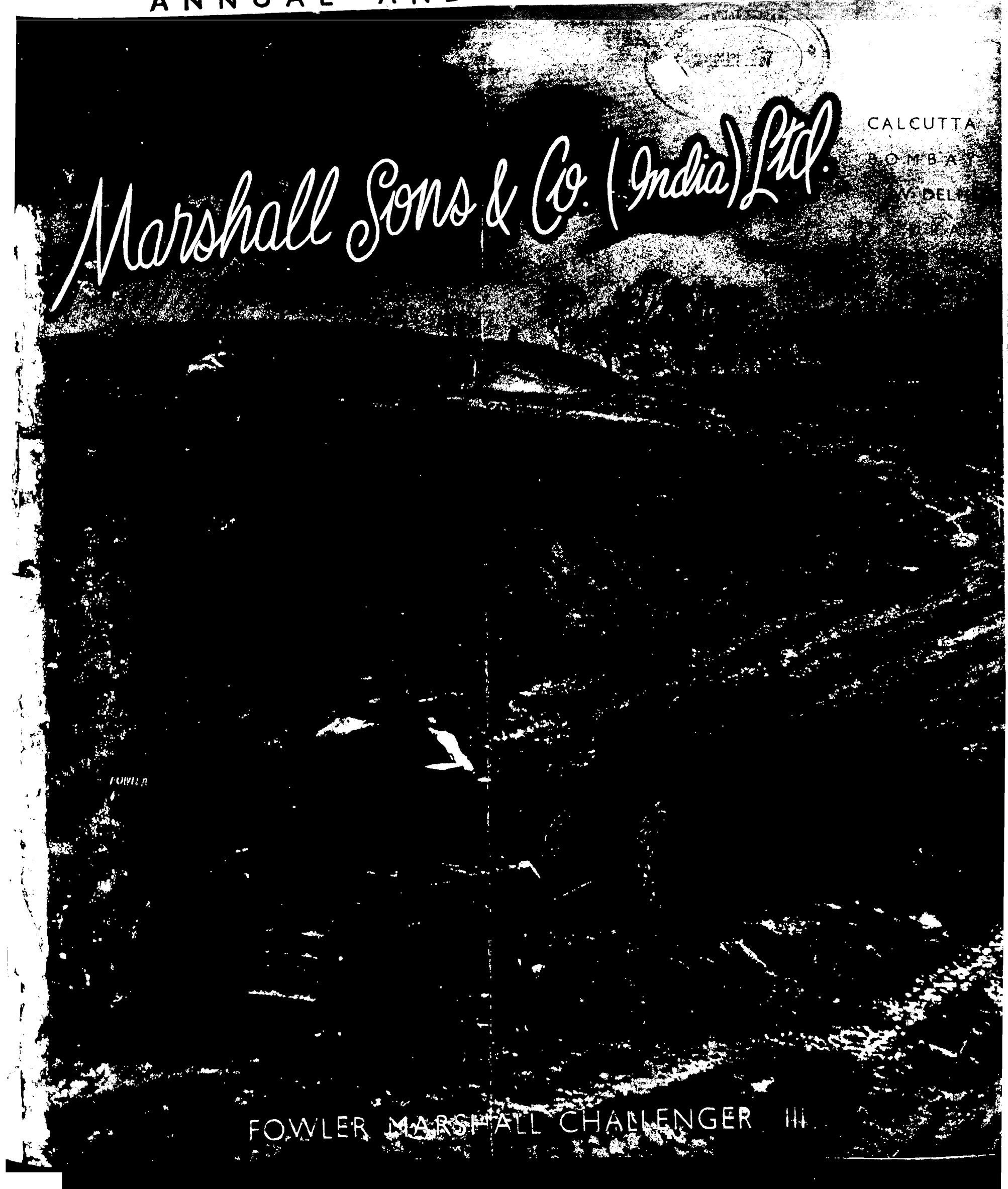
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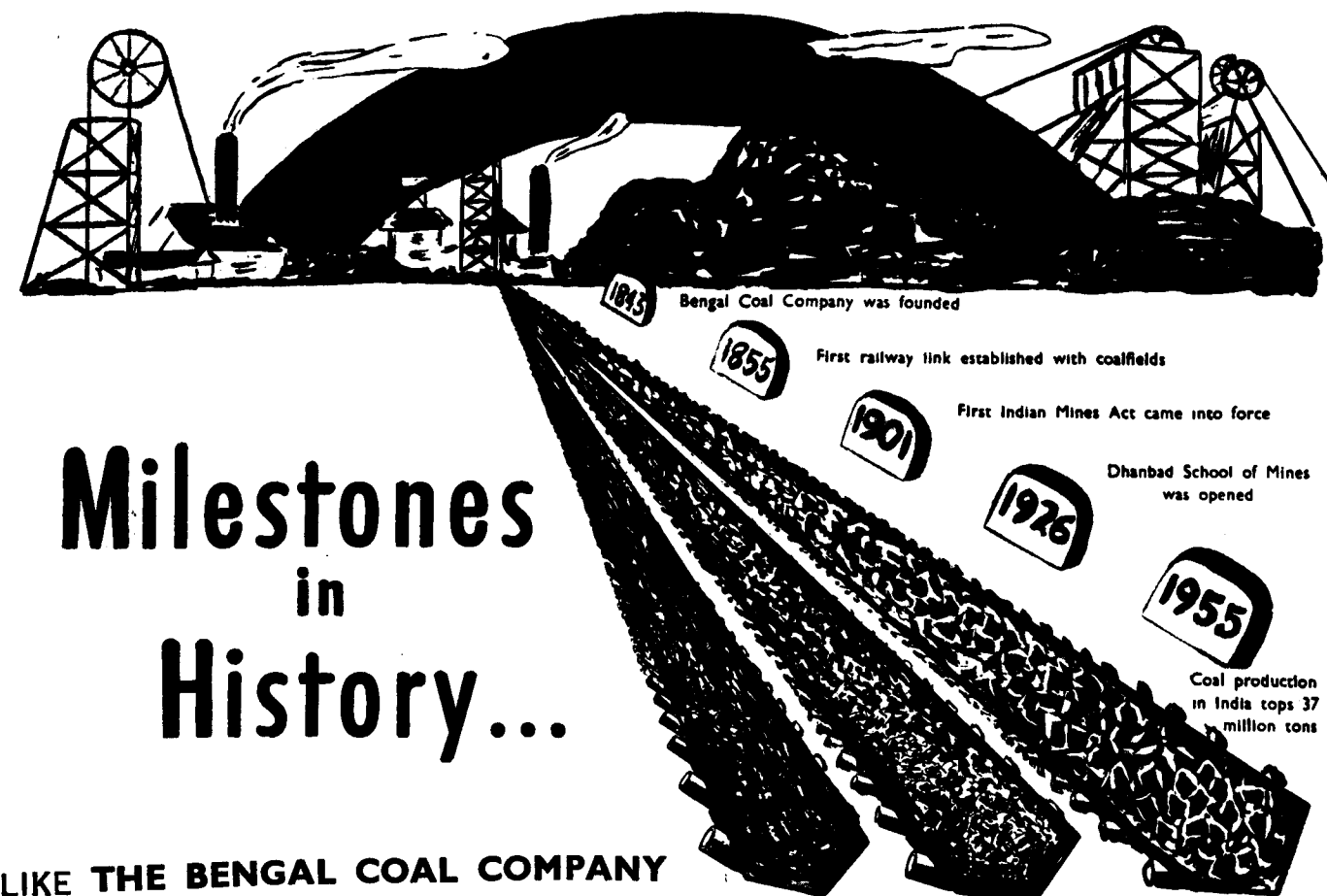


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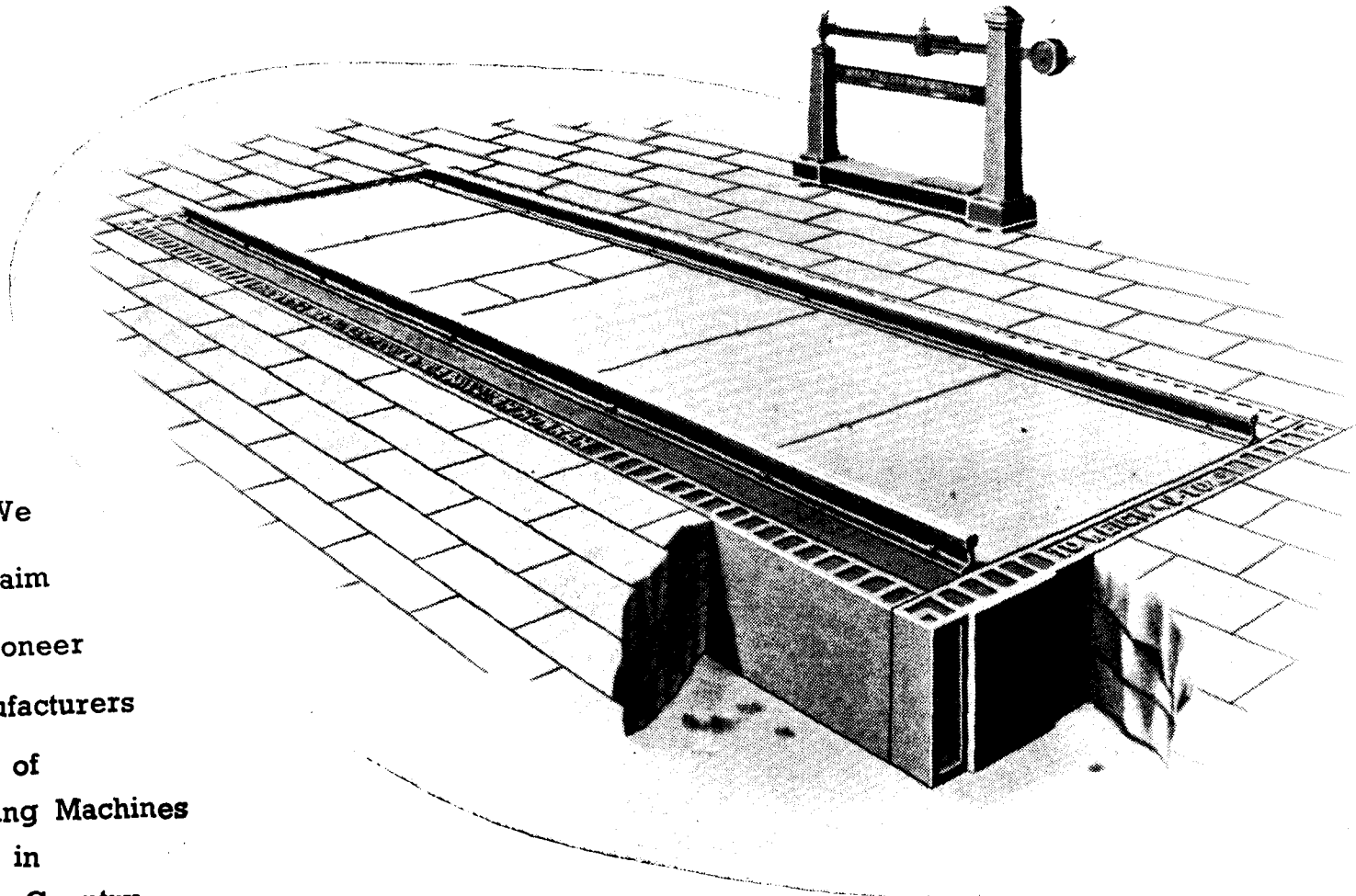
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Indian Finance

ANNUAL AND YEAR-BOOK 1956

The Prospects Before the Second Plan

Crucial Importance of First Two Years

The Need for an Integrated Economic Policy

INDIA'S Second Five-Year Plan has now reached the stage where it magnetically attracts international interest, on the one hand, and where some of the anticipated difficulties and obstacles, on the other hand, have already made their appearance. Although events such as the Anglo-French imbroglio in Egypt, the uprisings and disturbances in Poland and Hungary and the successful Pakistani attempt to induce opposition to India's case in Kashmir have effectually given greater prominence to politics rather than to economics in the international sphere, there is, nevertheless, to be discerned a most welcome sharpening of the focus of attention on, particularly, the fate of South-East Asia as measured by the yard-stick of India's economic problems. This accounts for the fact that, whatever may be the political attitude of the world outside to India, there appears to be an undoubted desire to render all possible economic assistance to this country. We do not, in this context, refer to outright grants involving millions of dollars or pounds. For, all too clearly, the time has passed when any country could afford even to consider taxing its own citizens for rendering help to another. This is not a development that India should regret; and much less is it necessary to deplore the fact that a tithe of the war-time military and post-war economic assistance given to Western Europe by America would suffice to guarantee success—from the financial resources and foreign exchange point of view—of the Second Plan. For, it is in our view both debilitating and futile to rely upon foreign aid (in the form of grants) to cover the gap in resources. Foreign aid, let us recognise, is tantamount to a solution for our problems that obviates the attribute of self-reliance. Such aid alone will no more be helpful to India than the billions of dollars that were powerless to save China. It is not only that we would like to impress upon the world that foreign aid will not spell the difference between success and failure of Second Plan. We would go a step further, and suggest that even foreign aid of the vastest proportions by itself would never bring about such economic progress in India as to keep it free and democratic. The original impulse for India's freedom, in the political sphere, had to come from within this country. This axiom is as true when considered in the economic context of freedom. The basic impulse for economic betterment must first spring from India's leaders; and, from there, it has to be transplanted into the consciousness, attitude and ambition of the millions of our country. In other words, the desire and willingness to work to improve one's own standard of living must be born of the consciousness that one's attitude to the new India of our making must be governed by a realistic ambition as to the goals to be striven for and objectives to be achieved. It is only after there is the prerequisite of self-reliance on the part of India that aid of any sort from the outside world can be of help.

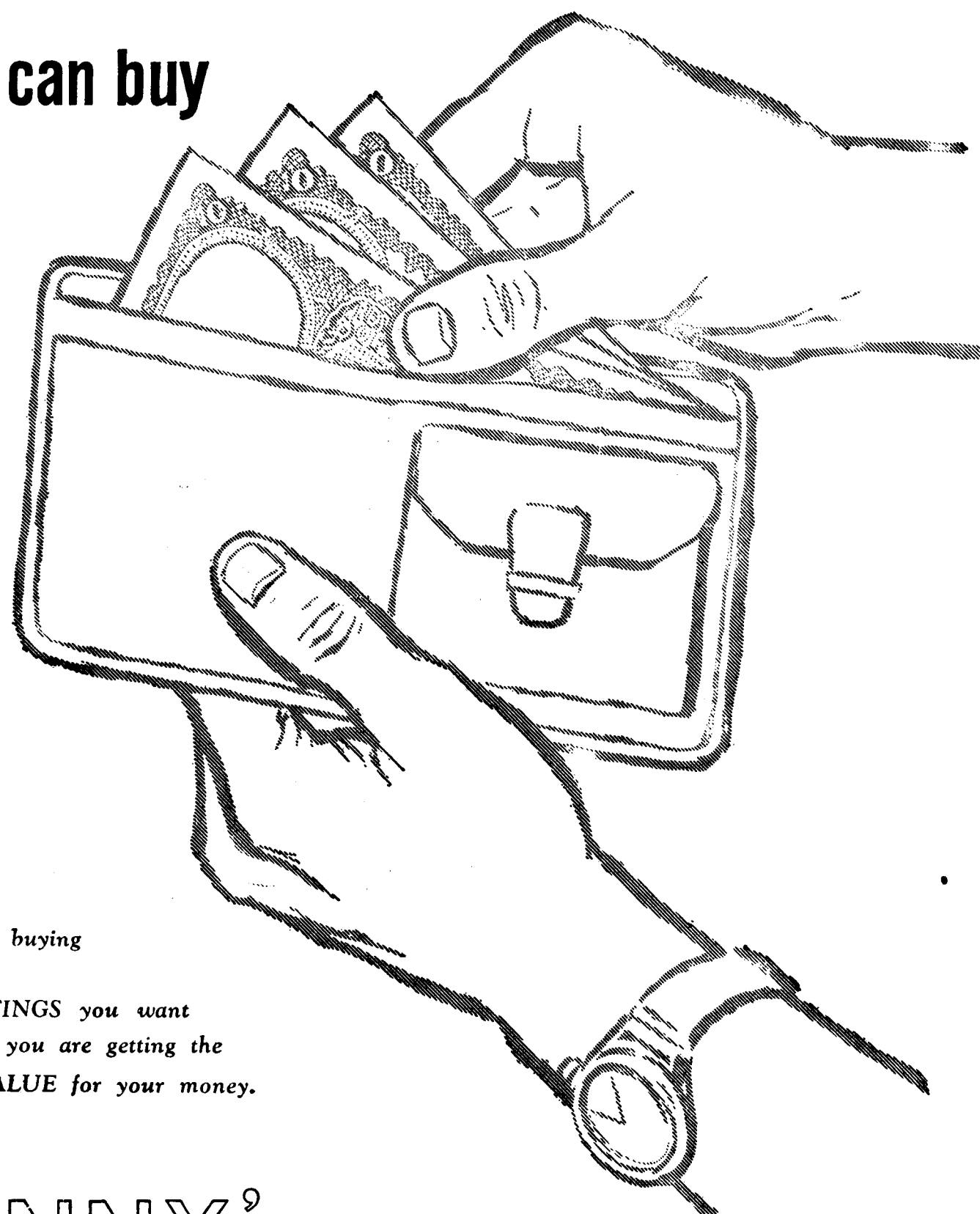
While it is by no means our intention to overlook or forget such assistance as has in the past been made available, we wish to suggest that the implementation of the First Plan, the formulation of the Second and the progress achieved during 1956-57 in the aggregate constitute a record of Indian achievement that is

primarily the result of self-help. It is possible that these achievements will be belittled on the score that not much has so far been attained; and such of those elements as do not sufficiently appreciate the imperativeness of targets being set at more ambitious levels for the Second Plan, will no doubt proceed to point out that resources of the nature required for the Second Plan are beyond India's competence. It is this last point more than any other that we feel needs to be stressed; the articles included in this Year-Book set out the real progress that has been attained in some of the industrial fields. It remains, however, our task to substantiate the thesis that the Second Plan, for all its present shortfall in foreign exchange, is nevertheless an exercise largely in self-dependent and self-reliant endeavours at economic progress. In order to do so, it will be necessary for us briefly to touch upon the First Plan achievements; the Second Plan objectives; the difficulties that will be encountered; the performance in 1956-57; the indigenously available resources of all kinds; and the minimal character of the dependence on the world outside.

THE First Plan can by no means be described as having been ambitious. What it set out to do was, in the first instance, in the agricultural sphere; what needed to be done was the offsetting of the losses in agricultural production consequent to the partition of India; and what had to be given birth to, nourished and fostered was a national feeling of plan consciousness. While the physical and material targets of the First Plan did not raise their sights too high, it needs to be recognised that the first steps just enumerated together comprise achievements of fundamental importance for all future national development. The start had to be made in agriculture, because the basic freedom from want could be served only by the abundant availability of foodgrains. Secondly, it was necessary to consolidate the Indian economy by imbuing it with the attribute of self-sufficiency in three basic commodities—foodgrains, raw jute and cotton. The three of them, on partition, presented India with an import bill of the order of Rs 200 crores. If India were ever to proceed with industrialisation, a condition precedent had to be that it would no longer be necessary to incur an import bill of such magnitude on these three items. It is only then that Rs 200 crores of foreign exchange could be freed for purchasing the capital machinery on which to proceed with industrial development. Thirdly, the sense of plan consciousness had to be diffused; it was necessary to conjure up a credible future in which it would be less difficult to raise the standard of living. Without the wide permeation of such national consciousness, it is clear in retrospect that Communist blandishments would have proved and would be proving much more attractive as a means for a Utopia in which each man would have sufficient to eat, with which to clothe himself and to house himself and in which there would be opportunity of employment for all. It is a matter of fact that the First Plan's achievements in the agricultural field are of compelling



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significance: control of flood waters, increase in electrical energy turnout and an augmentation of irrigation facilities. Secondly, it is also a matter of fact that, partly arising from the first factor, production of foodgrains, raw jute and cotton has so improved as to whittle down the import bill to insignificant proportions. Thirdly, we think it can scarcely be denied that the plan consciousness does, in fact, obtain throughout the length and breadth of India. On the basis of such successful fulfilment of the First Plan targets, the way was cleared for proceeding with drawing up a purposeful Second Plan.

We have stated before that the Second Plan is held by some to be too ambitious; and it cannot be gainsaid that, relatively to the First, it is indeed ambitious. And yet, we would like to stress, the targets that we have set for ourselves are the minimum that we dared to draw up. Anything less attempted might to the masses of India have connoted so slow a pace of progress as to render both enticing and seductive the allurements of other ideologies in national life. So, with a watchful care for the need to maintain and continue to maintain the conditions in which the all important desire for and belief in individual freedom and the democratic way of life would not be stilled, the Second Plan has been formulated. While we shall presently deal with the question of resources, we would like to suggest that the charge of ambitious planning is tantamount to an insult levelled at this country.

For, the insinuation is that the framers of the Plan as well as India's leaders have been so unrealistic in their approach to the task that they have decided willy nilly on a plan of a size far removed from either the available or anticipated resources. Let us for the moment concede that the resources in their entirety will fall short of the requirements. Indeed, the Second Plan in its estimates acknowledges such a short-fall in visible resources. This short-fall may be said to comprise the following:

- (a) The uncovered gap of Rs 400 crores in total resources;
- (b) the difference between the originally planned deficit financing of Rs 1,200 crores and the safe maximum for relying upon this medium of resources; and
- (c) the gap in foreign exchange/foreign aid resources.

We should imagine that it is by now clear that the additional resources that Government will have to find comprise: Rs 400 crores against the uncovered gap, Rs 500 crores against the extent of reduction in deficit financing and an amount around Rs 600 crores in respect of the foreign exchange short-fall. The three of these add up to Rs 1,500 crores in additional resources required for the Second Plan. Since the foreign exchange gap falls into a separate category and has to be considered by itself, we may first analyse the Rs 900 crores gap vis-a-vis the Second Plan expenditure of Rs 5,300 crores. It is fair to state that the Second Plan has been drawn up in the full knowledge that, from the internal resources point of view, there would be a short-fall of Rs 900 crores. Is it on the part of Government over-ambitious to plan expenditure that will exceed resources by Rs 900 crores? While we shall presently be giving cogent reasons for suggesting that even these short-falls are likely to be made good, it is necessary for us to re-emphasise the fact that the Second Plan constitutes for Government the minimum in endeavours that they had to commit to undertake. After all, national income is sought to be raised only by 25 per cent; China's concurrent Plan aims at increasing national income by 50 per cent. Secondly, planning is on the basis that a solution should be provided merely for the back-log of unemployment and underemployment; in China, in this context, the position is likely to be too much rather than too little work for the individual! It was vital for Government to indicate to the masses of the people that the era had begun in which the standard of living would gradually improve. There is little doubt, at least in our mind, that anything less attempted would have seriously jeopardised the continuance of the democracy in this country.

So, we have the fact of the Second Plan which when drawn up, admittedly suffered a short-fall in visible resources. If the objectives and targets are the minimum necessary, the next question that we have to deal with is whether Government had any

justification for planned expenditure overshooting resources by a substantial amount. We believe that, most importantly, the success of the First Plan constitutes the justification for, if not the ambition, at least the boldness of the Second Plan. True, difficulties will be thrown up, obstacles will be encountered, and sacrifices will be called for. But, if it is granted that there is today a national plan consciousness, surely Government have the right to expect that the sacrifices where necessary will be forthcoming. Moreover, for all that it is a cliché, the usefulness of forewarning is immeasurable in the forearming it enables. The forewarnings in respect of the Second Plan may be summarised as under:

- (a) The gap in internal resources;
- (b) the threat of inflationary tendencies;
- (c) the importance therefore of agricultural production; and
- (d) the tightness in the foreign exchange position.

In considering the forewarnings thus offered and in indicating the manner in which some efforts have been made to forearm ourselves, it serves a useful purpose to analyse what may be called the resources budget of the Second Plan.

A number of important considerations have developed in the Indian economy since the drawing up of the Second Plan; and since these have a far-reaching and compelling influence on the resources that will be available, it is desirable to revise the estimates relating to the manner in which the Second Plan is to be financed.

The first of these factors lies in the taxation proposals that have been made since the 1956-57 financial year. This is studied in some detail later in this article.

Likewise, the second factor is derived from another heartening experience in the first year of the Second Plan. The original estimate places the yield from Governments' new loans at a total of Rs 700 crores for the five years. Although this figure is a net one, the success of both the Central and State Government new loans in 1956 has pinpointed the possibility of an upward revision in the target for market loans; and this constitutes the second factor.

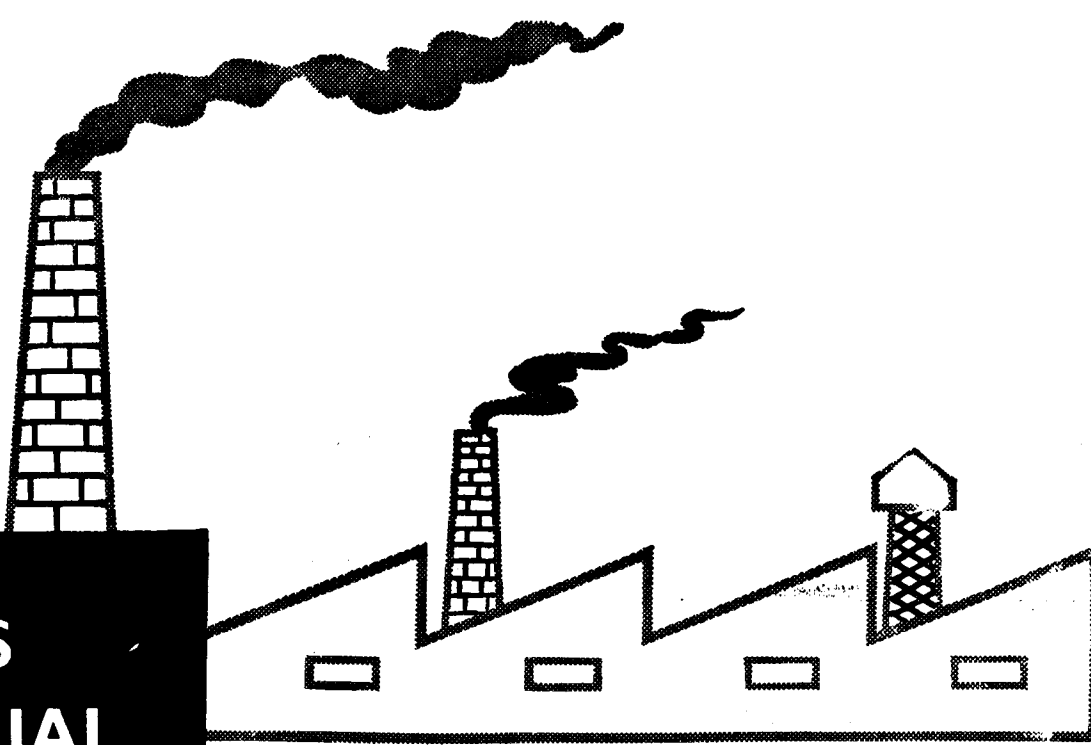
The third factor has two facets to it. On the one hand, insufficient provision in respect of some schemes and the higher cost of some categories of import have both meant that the foreign exchange gap will be larger than originally thought of. On the other hand, the prospects of raising a larger volume of resources externally have, for a variety of reasons, improved. The third factor, thus, effectively raises the target for the resources to be found from abroad.

The fourth factor is the emergence of inflationary trends in particular sectors of the economy. Although expeditious action on the part of Authority has prevented the spread of such tendencies and pressures, the developments in this regard are as an emphatic reminder that the reliance on deficit financing has to be reduced. The postulation of a safe limit for deficit finance is the fourth factor.

The fifth factor consists in the need to do away with the vagueness with which the plan estimates left an uncovered gap to the extent of Rs 400 crores of resources. At this stage of crystallization of resources for the Second Plan, it is possible, necessary and desirable to rid the plan estimates of any such uncertainty in finances.

The last factor is an imponderable: it lies in an assessment of the favourable impact that an expansionist economy will have upon tax revenues. In almost every facet of the Indian economy, evidence is clearly available of the resurgent advances enabled by expansionary influences. It is possible that, at the time when the Second Plan figures were drawn up, the trends of the expansionist economy were not clearly discernible. The Second Plan may, consequently, have erred on the conservative side in its calculation of the surplus likely to be available from current revenues at the then existing (1955-56) tax levels.

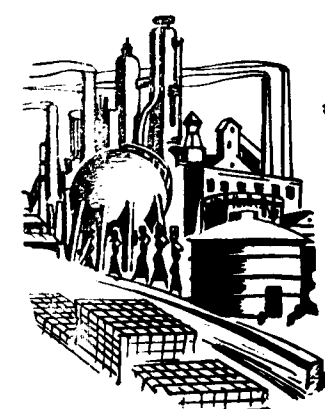
The six factors that we have enumerated strongly indicate, in our view, the need for a reassessment of plan resources. We have tried to examine the impact that these considerations would have on the financial aspect of the Second Plan; and we present below



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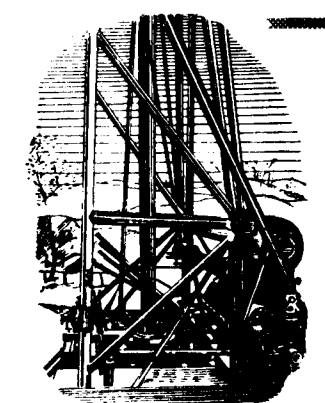
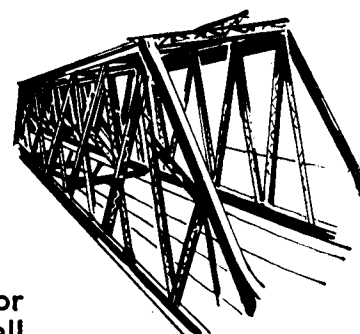
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the lines on which we believe the Resources Plan will have to be revised:

Revised Resources for Plan Expenditure	(In Crores of Rupees)	
	Second Plan Estimates	Indian Finance Estimates
1. Surplus from current revenues ...	800	1200
(a) at existing (1955-56) rates of taxation ...	350	500
(b) additional taxation ...	450	700
2. Borrowings from the public ...	1200	1600
(a) market loans ...	700	1100
(b) small savings ...	500	500
3. Other budgetary sources ...	400	600
(a) Railways contribution to the development programme ...	150	300
(b) Provident funds and other deposit heads ...	250	300
4. Resources to be raised externally ...	800	1200
5. Deficit financing ...	1200	700
6. Gap—to be covered by additional measures to raise domestic resources ...	400	...
TOTAL ...	4800	5300

AT the outset, let us make it clear that a higher target for revenue from taxes is inevitable. At one extreme, we recently had the opinion of an economic expert that India should aim at Rs 1,250 crores in new taxes during the Second Plan. At the other extreme, we have also had the view advanced that any attempt at increasing taxes will hinder, not help, the Second Plan because of their disincentive connotations. Somewhere in the middle, Mr T. T. Krishnamachari has been indicating that part of the gap in resources has to be made good by new taxes. We believe that a realistic, but nonetheless courageous, appraisal of tax prospects will lead to the conclusion that there is no need to be diffident about higher targets.

In this context, we believe that the surplus from current revenues can be revised upward by Rs 400 crores. As we have indicated earlier, there is perhaps an insufficient realisation of the favourable effect on tax collections of an expansionist economy. For this reason, we anticipate that the surplus from current revenue, at the 1955-56 rates of taxation, may amount to Rs 500 crores, or Rs 150 crores more than had been calculated in the Second Plan estimates. Especially is this so in view of Mr Krishnamachari's reiterated insistence that a vigorous attempt is to be made to close all loopholes presently allowing tax-evasion. Secondly, we shall presently see the extent to which new taxation proposals already approximate to the target under this head.

The subscriptions to the new loans of both the Central and State Governments during 1956 have totalled Rs 216 crores. This figure corresponds almost exactly to the annual average of the target for gross borrowings from the market. But the trend in new loan borrowings is almost certain to be in the form of progressively higher targets and subscriptions. For, it stands to reason that, in each successive year of the Second Plan, the capacity of the market to absorb gilt-edged will increase. What is more, it may even be that the demand, as such, for Government securities will also inevitably show a rise. This suggests that, by the end of the Second Plan period, the "actuals" in market borrowings by Government will prove to be substantially higher than the annual average. In the result, it is not unlikely that Government should be able to increase their target of market loans by an amount of Rs 400 crores to Rs 1,100 crores net.

The surcharge on railway freights has already been increased to 12½ per cent; and the Railway Minister has indicated that the recommendations of the Freight Structure Committee are to be implemented later in this year. This suggests that, with freight increases in store, the contribution from Railway surplus may improve by Rs 150 crores.

We may point out, at this juncture, that the increase of Rs 400 crores in the target of resources to be found from surplus from current revenues is intended to bridge the gap for like amount in resources that, in the Second Plan, had been left uncovered. Similarly, the raising of the target for market borrowings by Rs 400 crores can be directly related to the need to reduce the reliance on deficit financing by a corresponding figure. We shall now take up for consideration the last of the heads of resources.

The steady and substantial decline in the foreign exchange reserves of the country, though not unplanned, has nevertheless attracted the most thoughtful of interest and has evoked the first of the reappraisals of the Second Plan. It is now known, especially because the terms of trade are today less favourable to India, that

the balance of payments deficit during the Second Plan may exceed the original estimate of Rs 1,100 crores. The figure that is being thought of these days is Rs 1,500 crores. While a drawing on sterling balances can take care of Rs 300 crores of the payments deficit, external resources have to be discovered for the remaining Rs 1,200 crores.

The increase in the target for external resources by Rs 400 crores seems to have raised fresh doubt and diffidence about the successful implementation of the Second Plan. But we wish to suggest that prospects are particularly bright for our being able, without much difficulty, to lay our hands upon external resources for this amount. How Rs 1,200 crores of foreign resources can be secured is shown in the following table:

	(In crores of Rs.)
Spillover from First Plan of unutilised Foreign Aid credits	100
Foreign Exchange saving consequent to Surplus Commodity Agreement with USA	137
Gross amount available on Steel credits	83
World Bank aid for Railway projects	400
American aid	150
Assistance from Colombo Plan countries and others	80
Russian Credits	60
Foreign Exchange earnings consequent to Export Promotion	190
Total	1,200

On the first three items, Mr Krishnamachari's note (prepared for the last year's AICC meeting in Calcutta) is fully informative. The relevant extract reads:

"We have in hand a carry-over of about Rs 100 crores of external assistance authorised in the First Plan period. The recent agreement on imports from the US under P.L. 480 makes a further Rs 137 crores available. The gross amount available by way of steel credits is Rs 83 crores, though a part of this will have to be repaid during the Plan period."

As to the fourth item, let us recall that the letter from Mr Eugene Black, the World Bank Chairman, explicitly suggested to Mr Krishnamachari the preparedness of the Bank favourably to consider the Railway projects. If it is reckoned that the foreign exchange element in the railway allocation is of the order Rs 400 crores, there is good reason to proceed on the assumption that World Bank loans of like dimensions will be forthcoming. As Mr Krishnamachari pointed out in his note, "India can legitimately expect to get substantial loans from the International Bank for Reconstruction and Development." Unless we have grossly misunderstood the usefulness or availability of World Bank assistance, it seems to us that Rs 400 crores is not too high a figure as representing the aid that we may expect from that source.

Fifthly, American aid has been taken at a conservative Rs 30 crores a year. US appropriations for India have been around this figure in the last three years. While higher aid is by no means ruled out, it is extremely unlikely that the dimensions of US aid to India will be reduced.

Sixthly, token assistance from other quarters is placed at Rs 80 crores. Financial aid from the Ford Foundation, UN agencies, Canada and other Colombo Plan countries is certain to reach a total that will exceed Rs 80 crores in the five years.

Finally, India is seeking to increase its foreign exchange earnings. While tea, jute goods and cotton textiles may at best hold their own, there is encouraging scope for increasing exports in other spheres, particularly in ores. For example, if India succeeds in exporting 5 million tons of iron ore annually—and this is well within our competence—the foreign exchange earnings therefrom will aggregate Rs 150 crores.

THUS, whether from the point of view of internal resources or of foreign exchange, we are emboldened to advance the view that prospects are by no means as bleak or gloomy as our Jeremiahs make them out to be. To those who, in the name of realism, would whittle down the Plan or spread it out, Mr Krishnamachari has given the answer, which, in effect, re-emphasises the Government's view that the Second Plan represents an irreducible minimum: that anything less will fall short of the requirements considered from the point of view of

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stabilising and reinforcing India's political freedom with social justice and economic well-being. The tasks in this respect can be diluted only at freedom's peril.

This is no whim or caprice or ideological predilection of the present Government. It is a settled conviction. It is an article of faith. It is the keystone of policy. It is the source and fountain-head of all national endeavours. It is the one thing which makes everything else meaningful. The 1956-57 and the 1957-58 Budgets are to be regarded as the main instruments of the Second Plan. If it is conceded, as the Finance Minister has said, that "the Plan is the main theme and dominant concern of all our thinking and policy formulation", then, Mr Krishnamachari has next indicated the basic criteria upon which taxation policy has to be shaped. These are, according to him:

- (a) They must produce a sizeable addition to public revenues;
- (b) They must provide incentives for larger earnings and more savings;
- (c) They must restrain consumption over a fairly wide field so as to keep in check domestic inflationary pressures and to release the resources required for investment; and
- (d) They must initiate such changes in the tax structure as would make tax yields progressively more responsive to increased incomes and facilitate an orderly development of the economy with due regard to the social objectives we have adopted.

Let us recognise that these four criteria are unexceptionable. In considering India's taxation policy since the date from which the Second Plan began, we would do well briefly to recapitulate the revenues to be obtained from additional taxation over the Second Plan period. Chronologically, Sir Chintaman Deshmukh's Budget for 1956-57 envisaged new taxation measures calculated to yield Rs 35 crores a year; the revenue over the Second Plan period is, thus, Rs 175 crores. Secondly, we had the augmentation of the excise duties on cloth by Mr Krishnamachari as his first act upon assumption of the Finance Ministership; and the yield therefrom for the Second Plan may be put down at Rs 100 crores. Thirdly, Mr Krishnamachari's mid-year Budget relating to 1956 is estimated to bring in Rs 100 crores in the period until 1960-61. Fourthly, the Finance Minister's Budget for 1957-58 is to secure Rs 78 crores for the remaining part of this financial year. Finally, the 1957-58 proposals will bring in Rs 93 crores a year in the remaining three years of the Plan. All these add up to Rs 732 crores. As against this, let us remember that the Second Plan in its estimate of resources took credit for Rs 450 crores by way of additional taxation; but these original estimates left an uncovered gap of Rs 400 crores. Thus, it may be stated that the revised target for additional taxation over the Second Plan period should be around Rs 850 crores. However, we may point out that, in the revised resources plan that was last year suggested by Indian Finance, it was indicated that the expansionary forces in the Indian economy would raise the surplus from tax revenues on the 1955-56 basis to Rs 500 crores as against Rs 350 crores taken credit for in the Second Plan. As a consequence, this journal has suggested that the target for surplus from new and additional taxes should be around Rs 700 crores. It will be seen, consequently, that the revised target for new taxes has, with the 1957-58 Budget, been more or less fulfilled. Judged, therefore, by the criterion of augmentation of public revenue, taxation policy in behalf of the Second Plan may be said to be justified.

BUT it is time, we suggest, for Government to give some assurance in respect of taxation in the third and fourth years of the Second Plan. For a Plan of such magnitude, it was, we admit, inevitable that the bulk of new taxation had to be put through in the first two years of the Plan. This, indeed, has been done as we have shown earlier. The target for additional tax has more or less been attained. It should, therefore, be possible for Government to give the undertaking that they do not intend in the third and fourth years of the Plan to propose new taxation measures for revenue purposes. If Government seriously wish to fulfil the second criterion of providing incentive—and here we understand incentive to mean encouragement for work generally—then such an assurance becomes inescapable. Since the tax target has been fulfilled, it should be possible for Government to give this guarantee. Such a guarantee would put an end to the uncertainties

and apprehensions that each successive Budget must bring in its train further large doses of taxation.

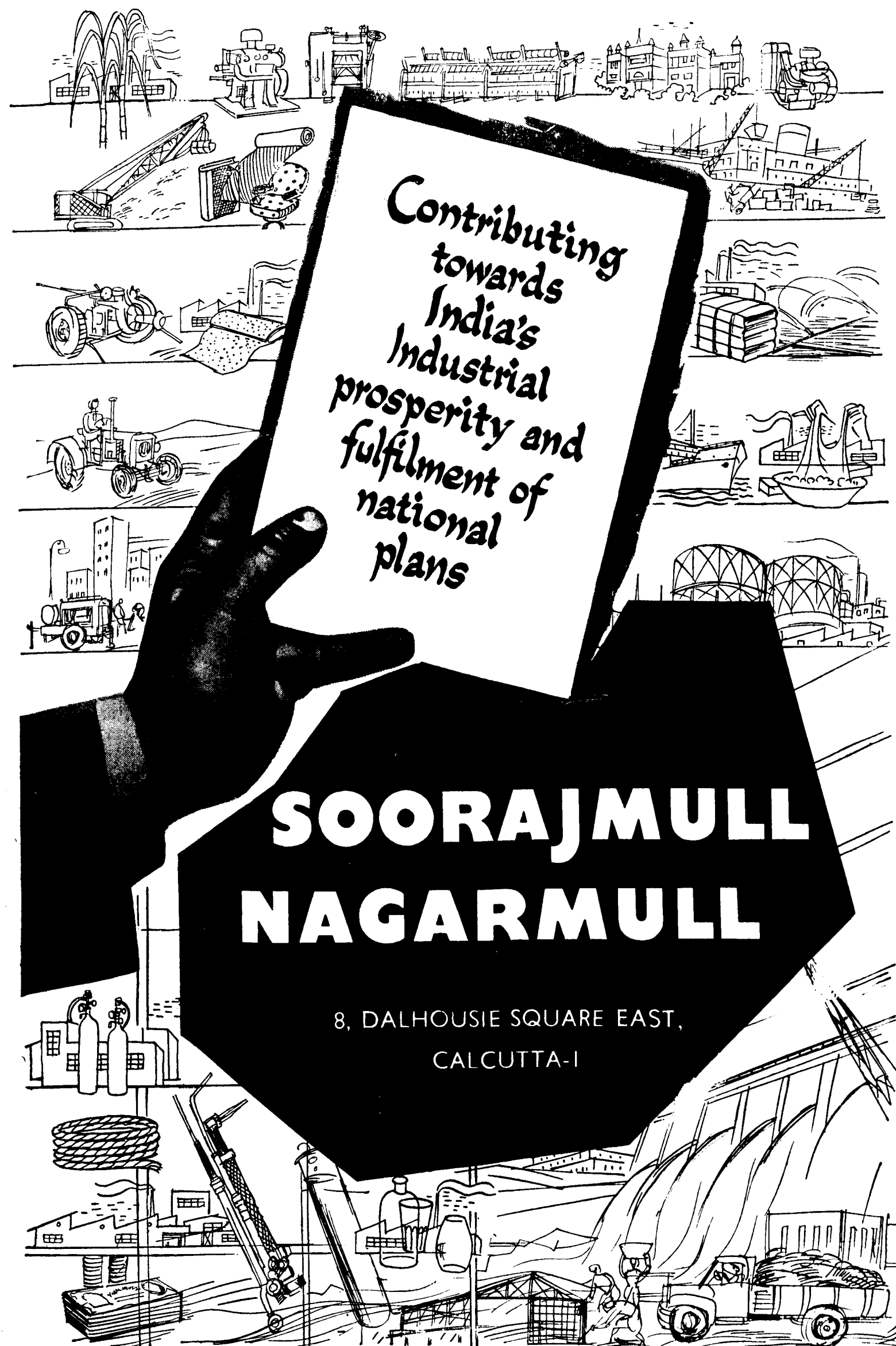
In the second place, Mr Krishnamachari has, quite properly, sought to create an integrated tax structure and policy; but, we suggest, an integrated structure of taxes will have no meaning unless it fits into an integrated policy for the economy as a whole. In this regard, the larger policy that we have in mind must relate also to the money market. One aspect of the money market, to which we would invite the Finance Minister's energies and endeavours, is the borrowing programme of Government. Another aspect of it, which appears so far to have received less attention than its due from the Finance Minister, is that relating to Stock Exchanges. For all that the stock-exchanges may be, by virtue of one variety of the transactions taking place, tantamount to gambling dens for speculators, the fact nevertheless remains that a healthy stock exchange is a prerequisite for the successful functioning of the capital market. If, in his Budget, Mr Krishnamachari has afforded the incentive for savings, some good will already have been done. But such savings will be of little use unless they are encouraged to be channelled into the capital market; and this cannot be done until the stock exchanges present a more confident picture. So, we believe that it is a complementary task for Mr Krishnamachari to take such action as will canalise savings into productive endeavour. It is imperative for Mr Krishnamachari to look upon the money market as deserving his attention for formulating an integrated economic policy.

In the third place, while Indian Finance can claim to have been, perhaps, the only journal to welcome the Kaldor recommendations; and while we realise that only piecemeal acceptance of the recommendations could so far have been possible, we feel that it is necessary for Government to state categorically that they ultimately intend to implement the recommendations in toto. Already, the scaling down of the maximum for income tax, super tax and surcharge from 91.8 per cent to 77 per cent is a step in the correct direction. We hope that it represents merely a first step and that, in due course, Government intend to scale down the income tax, super tax and surcharge to the maximum of 45 per cent suggested by Mr Kaldor.

GENERALLY speaking, therefore, the 1957-58 Budget presented by Mr Krishnamachari in every way fulfils its intention to bring into being an integrated tax structure. Secondly, the taxes proposed are generally unobjectionable. Thirdly, however, an integrated tax structure must be considered by the Finance Minister to be the starting point for the evolution of an integrated economic policy. We cannot sufficiently emphasise the importance of giving a perspective to tax only within the larger framework of economic policy as such. We feel constrained, in this view, briefly to indicate a particular sector in which Government attention and action are desirable.

We would suggest that Government have not shown themselves to be alive to the place of borrowings in India's integrated economic policy. This failure, to plan boldly but nevertheless realistically in respect of market loans over the Second Plan period, has meant that Government have had to take recourse to additional taxes to such an extent as to affect adversely a third aspect of the integrated economy, the Stock Exchanges. In this regard, it is vital for the authorities to recognise that increasingly favourable terms for the investor can never attract larger subscriptions to Government loans. Indeed, the pattern of gilt-edged yields must be so fostered as to make each successive issue less favourable for the investor. It is only then that the threat of capital depreciation is wiped out. While we do not wish to delve into details, we would reiterate our view that the Second Plan would be greatly benefited by an integrated economic policy in which the target for market borrowings would be suitably revised upwards.

The crucial years of the Second Plan are 1956-57 and 1957-58; and we have weathered the first of these, although anticipated difficulties did make their appearance. The second year also augurs well, in the sense that we have had the formulation of an integrated tax policy which, by implication, will largely avoid additional taxation during the remainder of the plan period. But the success of the Second Plan would seem to depend upon the measure of Government's ability to create and evolve an integrated economic policy somewhat on the lines we have indicated.



THE LANGUAGE ISSUE

By C. RAJAGOPALACHARI

THE language issue may be divided into two questions. (1) What is the best medium for instruction in schools and colleges? (2) What should be the language in which official business should be done in the States, in the Central Government, in inter-State matters and between the States and the Central Government?

As to the medium of instruction, it is my longstanding conviction and I hold to it still that the mother-tongue should be the medium of explanation and instruction in all stages of education, that is in the Primary and High school stages and in the University courses also. No one questions the appropriateness of the mother-tongue in the Primary and Secondary stages but it is thought by some that in the advanced courses dealt with in University education, English might be better suited. The argument advanced is that terms of art, scientific and technical terminology, cannot be invented all at once to cover the wide and increasing field of modern knowledge. I concede the difficulty. I go very far in this: I maintain that there should be no ban on the free and liberal use of 'English' terms even while the process of inventing and familiarising ourselves with new scientific and technical terms in Indian languages is going on, be it in Hindi or be it in any of the other tongues of India. In class-room lectures we may be using the foreign terminology while in popular oral or written expositions, we might use in an increasing degree suitable new Indian terms. What I stress is that the use of foreign technical terms does not and should not imply that for that reason the entire lecture or instruction should be in English. A Chemistry or Botany class may be conducted in Hindi, or Tamil or Marathi, although all the special and technical terms used are of Latin or Greek or English origin. This is not only possible, but is the most efficient way of imparting instruction if our

aim is really to impart instruction in the subject of Chemistry or Botany and not to use the occasion only as an indirect means of improving our knowledge of English.

Study of English

This is true for University education as much as the earlier stages. Every one interested in the true progress of our people would want that attention to English language and literature should not slacken in our educational schemes just because we have attained freedom from British rule. Freedom from British rule should not mean escape from English literature. It is absolutely important that we should maintain the study of English and conserve what we have achieved in that respect. English is an international medium of great value and as far as we are concerned it is the language of modern science. The knowledge of English possessed by the educated people of India is a great national asset and should not be thrown away. But the importance that we should attach to the study of English as a language subject should not be allowed in our educational schemes to eclipse the importance of other branches of knowledge. If English is adopted as the medium of instruction in all subjects, the language becomes almost the main aim of all effort and the instruction in the science or other substantial subjects dealt with will suffer in efficiency. We are likely to learn English through science rather than science through English. In order to maintain a proper standard of English knowledge, it is not necessary to sacrifice the ease and clarity of understanding that we gain if we adopt the mother-tongue as medium in the teaching of science and other such subjects. We should teach and we should learn Sciences and other subjects. We should also maintain a good knowledge of English. The two aims are different and should be kept apart.

Issues Confused

We should avoid the confusion that clouds this issue of medium of instruction. That English technical and scientific terminology should be used in teaching science or other such subjects does not mean that the entire explanation and instruction should also be couched in English and that the students should get all their knowledge only through the difficult channel of a foreign tongue. Latin terms are used in Botany and other science lectures in England and Scotland and America, but the lectures themselves are in English. Similarly whatever English or Latin names and phrases we may use, we should explain things for the students in their mother-tongue and this can be done without any detriment to precision or fulness of understanding. It is not to be assumed that the use of Hindi or Marathi or Bengali or Tamil to teach a science involves the laborious translation of all the special terms of that science. The scientific terms that prevail in the English speaking world may be continued just as they stand, even if the professor explains the subject in an Indian language. Neither teacher nor student need struggle with English idiom and English grammatical construction in order to advance scientific knowledge.

Nor is it to be assumed that if subjects are taught through the mother-tongue the students should slacken their attention to English literature. The best standards can and should be maintained both in the substantial science subjects and in the study of English literature. A lot of vague talk on either side has been heard and vehemence has taken the place of clarity in discussing this issue. Even Greek and Latin and Sanskrit as languages are taught in the English Universities through English. Surely science and technology must be taught also in our own languages although we use English technical terms.

So far, English was being learnt by us not only when English as such was being taught, but also when other subjects were being dealt with. If the medium of instruction in all subjects is changed from English to the regional tongue, there is no doubt that from the point of view of instruction and practice in the use of the English language, we shall lose a great deal. But though one of our aims is to learn English, it should not be done at the cost of other equally important subjects of study. The loss has therefore to be made up for by extra attention bestowed on exercises in English composition spoken and written and on English literature.

Official Language

Passing on to the question of the official language, the biggest language group of the people of India is the Hindi speaking popula-

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tion. This may be admitted straightaway. If India is to be one people, in politics, in commerce and in arts, Hindi is the one language that must claim attention from all the people of India besides their own regional language in whatever part of the country they may be living in. Trade cannot for long remain confined within the borders of one language area. So is it impossible to confine the literary and cultural or political activities of the people within the boundaries of any monolingual area. If an Indian citizen desires to be cultured and educated in a true sense, he must be able to express himself and feel at home wherever he may be in India. A man whose ambition is to be a cultured Indian cannot enclose himself in his mono-linguistic shell.

It follows that a sound knowledge of Hindi must be one of the aims of all education in all parts of India. Hindi is bound to be the national language of India. The progress of communications and commerce are certain to bring this about. But the process can and should be accelerated by deliberate plans of education, that is, by teaching Hindi to all boys and girls in all schools. The question of what the official language should be is a different question and must be answered on the basis of facts, expediency, justice and fairplay, and not solved by a process of wishful thinking in anticipation of what education can achieve in the next hundred years.

In the States

The language spoken in a State should be the language of official work in that State. If it is a bilingual State, both the languages should be recognised as official languages. It should not be, it can never be, a matter of rule by majority. Official documents should be multiglot, irrespective of the relative sizes of the two or three language groups in the bilingual or trilingual State. We have on this question instructive precedents in Belgium, Finland, Switzerland, South Africa and Canada, which it would be wise for us to follow.

At the Centre

As for the Central Government and for inter-State communication in India, my view is that English should be the official language. Official reports and documents have to be in a language which happens to be in fact the most convenient medium for such inter-State use. There can be no doubt that as a result of historic causes, English is the best medium for such purposes. The persons now dealing with inter-State and Central Government papers in all the States are able to handle the English language with ease and precision, more easily and with greater precision than even their own mother-tongue as far as high level official work goes. The history of two hundred years which has produced this result cannot be wiped out by wishful thinking. It has nothing to do with the status of freedom. It is not wise to throw away an asset that we have acquired on grounds of pride or prejudice. In all parts of India the people who are qualified for the public services at all significant levels have a very fair knowledge of English. In many parts of India they have not a knowledge of Hindi at all or anything like what they have of English. It would be unreasonable and amount to waste of a national asset to discard English for these purposes, on the ground that Free India must change over from English to some one of the Indian languages.

Where an official document has to issue to the public, it will of course have to be issued in the language of the people of that area, but so far as the departments are concerned, it would be absurd in the extreme to decree that inter-State or Central Government correspondence should originate and issue in Hindi in areas where Hindi is not understood or spoken. It would create confusion and be a source of annoyance and error. To turn out every official who has no adequate command of Hindi and employ only Hindi knowing persons in the public services would be unfair and unjust even if it were conceivable.

Majority Rule Inapplicable

An official language is different from what may be called the national language. We decide what is a nation's language on a basis of fact. But when we have to impose a language as the official language we have to consider many issues of justice and fairplay and expediency. We cannot shut our eyes to these considerations and go by mere majority arithmetic when we directly or indirectly exercise statutory compulsion. If the people not speaking Hindi had been scattered all over, being a small minority everywhere, the position would have been different. But the fact is that in large and compact areas Hindi is not spoken and the millions of men and women living in those areas speak other languages. The rule of over-all majority cannot be applicable under such circumstances in the matter of language.

Precedents

Equality of treatment and non-discrimination must find implicit acceptance as a sacred principle in democracy. In Switzerland under Article 116 of that country's constitution, three languages, German, French and Italian are constituted the Federal official languages of Switzerland. By Article 137 of the South African constitution, English and Afrikans are the official languages of the Union, and are treated on a footing of equality. Proceedings of the South African Parliament are kept in both languages and all bills, acts and notices of general public importance or interest are issued by the Government of the Union in both languages. In Finland, Swedish is spoken by only 9 per cent of the population but Finnish and Swedish are both the official languages of Finland. In Canada too, the diglot rule is enforced, both English and French standing on an equal footing. So also in Belgium, Flemish and French are both given equal place.

In applying this principle of justice and fairplay in India, we meet with the difficulty of having to accommodate more than ten main languages prevailing in various areas in the country. We cannot say all or none! We must find a way out of the difficulty which will come as near to justice and fairplay as possible. There can be no better solution than having Hindi and English, together to function as the official languages of the Union. The history of the last two hundred years will justify this solution as based on fairplay and conducing to equal convenience for all.

In any case, even if the decision be that Hindi should ultimately be imposed on all India as the medium for Union official work and inter-State affairs, logic requires that compulsory instruction in schools must precede such a bold step and it must be effectively carried out for at least two generations before

we can think of such imposition. And we must be prepared to face the feelings and sentiments that any imposition of that kind must generate in the minds of the minority. Hesitation on the question of compulsory Hindi in Schools in all areas is inconsistent with a policy of making Hindi the official language of the Union.

A Specious Argument

An argument is often advanced which on the face of it would seem to be conclusive—that the official language of a country should be one that the vast majority of the people can understand, and that only that way can the purpose of democracy be fulfilled. English is understood by only a very small percentage of the total population of India whereas Hindi is understood by over 60 per cent of the people; so Hindi must be the language of all official work in the Republic: this is the argument of those who do not realise the feelings and do not place themselves in the position of the millions who do not speak Hindi. If, as we take for granted, the official work of all the States composing the Union Republic is conducted in the regional languages, there will be a complete identification between the language of official work and the language of the people in every State. The Central Government serves all the people of India and all the States. If it should conduct its work in Hindi—and not in English—and Hindi as proposed herein—the people of the non-Hindi areas will not find any fulfilment of the democratic ideal on the basis of which the argument for Hindi is advanced. Where vast populations in many States do not speak Hindi or any language related to that stock, it will be seen that the argument of identity of language between government and people breaks down completely.

Undemocratic

A law relating to language which by its effect relegates to a secondary and unequal status whole populations of many States would be a gross infraction of the fundamental law of democracy. A language may belong to one of the constituents of the population of India and it may be a majority group. But it would be undemocratic to raise it to an official position by which the other language groups would be consigned to an inferior position in actual practice. Any law or rule that tends to bring a great and continuing advantage to the people speaking a particular language and a great handicap and disadvantage to other populations who have equal membership in the Union is not a just law or rule. What is not just must be scrupulously avoided. The will of the majority must prevail in democracy, but it would be a misinterpretation of democracy and amount to oppression, if democracy is interpreted to mean the conferring of advantages on the majority. The strength and vitality of a State would be weakened by such oppressive laws. The will of the majority should be exercised for the equal benefit as far as possible of all the people including the minorities.

Did you not learn English? You can therefore learn Hindi! Little do the people who utter this argument realise what it means. Do they desire the Hindi-speaking people to be looked upon as how the English people were looked upon? God forbid. Let us spread by word and action an atmosphere of love and not a feeling that in democracy too there is tyranny inherent. Group tyranny is much more painful than individual violence.

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Reconstruction of States in India on a Language Basis

Its Raison d'être and Its Results

By Dr. B. PATTABHI SITARAMAYYA

MANY are anxious to know the exact bearing of the reconstruction of States in India on a language basis, on the administration of the country, and its place in the fulfilment of the democratic principles on which its constitution is based. For 150 years this country has got on well enough, one can say, for though the people had not enjoyed the principle of Self-Government, gradual preparations were being made by way of representative institutions which were designed ultimately to lead to Responsible Government. Whenever we had occasion to judge the English people and their periodical attempts to advance the cause of popular Government in India, we were influenced by not what was achieved then and there but what was awaiting achievement in due course.

Soon after the great Indian Mutiny, the three Universities of Bombay, Calcutta and Madras were established in 1858 in order to educate the Indians on the basis of occidental principles and methods. These were followed by the establishment of the Legislatures of Bombay, Calcutta and Madras in 1860 and further followed by the establishment of the High Courts of Bombay, Madras and Calcutta in 1861. The old Sadar-i-Adalat was abolished. The Pandits and the Ulema who were assisting the Central Court in the administration of justice were dispensed with. The higher courts were manned by Englishmen who were trained in England and brought to India. The I.C.S. ceased to be a service to which recruitment was made by nomination from amongst the graduates of Hailebury College and gave place to a competitive examination. Thus opportunities were shown to the Indian graduates to distinguish themselves in the four learned professions, namely, teaching, law, engineering and medicine. Everything appeared to be smooth and even praiseworthy but little did it occur to the graduates of the day to discover the inner purpose of these changes which was really to create a second line of defence force for the British Empire that was threatening to crumble even while it was in building. The suppression of the Mutiny of 1857 was not followed by the multiplication of the forts, the increase of munitions or the augmentation of recruits as one would expect. The British people had vision enough to see that Indians were no fools, much less barbarians, to be converted back into reactionary faith and ruled by force. It was Abbe Dubois, a French Missionary who worked in India during the end of the eighteenth century, that said in 1795 that the Indians were no barbarians and that if you wanted the Indians to be converted to Christianity, you must first convert them into barbarians. In other words, he stated that the Indians were far too advanced in their culture and civilization, in their social laws and civic institutions, in the refinements of truth and justice that they could not simply be preached to and proselytized. Being an educated and cultured nation, they had to be handled only in such a way that the faith that they professed, the forms of worship that they pursued, the doctrines they believed in were to be gently and imperceptibly changed,—be it by offers of temptations—and not forced at the point of the sword. All the three institutions, namely, Courts, Colleges and Councils, which were

established three years after Mutiny, fulfilled their intended purpose. The nation was virtually converted into the spiritual progeny of the Britishers. Graduates of Universities revelled in their degrees, sought employment under the English, held offices under the British, drew fat salaries and rich pensions and were invested with power and authority to sentence even their wives to imprisonment and hang even their brothers by the neck till they were dead. There was a genuine feeling of pride in the exercise of these rare powers and the Indian officials under the British became their alter ego and thought no more of their mother-land as a slave country and their future as lying in a bitter struggle for independence.

When Mahatma Gandhi—rather Mohandas Karamchand Gandhi—returned from South Africa, where he learnt and practised his first lessons in Satyagraha, in 1915 and saw this state of things, he was aghast. Regional languages were neglected. Parents wrote to their student-sons in the English language. The dress was English. Wherever you went, it was English goods that were in use from morning till evening. More than fifty articles were being used by students by reason of their being students of Anglo-Vernacular or English Schools and Colleges. Mahatma Gandhi, having come after a long interval to this country and taken a bird's-eye-view of the conditions prevailing here, realised that the evil influence which has resulted in these obnoxious changes must be cut at the very root. Colleges were training the graduates, the double graduates were practising in the Courts and the successful lawyers were being nominated to Legislative Councils and the gamut was complete on to the point of training loyal citizens. He, therefore, gave the first place in the national struggle to a boycott of these three institutions and wanted once again to inculcate the principle of reviving regional languages and reforming the educational system, re-organizing the course of justice and revivifying the legislatures where laws were being made. Indians were rejoicing that they were the interpreters of the Indian people to the English rulers and “vice-versa”, and did not realize the contemptible position that they sought and found in being “Dwibhashis or dubashes two-language knowing people. They had yet to conceive the necessity of teaching students in the regional languages, of arguing their cases in courts in regional languages and representing their grievances to the authorities through their mother-tongue, and for this purpose a new set up was required.

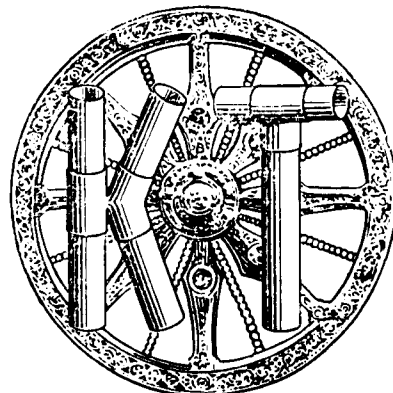
Provincial Autonomy was often thought of but Provincial Autonomy was not possible of achievement, much less capable of yielding its full results, unless the mother-tongue was emphasized in the imparting of instruction, in the argumentation in courts and in the representation of grievances in Councils. In other words, in a country like India with (19 lakhs of square miles then and) 12 lakhs and 60 thousand square miles now in area, with 369 millions of population divided into as many provinces as there were regional languages, the possibility of emphasizing the regional language or the mother-tongue would exist only when the provinces were re-constituted

on a unilingual basis. Here again, a student of Indian politics was confronted with a riddle. While for purposes of an efficient popular Government and real democracy; a regional language should play a dominant part in education, administration of justice and representation of grievances, the existing provinces were constituted in a way not suitable to this object. The provinces in India till 1952, or really till October 1955, were based not on any logical, psychological or ethnological basis but were purely dependent upon their chronological growth in a haphazard manner in which as territory was acquired, it had to be admixed with areas in its neighbourhood irrespective of the language spoken and of the economic interests, the administrative conveniences and the financial facilities that were coeval with such an arrangement.

The recognition of this principle of unilingual provinces was not the discovery of leaders of the country after Swaraj was promised, but was anticipated by Lord Hardinge in his Despatch of 25th August, 1911, wherein he discussed the reversion of the Partition of Bengal which had been effected on 16th October, 1905 on a communal basis, so that when the partition was reversed on the 12th December, 1911 and the change was announced from the lips of King George V himself, the reform introduced was not that the two provinces into which Bengal had been divided on 16th October, 1905 be re-united but that the division should take place on a linguistic basis into Bengal on the one part, and Bihar and Orissa, on the other, the Hindi speaking population of Bihar being separated from the Bengali population. This change, nevertheless, perpetuated the incongruity of attaching Orissa to Bihar and this state of things continued till Orissa itself became a separate province 1st April, 1936. On this very date Sind was separated from the rest of the Bombay Presidency. In fact, when Orissa was required to be separated, the Muslim interest demanded the addition of a Muslim province, Sind being integrated as a separate unit.

In spite of these changes, Madras, Bombay and Central Provinces continued to be multi-lingual provinces. Madras consisted of Tamil, Kanarese, Telugu and Malayalam speaking people. Bombay consisted of Marathi, Kanarese and Gujarati speaking people. In the Central Provinces, there were Marathi and Hindi speaking populations and a small sprinkling of Telugu people. A great movement was set on foot in the year 1913, when the Andhras held their first Andhra conference at Bapatla asking for re-distribution of provinces on a language basis. This demand was put before the Congress by the Andhra Conference successively in Bombay in 1915 and in Lucknow in 1916. From that time the Andhras in particular were carrying on their agitation throughout all their villages and the masses were moved in favour of this change. Repeated deputations met on the Working Committee of the Congress and as a first step in 1916, the Andhra Conference demanded the separation of the Andhra Provincial Congress Committee from the Madras Provincial Congress Committee. This was granted after a great fight with Mrs. Besant in the year 1917 in Calcutta, when she presided over the Congress. In 1918 Sind was given a separate Congress Committee and on 1st January, 1921, Mahatma

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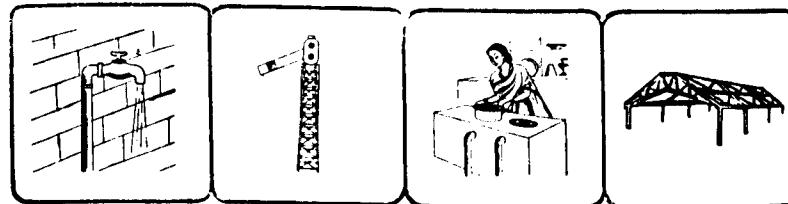
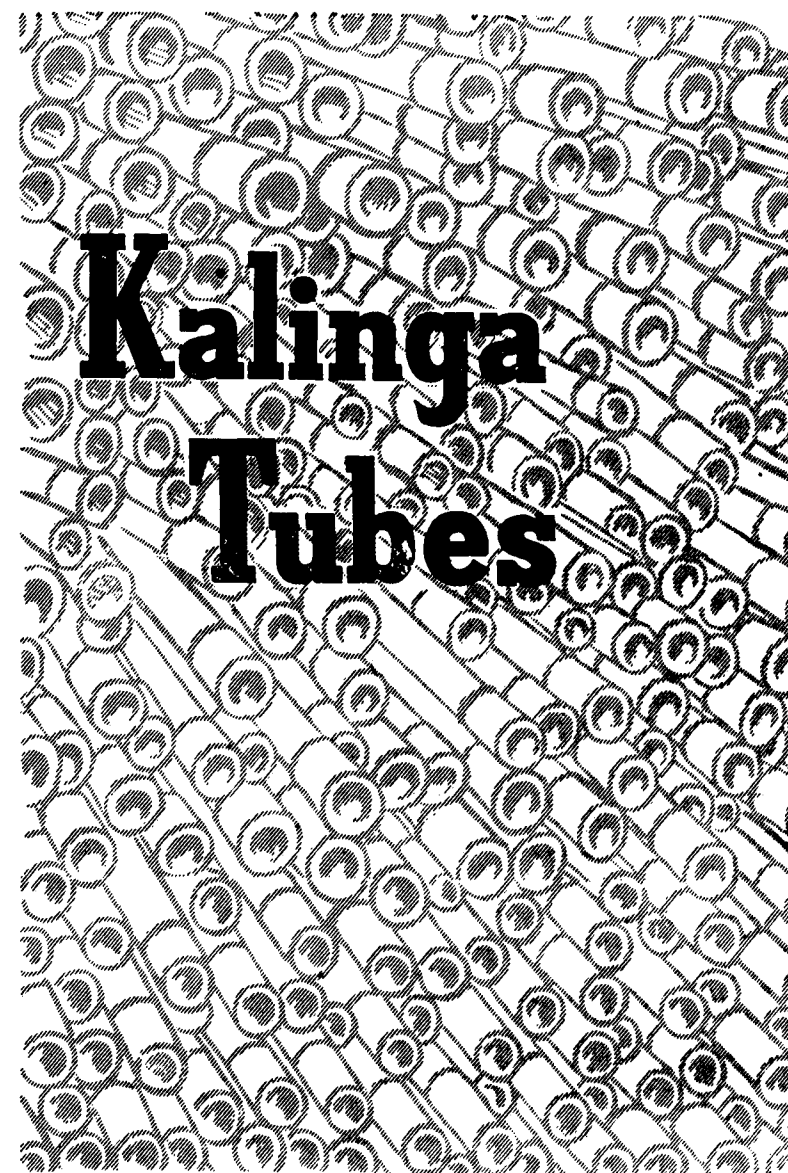
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Gandhi re-distributed the Congress provinces in India by one stroke of the pen. Then came the Andhra University in 1925. Finally linguistic provinces were the provinces into which on the 1st of November, 1956, we have had the re-distribution, except that the Marathi and Gujrati speaking people are made to constitute one single State with the City of Bombay which was admitted as lying within the Maharashtra boundaries.

What is the effect of this change? The effect is that the masses have come to their own. In fact the masses had come to their own with the establishment of adult franchise which enables every voter of eighteen years

age to make and unmake his Ministries. But this unilingual formation of States also enables the voter to take a living and vital part in the administration of his State. The schools have now changed the medium of instruction from English to the regional languages. Public offices are transacting their business by adopting all secretarial noting in the regional languages of the State. Thus it is no longer necessary for a man to be a graduate in order to be able to follow the proceedings of his Colleges, Courts or Councils. The adult citizen of eighteen has got his vote and has come to his own. This was the aim of the linguistic re-distribution of States and this is the result.

States Reorganisation

ON 22nd December 1953, the Prime Minister announced his intention to appoint a Commission "to examine objectively and dispassionately" the question of the reorganisation of the States of the Indian Union, so that the "welfare of the peoples of each constituent unit as well as the nation as a whole is promoted". The Commission were appointed under a Government Resolution seven days later.

The guiding principles offered by the Resolution were:

- (1) The preservation and strengthening of the unity and security of the Indian Union
- (2) Linguistic and cultural homogeneity
- (3) Financial, economic and administrative considerations
- (4) Successful working of the National Plan.

After examining very carefully the pros and cons of these principles, the relative strength and priority which should be accorded to each one of them, particularly with reference to the present state of political maturity of the nation, the Commission outlined the major ingredients of a balanced approach to the question. These are: (1) Linguistic homogeneity is an important factor conducive to administrative convenience and efficiency, but it should not be considered exclusively as a binding principle, overriding all other considerations (2) Communicational, educational and cultural needs of the different language groups should be adequately met (3) Composite States should be retained, wherever conditions are sufficiently favourable, but with suitable safeguards. The home-land concept which denies equality of rights between one language group and another within the same area, is repugnant to the fundamental principles of the Constitution and therefore, should be repudiated. The theory of 'one language, one State' had to be rejected. This theory has no justification whatsoever.

The principal recommendation of the Commission was that the Indian Union should henceforth consist of 16 States and 3 Centrally Administrated Areas, against the existing 27 States. The distinction in categories, Part A, B and C will disappear. All the States would belong to a single category and have a uniform status. Alongside the part B States, the Rajpramukhs also were to go, though the privy purses and other privileges guaranteed to them as previous rulers were to be affected.

While all the Part C states were to be merged in one or the other of the neighbouring States, Himachal Pradesh, Kutch and Tripura were recommended to be deserving of special Central supervision, for some time to come, in matters connected with economic development.

Of the Part B States, Madhya Bharat, Pepsu and Saurashtra would disappear. Hyderabad would become smaller, with the possibility of eventual absorption into Andhra. Rajasthan, Mysore and T.C. would be enlarged. Mysore

would change name as Karnataka, with an area about 1½ times as much more.

The subsequent suggestion for the exclusion of Bombay City as a Centrally administered area, and the splitting up of Bombay into Maharashtra and Gujarat by the Government of India sparked one of most insistent and violent agitation since the transfer of power. After several months, the Union Government felt compelled to relent and throw the Commission's recommendations overboard; a New Bombay State was decided on, with all the territories recommended by the Commission, the Bombay City and its suburbs and Vidarbha. This is a rectification of an important departure from the States Reorganisation Commission's scheme. Another change was the creation of a more comprehensive Andhra State including the residual state of Hyderabad. The Act also provide for zonal councils.

On August 31, the Republic was divided as per the States Reorganisation Act. In this division, there are 14 new States and 6 Centrally Administrated areas. Of the States, Jammu and Kashmir, Uttar Pradesh, Assam and Orissa have come out territorially unscathed. Bihar gives West Bengal a little less than what the Commission thought necessary. The combination of Andhra and Hyderabad forms the new Andhra Pradesh and the Karnataka of the SRC is known as Mysore.

Uttar Pradesh still claims the biggest population with an assembly consisting of 430 members and entitled to a contingent of 86 members to the Lok Sabha. Territorially the largest State is Bombay and the smallest Kerala. In population, Jammu and Kashmir occupies the bottom. Of all the Rajpromukhs, Mysore alone continues in office, but in the capacity of Governor. The Lacadiv and Amediv group of islands formerly attached to Madras State becomes a separate political unit under Central Administration. Nagpur and Kurnool cease to be State Capitals, while Hyderabad and Bhopal are exalted to the new rank.

An important addition to the political structure which the SRC did not have in mind is the Zonal Council. There are five Zonal Councils, which will function as advisory bodies, making recommendations to the Centre in matters of common interest to the States included in each zone, particularly in the field of planning, border disputes and linguistic minorities. Each Council will have a Union Minister as Chairman and the Chief Ministers and two other members of the State Cabinet concerned, all nominated by the Union President. They will also have Advisers, drawn from members of the Planning Commission, Chief Secretaries of the States, the Development Commission etc.

The Punjab, Rajasthan, Jammu and Kashmir, Delhi and Himachal Pradesh will form the Northern Zone; Uttar Pradesh and Madhya Pradesh will be the two States in the Central Zone; Bihar, West Bengal, Orissa, Assam, Mani-

pur and Tripura in the Eastern Zone; Bombay and Mysore in the Western Zone and Kerala, Andhra Pradesh and Madras in the Southern Zone.

The apportionment of assets and liabilities, land and goods treasury and bank balances etc, is governed by the provisions of the States Reorganisation Act. Agreements with regard to the irrigation and power projects and other State undertakings are also similarly covered.

In a bird's eye view of the economic resources as redistributed in the present set-up, the smallest of the States, Kerala, will show a bigger deficit in food. It does not produce any cotton. Besides rice, agricultural produce consists mainly of coconut, tapioca, fruits and a variety of hill produce including rubber, tea, pepper and coffee. The State produces three-fourths of India's rubber. Cashewnut and coir are among the leading industries. The rayon industry and fisheries are growing. There is an extensive ilmenite monazite belt on the coast from which thorium is extracted. This coastal State has a major Port in Cochin and a number of minor Ports. The addition of Malabar to the Travancore-Cochin States does not seriously disturb the density of population, which is the highest in the whole of India.

In Mysore, the new additions of territory do not have any industrial potential. One important acquisition is the potential major port of Malpe. As the hill area known as Malnad will come under one administrative jurisdiction, its development will be easier. The area is now under the jurisdiction of four governments. The development of the Tungabhadra and Upper Krishna Multipurpose projects will also be facilitated by the unification of Karnatak areas. When the river projects in North Karnatak are completed, Mysore's food deficiency will be offset by the new production resulting therefrom. The State has iron ore and an iron and steel industry, manganese, magnesite, sulphur and gold. Coorg adds to the output of rubber and tea. The State produces the bulk of India's coffee and silk.

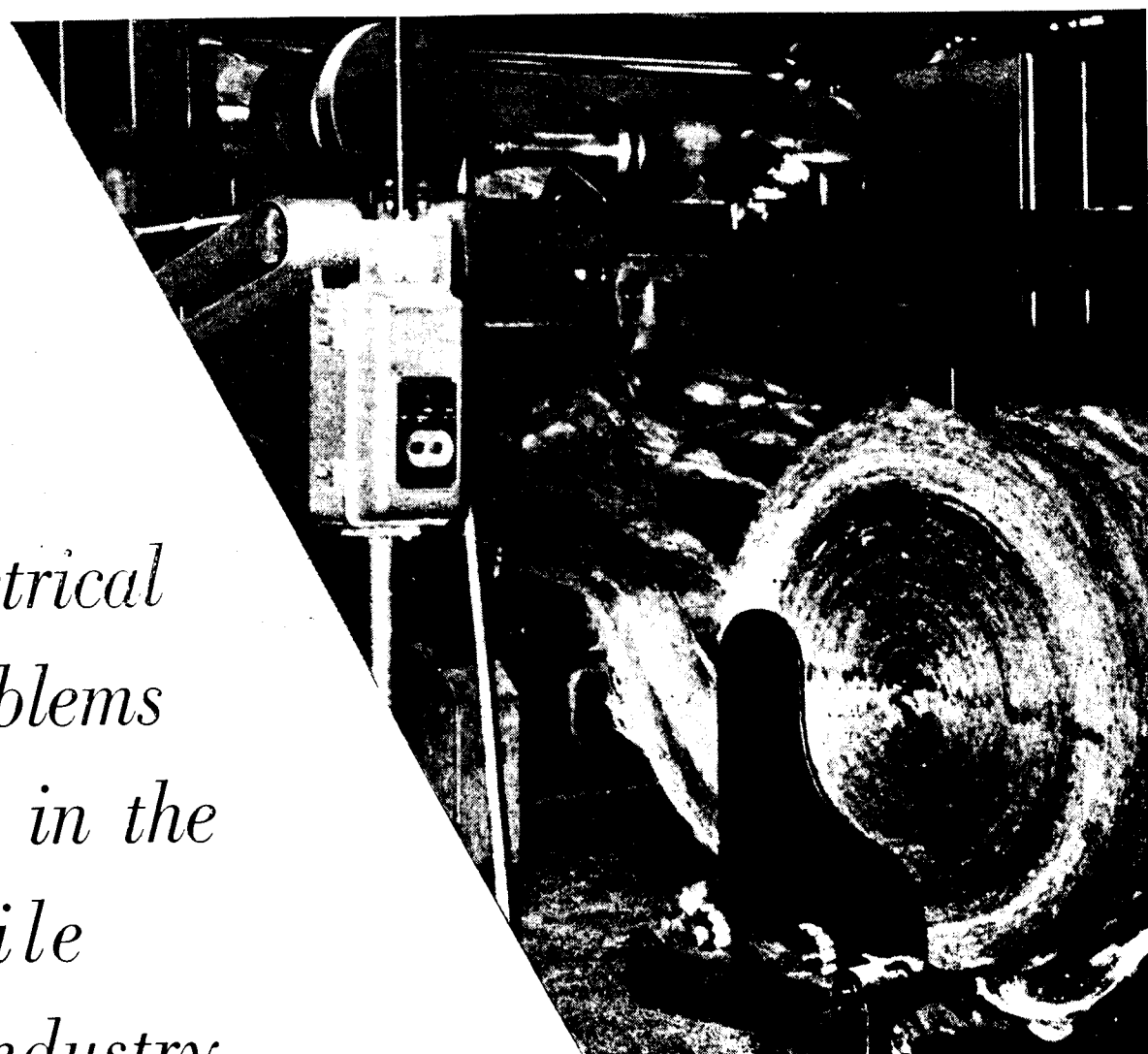
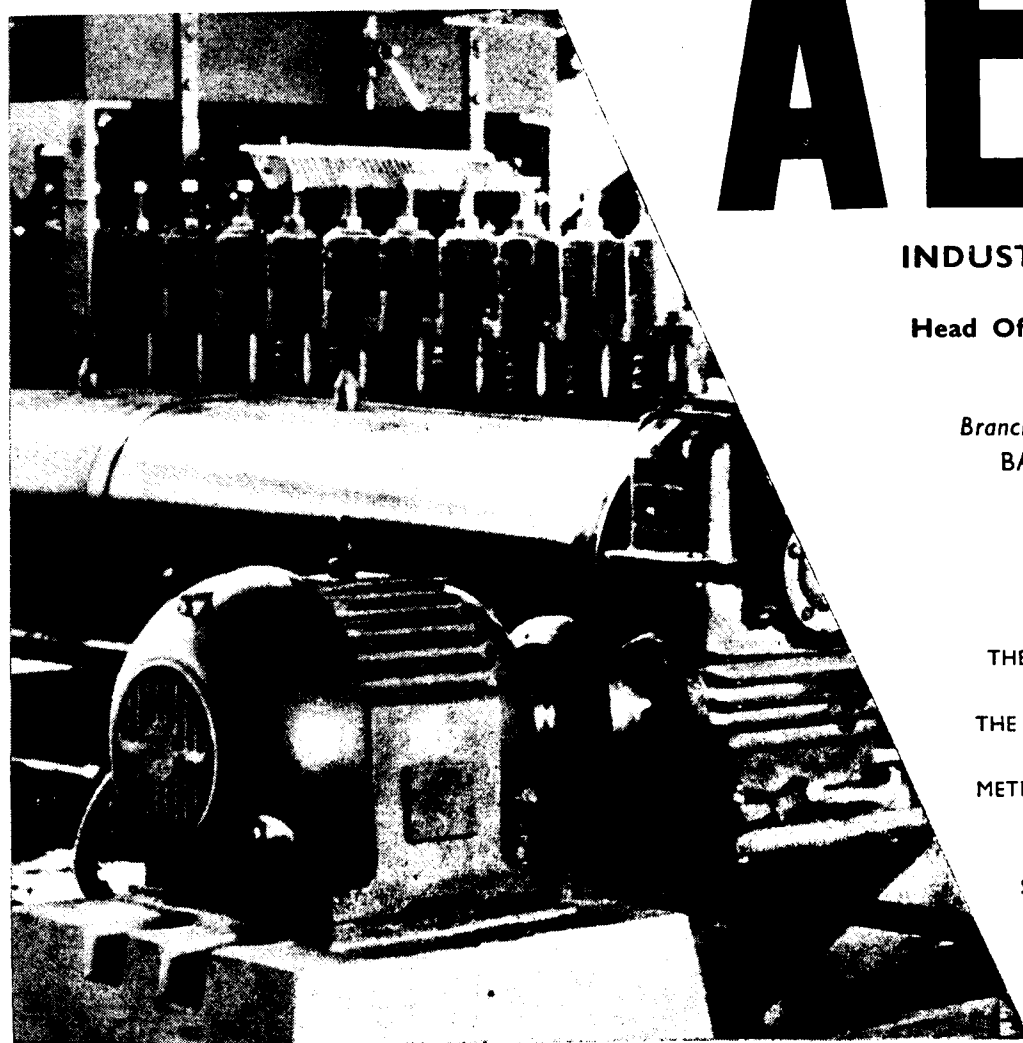
Madras, now better placed in food resources retains all its commercial crops unaffected, notably oil seeds, of which the State has about 40 per cent of the all-India area. Its industrial potential is indicated by the presence of a considerable deposits of lignite, bauxite, sulphur, some iron ore and mica. Andhra Pradesh will enjoy a vital monopoly of coal production in the South. A food surplus area it will have large quantities of rice for export, besides there are castor, groundnut, mangoes, tobacco and a number of minor products like chillies, onions and turmeric. The State claims a considerable production of sugar, an extensive cotton belt, a respectable textile industry and a substantial production of jawar, ragi and bajra.

The addition of Vidarbha makes Bombay provide an overwhelming contribution to the Union's cotton and food-grain production, and the highest concentration of the textile industry. Besides, the State has a substantial production of India's linseed. In terms of industrial potential, Madhya Pradesh bids fair to needs in the future. It has also a rich concentration of minerals and hydro-electric power potential from the Narmada and Betwa valleys. Its mineral wealth includes iron ore, manganese, bauxite and coal. Madhya Bharat brings in more manganese and bauxite. Madhya Bharat has also a rich wheat tract. The new Madhya Pradesh is expected to become one of the richest States in the Indian Union with a comfortable revenue surplus.

By the merger of Himachal Pradesh, the new Punjab State secures the catchment area of the Sutlej and the Beas, thus bringing the Bhakra Project under a single administrative unit. It will be recalled that the Uhl and Bhakra Nangal electrical grids are together intended to command the entire area of the united Punjab State.

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Workers' Participation in Management

in the

Second Five-Year Plan

By V. V. GIRI

THE basic and general principles of justice, liberty, equality and fraternity adumbrated in our constitution were given more precise direction when the Indian Parliament accepted in December, 1954, the Socialist Pattern of Society as the objective of social and economic policy. Since then everywhere and everyone is talking of the Socialistic Pattern of Society. What is the meaning of this much talked of "Socialist Pattern of Society"? Essentially this means that the basic criterion for determining the lines of advance must not be private profit but social gain and the pattern of development and the structure of socio-economic relations should be so planned that they result not only in appreciable increases in national income and wealth. Major decisions regarding production, distribution, consumption and investment must be made by agencies informed by social purpose. "The problem is", as the Second Five Year Plan states, "to create a milieu in which the small men who has had so far little opportunity of perceiving and participating in the immense possibilities of growth through organised effort is enabled to put in his best in the interest of a higher standard of living for himself and increased prosperity for the country". Elsewhere it is added, "the creation of industrial democracy is a pre-requisite to the establishment of a Socialist Society."

Whereas the First Five Year Plan emphasised the reorganisation of agriculture, the Second Five Year Plan lays stress on the industrialisation of the country. This naturally involves that the industrial undertakings in the public as well as in the private sector have necessarily to fit into the frame work of the social and economic policy. Further the important political and economic changes that have taken place during the last 8 years necessitated the Government of India to announce a fresh statement on their industrial policy in April, 1956. One of the foremost problems of the industrial policy is the basic attitude of the Government towards labour. On this question of labour-management relations it is significantly remarked, "in a Socialist democracy labour is a partner

in the common task of development and should participate in it with enthusiasm. Some laws governing industrial relations have been enacted and a broad common approach has developed with the growing recognition of obligations of both management and labour. There should be joint consultation and workers and technicians should whenever possible, be associated progressively in management. Enterprises in the public sector have to set an example in this respect."

Since the beginning of the Second World War, in almost all countries both in planned and in unplanned economics, this principle of co-partnership in industry in some form or the other came to be adopted. It was found during the war period that co-operation between the employers, workers and the public authorities became an utmost necessity for national survival. After the end of war it became a major instrument of national reconstruction. Now-a-days the objective in the introduction of this principle is more than an economic one; it has a normal and political purpose also behind this. Increased productivity has been a major target both in the capitalist and socialist countries. Especially in underdeveloped and undeveloped countries it has a special role to play—it is the key to industrialisation.

Further now there is a strong support for the view that improvement in social welfare is to be obtained not merely by measures calculated to ensure a more equitable distribution of income, but above all, by increasing production and efficiency. We are not only concerned with the equitable division of the cake but should be primarily interested in increasing the size of the cake. I have always stressed that the workers are the dominant partners in industry. Whenever I say that, I do not emphasize that with regard to rights and privileges alone but more about the duties and responsibilities. The workers are dominant partners only when they assume dominant responsibilities and satisfactorily discharge them. They must understand before they can claim the wages of a day, they must do the full out-turn of a day. It is, however,

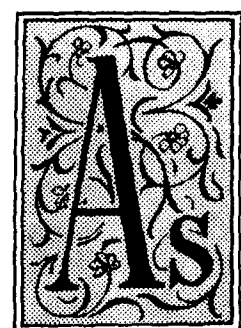
necessary that the workers need to be assured that they will get substantial benefits from the increase of production and would be given full opportunity of putting forward their views as to the methods of securing the increase and running the industry on proper lines.

In a democratic country like ours, the worker is more than a mere machine; he has a definite individual personality with the same rights as any other citizen. Yet conditions in the large scale industry tend to diminish the workers' personality and deprive him of all contacts, direct and indirect, with those responsible for the management of the undertaking. This makes him feel that he is an inferior being and keeps him in the position of an 'under-dog.' This unhappy contradiction of political freedom with economic slavery is hardly consonant with our Socialist ideal. The political revolution has changed the subject of the old regime into a citizen, in the social field, it is high time, the wage earner must be transformed into a fellow-worker.

Further in the interest of the nation also, the worker must be given a voice in the management and control of industry. Just as the workers through their elected representatives are becoming more and more associated in the country's political and economic affairs, they should be associated also in the management of the undertakings which form the basis of that system and should take their proper place to which they are entitled by virtue of their contribution to the task of production. Works Committee and Joint Standing Machinery are not merely evidences of the dignity of labour but also of the recognition of the right of the working class to be kept informed of the economic developments and to influence those developments.

Co-operation in industry, in common with other concepts, must change with changes in the pattern of society. Hitherto we have been fully working in India under a capitalistic system but now we have to change the whole structure, which should lead us to the establishment of a welfare state or a co-operative common wealth gradually evolving not only a Socialistic pattern of society but ultimately lead to a socialist state and a classless society in their fullest sense. If we have to attain these objectives, there must be full co-operation between labour and management. Private enterprises should gradually lessen their idea of profit seeking and more and more regard themselves as the guardians and trustees of the Nation's production. "My advice to the employers", Gandhiji said, "would be that they should willingly regard the workers as the real owners of the concerns which they fancy they have created." The employer must fully understand that in an undertaking the worker is the dominant partner, there is every justification for this, because the worker invests not his money but his life.

In this present transitional stage from capitalism to socialism, it is to the credit of the employers and advantageous too, if they establish Joint Standing Machinery and bring about a greater amount of labour's participation in management. If the patriotic urge and the enlightened self interest do not adequately replace the naked and greedy profit motive on the part of the management, I am afraid, the other partners viz the workers would create a situation in which the employers would be compelled by legislation and other measures to relinquish a greater amount of rights than they would otherwise voluntarily do now. I am one of those who have believed for the last 35 years that compulsion of any



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kind and from any quarter should be discouraged and 'Internal settlement' should be preferred to 'compulsion from outside'.

Consistent with my faith on internal settlement rather than on external machinery, I would advocate the establishment of Joint Standing Machinery-Bipartite and Tripartite agencies—in every industry and in every unit of it not only to solve the differences that might occur from time to time but also to discuss all matters connected with the efficient running of industry. We can have industrial courts or tribunals on the lines as in United Kingdom but their decisions will be more morally compelling than legally binding on both the parties, with public sanctions behind them. I have persistently held all these years that there must be 'tripartite understanding' on workers' management relations, especially at a time when the public sector is playing a very important role in the economy of our country apart from the emphasis laid in the Second Five Year Plan on 'Industrialisation.'

This problem of labour participation in management presupposes the establishment of strong, well organised and independent Trade Unions. Regrettably indeed, to-day the Trade Union Movement is split up into rival unions even though the economic and social interests of all the workers are the same. It is the primary duty of the workers to stand united on the principle of 'one union in one industry'. Then alone the employers would have the real confidence in the working class and would really invite the workers to co-operate in the establishment of Joint Standing Machinery for running the industry. It might rankle in the minds of some of my

trade union friends that the employers might take this as an opportunity to stifle Trade Union activity. Also it is argued that the workers lack the sufficient knowledge about the financial and technical details concerning the industry and production and hence the employers might take undue advantage of this to serve their own interests. Surely such a situation is the most unfortunate one. I do not consider that human beings are so depraved as to conduct in such an ignoble way. Even if it be, the remedy to the grave apprehensions of my Trade Union colleagues is not to have no Joint Standing Machinery but to have sound Joint Standing Machinery armed with full powers to discuss all the issues and backed by well organised workers' and employers' organisations. The workers must clearly understand that the real power lies, in a democratic state like ours, in their own hands and only by the unity of the rank and file alone they can wield the real authority.

Here comes the responsibility of the government. Apart from encouraging the establishment of bipartite and tripartite machinery, the government must grant recognition to Trade Unions and thereby give them a 'status' as a responsible body fit enough to be a partner in industry. Further the Government must provide facilities to train the workers in the technical and financial details so that everyone of them and not merely those who are selected to represent in the works committees or councils of management, are in a position to know the facts and discuss among themselves the various questions before making suggestions or discussing the matters in the management councils. The fact that the enlightened worker is an asset to the industry must be realised by the employers

and an educated citizen an asset to the nation must be felt by the Government.

The Second Five Year Plan rightly acknowledges, "for the successful implementation of the plan, increased association of labour with management is necessary. Such a measure would help in.....leading to industrial peace, better relations and increased co-operation. This could be done by providing councils of management, technicians workers. It should be the responsibility of the management to supply such a council of management fair and correct statement of all relevant information which would enable the council to function effectively.....to begin with the proposal should be tried out in large establishment in organised industries."

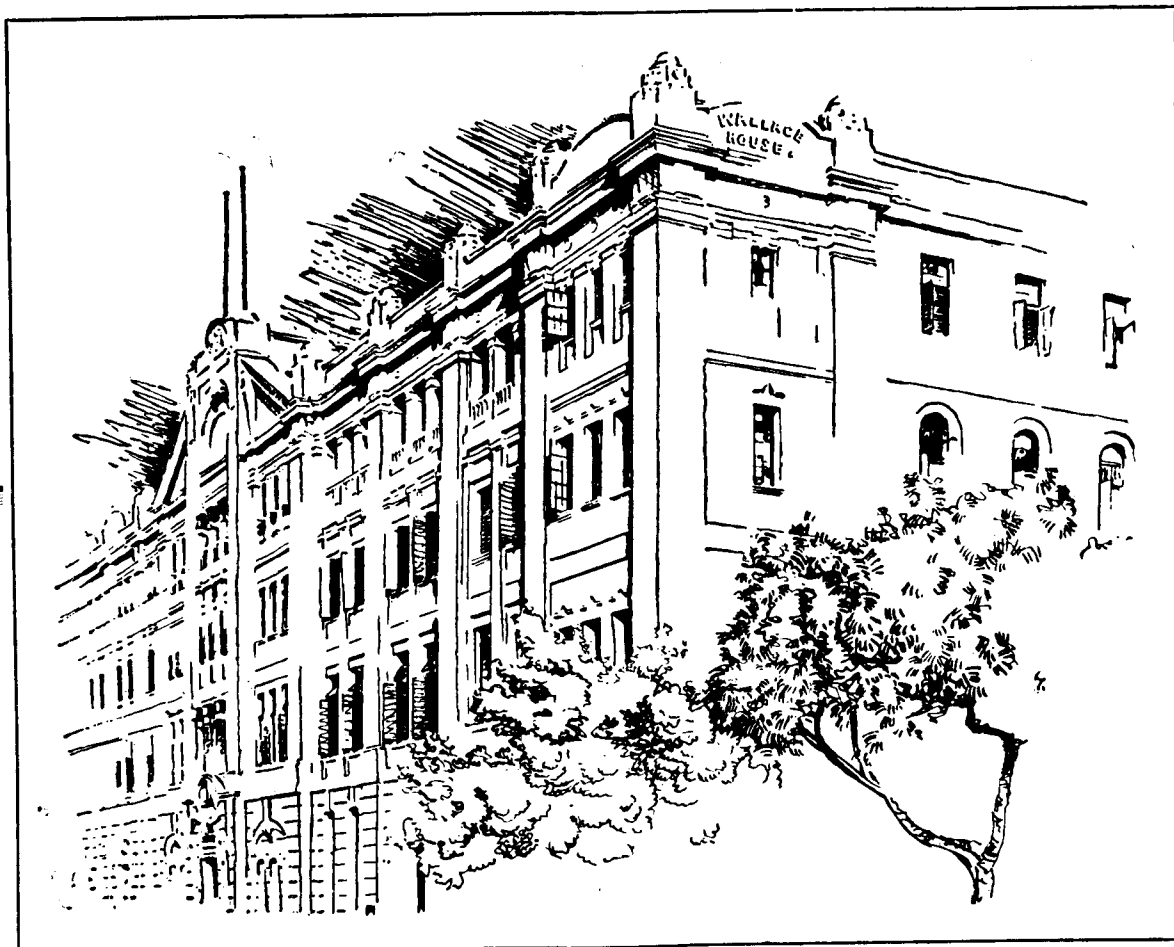
In India if we mean to achieve our ideal socialist state and thereafter a classless society the workers must fully realise that work and honest discharge of duties and responsibilities only can secure them their due place in the industrial economy of the country. The employers must also of their own accord change their attitude and relinquish their past acquisitive tendencies and set a new ideal for the future. Recently there has been some talk of the introduction by the government of the principle of 'co-partnership in industry' in Railways and other government undertakings. I am sure, if this is done with sincerity and after understanding the full significance of the whole thing, not only the public sector would become the model for the private sector to follow, but the Indian experiments on co-partnership would set the example for other Asian countries to emulate. Such a step is consistent with the Socialistic Pattern of Society to which we are wedded.

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THE FUTURE OF THE PRIVATE SECTOR

By A. D. SHROFF

STRICTLY speaking, the private sector should comprise all economic activity in which individuals are free to exercise initiative and take decisions. Thus, the whole of agriculture, wholesale and retail trade, professions and industry including both the organized and the unorganized units constitute the private sector. Subject to the general laws and regulations of the State, the vast multitude of individuals engaged in the different types of activities mentioned above shall be at liberty to take whatever decisions they like in the course of their business or professions and to suffer the consequences of such decisions or enjoy the benefits. In the controversy regarding the role to be assigned to the private sector in the economic development of India that has been going on for some years past, the private sector has, however, been identified with organized industry alone. Statements to the effect that the private sector has failed or that it has assumed a monopolistic character or that Indian capitalism is very weak and cannot be expected to undertake the responsibilities of carrying out a large programme of economic development, which have recently been made by Ministers, economists and some of the foreign experts visiting the country, relate wholly to the organised sector of industry. Bearing in mind that the organized sector of industry provides the main impetus for the development of general economic activity in an under-developed country, the reason why it has become the focal point of the entire private sector can be readily understood. The organized industry has a crucial contribution to make even under a policy of planned economic development. While discussing the future of the private sector I shall also, therefore, put a narrow interpretation on the phrase and confine myself to the organized sector of industry in the main.

Almost all the industries which have been established in the country today, owe their existence to the initiative and enterprise of the private sector during the last 100 years. They comprise not only consumer goods industries like cotton textiles, jute textiles, sugar, soap, pharmaceuticals and paper but also basic industries like steel, hydro-electricity, cement, heavy chemicals and machine tools. Most of these industries were set up under conditions which were far from favourable, when Government policy was based on *laissez faire*. After independence *laissez faire* gave place to a policy of planned economic development. While, as compared with the pre-independence period, the conditions have been more propitious for the growth of organized industry, restraints of a different character have hampered its pace of development. Some of these restraints were inherited from the war-time economy and some were imposed deliberately for implementing the policy enunciated in the resolution of 6th April 1948, and in the first Five Year Plan. Control of capital issues, powers exercised under the Industries Control and Regulation Act 1951, legislation enacted to safeguard the interest of labour and to improve its standard of living, fixation of prices for important industries like steel and cement and exchange control, held back the pace of industrial development. The Government tried to encourage new industries by giving special concessions such as exemption of profits up to a certain level from income-tax, liberal depreciation allowances, protective tariff and import control. But, because of

the heavy burden of taxation and the general nervousness in the capital market which it created and the restrictions mentioned above, industry was not able to make full use of the opportunities available to it in the post-war period. The conflicting utterances of the Ministers on the policy of Nationalization were an additional factor which exercised adverse influence on the initiative of private enterprise.

Notwithstanding these impediments to the rapid growth of industry the progress recorded has been quite creditable. A number of new industries have come into existence and the total industrial output has registered a substantial rise. Consumer goods industries like Rayon, Bicycles, Sewing Machines and producer goods industries like Diesel Engines, Electric Motors, Machine Tools, Heavy Chemicals, Automobiles, Locomotives and Textile Machinery are the prominent instances of new industries set up during the period. The index of industrial production (Base: 1946=100) has increased from 117.2 in 1951 to 161.5 in 1955. The targets prescribed for the private sector in the first Five Year Plan, which was based on the ideal of a mixed economy in which the public and the private sectors were to function side by side without any bias in favour of either, have been fulfilled. The investment in the private sector of industry for new projects as well as for purposes of expansion during the five years was to be of the order of Rs 223 crores. According to the "Programmes of Industrial Development 1956-61," issued by the Planning Commission, "the actual investment has been of this order." Incidentally, "new investment on industries in the public sector," the same publication reports, "was expected to amount to about Rs 94 crores. The actual outlay according to the latest estimates has only been about Rs 57 crores." Even in terms of capacity and production almost all the industries have attained the targets prescribed for them. In some of the industries the targets have even been over-reached. The cotton textile industry is a prominent instance on this point. Production in some of the light engineering industries such as diesel engines and pumps, batteries, electric lamps and hurricane lanterns fell behind the prescribed targets but this was due not to any fault on the part of the industries concerned but "to lack of domestic demand."

In the face of this record of creditable achievement it was disheartening to find that the Second Five Year Plan did not provide adequate scope for the private sector. The Plan seeks to accelerate the rate of economic progress so as to step up the national income by 25 per cent as compared with the increase of 18 per cent secured under the first Plan. The aggregate investment has been stepped up from Rs 3,100 crores under the first Plan to Rs 6,200 crores under the second. The large bulk of this investment is, however, to be in the public sector which goes up to 2½ times the corresponding share in the first Plan while the increase in investment in the private sector is expected to be of the order of only 50 per cent. The major point of departure in the second Plan is the precedence given to the public sector in industrial and mineral development. In the first Plan a total provision of Rs 94 crores was made for the establishment of large-scale industries in the public sector as against the estimated investment of Rs 233 crores in the private sector.

In the second Plan the provision of Rs 690 crores for organised industries and mining (including scientific research) in the public sector is much higher than the estimated new investment of Rs 575 crores in the private sector. Practically, the whole of the proposed outlay in both the public and the private sectors is for the development of basic industries like iron and steel, coal, fertilisers, heavy engineering and heavy electrical equipment.

The new resolution on Industrial Policy issued on 30th April 1956, which explains the background against which the investment in industry in the second Plan has been allocated between the public and private sectors, mentions in unambiguous terms that the State will progressively assume a predominant and direct responsibility for setting up new industrial undertakings in the future. This is apparently in conformity with the socialistic pattern of development which Government have now adopted as its ideal. This new Industrial Policy of the Government goes far beyond the policy announced in 1948 in circumscribing the field of private enterprise. The fear however is that in actual practice the State might encroach upon a much wider field than is envisaged in this resolution.

The ground for this fear is provided by the fact that the new Industrial Policy does not even mention the word "nationalization". The policy resolution, therefore, leaves considerable uncertainty regarding the fate of industries managed by private enterprise. It should also be recalled that air lines, gold mines, etc., were nationalised during the last few years, though in the Resolution of 1948 they were not included in the list of industries which were to be the exclusive monopoly of the State. The greatest disturbing factor is, however, the manner and the speed with which Government is entering the trading business. Early in the year when the establishment of a State Trading Corporation began to be seriously considered, it was stated on behalf of the Government that the object of the Corporation was merely to supplement the existing trade channels and not to replace them. Trade with the Communist countries was envisaged as the principal sphere of the Corporation's business. However, the original idea seems to have undergone a rapid change because, when the Corporation was set up on the 18th of May, it was endowed with authority to trade in any commodity it liked with foreign countries and also to take part in the distribution of any commodity in the domestic market. During the brief period of its existence, the Corporation seems to have made full use of the latitude it enjoys. It has entered the export trade in iron and manganese ores and coffee and has monopolised the import and distribution of cement in the country. Recently, Government even threatened that it would enter the trade in cotton textile. This gives the impression that notwithstanding the oft-repeated assurance that Government does not wish to replace the established channels of trade, in actual practice, the State Trading Corporation is taking over the business of wholesale merchants and traders long established in different lines.

It is surprising that the deleterious consequences of this policy of reducing the sphere of activity of the private sector are not perceived by the makers of that policy. First, restriction of the scope of private sector would defeat the very objective of the second Five Year Plan, namely, the acceleration of the rate of economic progress. As a result of the

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rich experience it has obtained through a long process of trial and error and the managerial talent it possesses, the private sector is admirably qualified to carry out, with the assistance of the Government, an ambitious programme of economic development of the type laid down in the second Five Year Plan. But this very sector has been denied adequate opportunities in the Plan. It was to this important drawback of the Plan that the Mission of the International Bank for Reconstruction and Development and recently its President, Mr Eugene Black, drew pointed attention. If one realises that the State has only just entered the field of industry, that it lacks the managerial personnel so essential for successful industrial operations and that its performance under the first Plan has not been encouraging, it is unwise to rely on the public sector to the extent to which the second Plan does for the fulfilment of its heavy industrial programme. Secondly, irrespective of the economic consequences of a policy of refusing to the private sector a scope commensurate with its capacity, which are bound to be serious, politically it will result in the dominance of the State machine and the destruction of the free adventuring spirit of man which is the essence of democracy. "Without the possibility of due economic independence there cannot be real political freedom".

During the "take-off" period of economic growth such as the present stage of economic planning in India represents, what is required is a supreme effort on the part of both the State and the people, that is, the private sector. For this purpose, it is the responsibility of the Government to provide conditions which make for a maximum of enterprise whether the ownership in any particular case be public or private. The Government must naturally introduce certain essential regulations and procedures to ensure the success of

the Plan but these regulations must not hinder initiative and enterprise. One of the principal objectives of State policy must be to "liberate constructive ability". In the immediate post-war period when Great Britain was confronted with the difficult task of rehabilitating its devastated economic life, a writer who held responsible positions in both industry and Government made the following observation:

"For long enough, however, by far the greater part of our industrial activity will continue under private ownership. It is in the vital interests of the community that the greatest practicable degree of efficiency and enterprise should be achieved in this field. The State should not seem merely to tolerate this private enterprise, but should accept it as its co-partner in the task of restoring the resources of Britain, and in raising the standard of life of its people. So long as an industry displays genuine free enterprise, with proper consideration for its employees and the consumer it should be given the largest practicable measure of freedom."

In a different context the observation is equally valid in the present Indian circumstances.

It cannot but be the unanimous wish and prayer of the country that the Second Five Year Plan must succeed. But the wishes and prayers alone, unless translated into action backed by a national resolve, cannot produce the desired result. Even now, if some of the ideology and doctrinaire approach were shed and our main problems tackled in the practical and businesslike way of making the maximum utilization of all the available talent, experience and resources of the country as a whole, it would certainly be within the capacity of the country to attain targets set out in the Plan, however ambitious they may look. For

instance, the transport bottleneck which threatens to seriously hinder the fulfilment of several targets of production can, to a large extent, be obviated by an energetic and vigorous drive for expansion of road transport both through the combined efforts of Government and the Private Sector. No advanced industrial country in the world depends for its internal transport on the Railways to the extent to which it is sought to be done in India. The Private Sector, in my judgement, can play a very effective part in supplementing the efforts of the Transport Ministry provided reasonable opportunities and encouragement are offered. Similarly, in the context of our conditions, the largest single factor, apart from adequate food supplies that would enable the country to effectively counteract the inflationary spiral, would be to make available adequate quantities of cloth against the rising demand. Here also, the approach to this problem has to be more practical, and the organised sector of the industry should be utilized to the maximum extent possible without in any way hindering the growth of handloom weaving.

I have always believed that you cannot have planned development on this ambitious scale without tears. Some measure of austerity and hardship for the intervening period is inescapable. I recognise the difficulty of getting the country to be reconciled to accepting a self-denying ordinance in the matter of consumption and savings, particularly because the country has not been roused to that pitch of enthusiasm for the fulfilment of the targets of the Second Five Year Plan. This enthusiasm, of course, can only be generated if every section of the community was satisfied that what is being attempted to be done is in the ultimate interest of the country. It may be an unfortunate tragedy, but let us face facts that such satisfaction does not exist today.

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Coal Transport

in the

Second and Third

Five Year Plans

By DARAB C. DRIVER

There is hope for adequate transport for coal in the III Five-Year Plan rather than in the II Plan which will be an intermediate period of inadequacy and inconvenience. The public opinion in India, the primary stress on Transport by the World Bank and the British Heavy Industries Delegation have impressed New Delhi, where second thoughts are budding.

2. The public assumes that all lines of production in industry and minerals in the II Plan will advance to their targets and only transport will lag behind. It will not be so. The experience of the First Plan affords no guidance to the progress of the II Plan. There will be many adverse factors slowing down the pace. Intransigent labour is raising its head, both in private and public sectors. Many Indian industrialists are experiencing that capital is shy to respond to their invitation 'Come into our parlour and sit on our preference shares.' The World Bank is barking caution. The West is misunderstanding India's attitude in the Suez Canal crisis and is inclined to consider India as an apt ally of Egypt alleged to be an adept in the popular game of considering as 'mine' what is 'thine'. The dark clouds over Egypt and Israel are beckoning a general war. So progress in most of the lines will be slow and halting and will harmonise with the inadequacy of transport. Five-Year Plan will probably limp into a Seven or Eight Year period.

3. Coal, an essential raw material for the manufacture of steel etc., is wedded to the Steel Industry; this black bride will, therefore, have an honoured place in the priority list for transport both for steel and other industries, according to the II Plan.

4. Ultimately electrification of railways is the only practical solution of our transport difficulties considering its efficiency is 16 per cent against 5 per cent of steam locomotion; its consumption of coal for the same amount of traffic is only one fourth of that required by steam engine; its better acceleration makes for better speed and better turn-round of wagons which in its turn means less equipment of wagons and locos for a certain amount of traffic. In the II Plan only 800 track miles are to be electrified. This is not enough but this will help the transport of coal from the Raniganj coalfield in Bengal as Howrah-Gomoh line will be electrified and Gomoh-Moghalsarai line will be dieselised. In the III Plan when the Koyana river project in the Bombay State, hydro-

electric Works under construction in Northern India, proposed thermal stations in Madhya Pradesh etc. will materialize, we should expect Howrah-Bombay and Bombay-Ahmedabad tracks to be electrified among others. The III Plan will bring us nearer to our ideal of electrification of important lines on which we rely mostly for the amelioration of our rail transport inadequacy.

5. In the meanwhile, Railways, apart from the electrification 800 route miles and dieselisation of 1300 route miles, are doing their best within their restricted means to improve the coal transport. We mention below some of the projects under way or under consideration:—

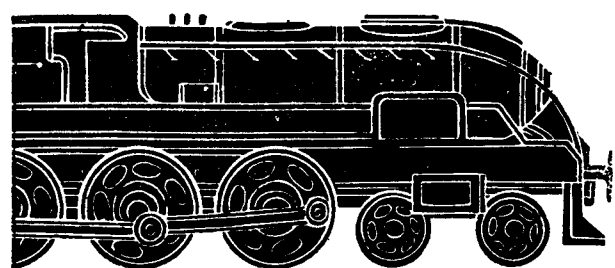
(a) Survey of a broad gauge new line of 62 miles between Tarapore and Bhowanagar which will relieve the present pressure at Viramgam and Sabarmati transshipment points and dieselisation of railways in Saurashtra where both water and coal are scarce; (b) remodeling of Moghalsarai yard to handle each day 3000 wagons each way for all traffic in place of 2000 wagons at present and dieselisation of 232 miles track between Gomoh and Moghalsarai; (c) electrification of Calcutta suburban railways and track between Howrah to Burdwan which may be extended further to Gomoh and provision of 400 wagons for coal per day on the Eastern Railway in place of 2500 wagons at present; (d) in the Steel area of Bengal, Bihar and Orissa, doubling of certain lines and building of new lines to link the centres of steel production with their raw material sources; (e) in the South, remodeling of the Vijayawada and Madras, conversion to broad gauge of Gudur-Ranigunta and Vijayawada-Muslipatam lines and dieselisation of Bezwada-Madras track etc; (f) increased lead since Partition from 275 miles to 300 miles which may be expected to improve further by 20 per cent in the II Plan; (g) organised 'wagon chasing' undertaken by the Railways 'to make wagons work harder' has improved the turnround of coal wagons in Bengal and Bihar from 7.4 days in January 1956 to 7.15 days in January, 1956 (Bengal and Bihar coalfields can despatch 2 lakh tons more of coal if the turn-round is reduced by one day); (h) large capacity coal wagons now under consideration, along with longer trains to be hauled by higher power loco-

motives over stronger tracks and heavier rails etc.'

6. Use of substitutes of coal near at hand in place of coal hauled from a long distance will save wagon and locomotive capacity and help to ease the strain on rail transport. Thus in West Pakistan, it is reported that near the existing deposit of natural gas near Sui which is used in the power houses at Karachi, they have found another deposit which is considered to be one of the largest in the world, sufficient for centuries not only for Pakistan but for adjoining Asiatic Countries. The Sui gas pipe line passes near our border. Pakistan wants from India 80,000 tons of its coal per month. Boilers on our side can be adapted to burn either oil, coal or gas, so that in case of emergency, if Sui gas is cut off, our boilers can burn either coal or oil. Again another characteristic of gas is that under pressure it can be stored to last for months. In the circumstances, if India and Pakistan diplomatically agree that Pakistan will allow so much of her superfluous gas to be piped towards Saurashtra and adjoining Ahmedabad area in exchange for 80,000 tons of coal to be supplied monthly by India to Pakistan, it will be beneficial both to Pakistan and to India because Pakistan will get rid of her superfluous gas for which she has no use and Saurashtra and Ahmedabad will get gas fuel in place of coal which has to come from a long way. If such long distance coal traffic is avoided, it will ease our transport position. Similarly when Neyveli lignite project works by the end of the II Plan, it will relieve to certain extent the strain on the Southern Railway bringing coal towards the South, because Neyveli will produce 2,11,000 KW per year besides 3,80,000 tons of carbonised briquettes for industrial and domestic purposes. Also in the II Plan, the increase of electric power from 3 million to 6.8 million KW will tend to reduce the transport of coal to a certain extent. Further, if reason triumphs over sentiment and Assam Oil Refinery is located near Calcutta, the use of the gas from the Refinery in place of better grade Raniganj coal brought from 120 miles away will mean great relief to the rail transport.

7. As regards alternative transport for coal, we need only mention, apart from the Durgapur Canal, not yet ready for operation, rail-cum-sea traffic of coal from Bengal coalfields towards the South and Saurashtra and coal traffic by diesel trucks in the Raniganj-Durgapur area. Cost of coal transported to Saurashtra and the South by rail-cum-sea route is double the cost of straight rail route from Bengal. The Government is therefore, considering a subsidy to transport by rail-cum-sea route both with a view to encouraging coastal shipping and saving of uneconomical long distance haulage of coal to the South and to Saurashtra. As regards coal transport by diesel trucks, the area comprising Laikdih and Dishargarh types of coal in the Raniganj coalfield and the Durgapur industrial belt offers good prospects, since Railways want to discourage railway traffic below 75 miles by levying special surcharges for such traffic. But the roads are bad and the present loading restriction requires a truck not to carry more than 5 tons of coal. If the roads and bridges are strengthened and the trucks are allowed to carry 15 tons of coal, the Railways will be relieved of a good deal of short distance uneconomical coal traffic and the State Steel Works at Durgapur will gain the most, because ultimately most of their metallurgical coal will have to come from Laikdih and Dishargarh side only 75 miles away, since recent research at the Fuel Research Institute indicates that there coals blended among themselves with a small proportion of Jharria coal or coke dust make good metallurgical coal.

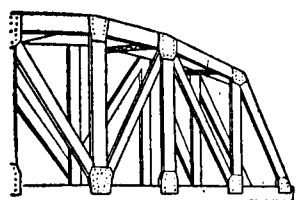
Such is the prospect of coal transport during the II and III Plans and one need not be too anxious about it.



PAINT in PLANS and PROJECTS

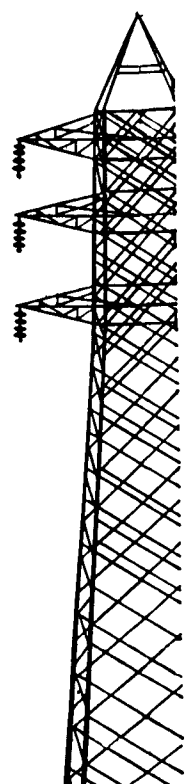
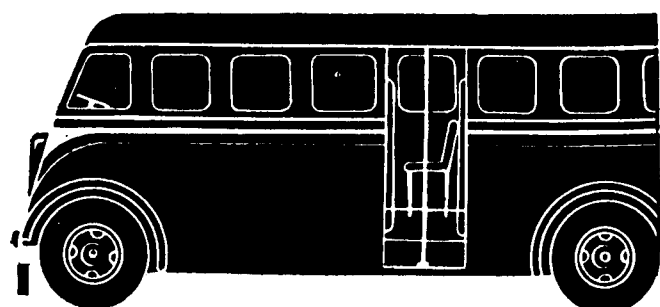
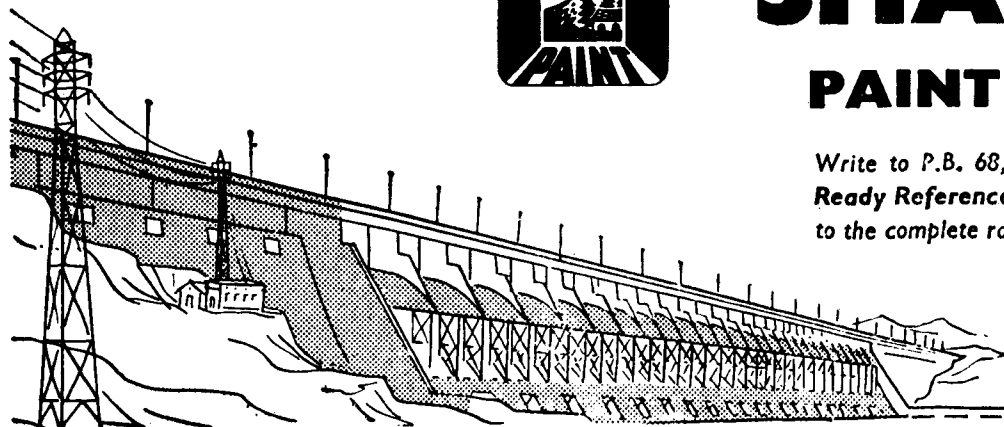
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Social Security in India

By Professor V. G. RAMAKRISHNA AIYAR

THE term 'Social Security', in a somewhat restricted sense, is used to denote a specific programme of action, generally limited to government measures, to eliminate want by preventing total loss of current income and by spreading the economic burden caused by various hazards of industrial life over the community in general. It includes workmen's compensation, old age, invalidity and unemployment insurance and, also government measures of direct relief in which insurance element is altogether absent such as direct unemployment benefit. An important principle underlying Social Security is that everyone, when past working capacity, must be assured a certain basic income; the provision of old age pensions and unemployment benefit (in a period of severe unemployment) are the most difficult aspects of income security.

Even before the industrial revolution, attempts were made to reduce insecurity through a pooling of risks. The medieval guilds maintained funds for protecting their members against fire, sickness, disability and old age. Subsequently, when labour unions were formed to replace guilds, the same technique of spreading risks was continued. The first comprehensive scheme of social protection was introduced in 1881 in Germany, which was financed by employers and employees. Denmark introduced in 1891 a State financed pensions scheme; this was adopted by New Zealand in 1898 and Great Britain in 1908. Later, the social insurance idea became permanent and prominent, which provided a source of revenue to government. Australia established a contributory pension scheme for old age in 1905. Sweden followed suit in 1913 with a comprehensive scheme of old age pensions and, by the beginning of the 'Great Depression' almost every country in Europe had adopted some form of State Insurance. In the U.S.A. the movement lagged considerably behind that in European countries, partly due to the better economic status of the American worker and partly due to the prevailing individualist philosophy in the country.

To-day, social security schemes operate in most countries either in a comprehensive fashion including in their scope a vast majority of the people and covering almost all the contingencies or in a restricted way applied to certain sections of the population in respect of the more important risks only.

Before the passing of the Employees' State Insurance Act in 1948, social security legislation in India consisted of the various Maternity Benefit Acts in the Provinces and the Workmen's Compensation Act only. In the States Maternity Benefit laws beginning with that of Bombay in 1929, vary widely in standards. Workmen's Compensation Act, 1923 was the first social security measure on all-India basis. The Act applies to all workers earning less than Rs. 400, workers being defined as non-casual workers employed for the purpose of an employers' trade or business. It excludes workers in factories with less than 10 labourers, domestic workers and agricultural workers and some other miscellaneous workers. Neither of these measures introduced the principle of social insurance in India, both being merely measures of social assistance placing the burden of financing the schemes entirely on the employers. The migratory character of Indian industrial labour and the extremely low level of earnings were

considered to be factors adverse to the introduction of any scheme of social insurance involving collection of regular contributions from workers.

Employees' State Insurance Act, was an attempt to introduce an integrated system of health, maternity and accident insurance. The scheme, the first of its kind in South East Asia, was introduced in January, 1952 and will eventually cover about 2.5 million workers employed in all 'perennial' factories, employing 20 or more persons and using power. The scheme is to be extended progressively by regions. It has been implemented so far in Delhi, Kanpur and a few important centres in the Punjab, Madras, etc. covering but 8 per cent of the insurable population. Employees whose remuneration exceeds Rs. 400 a month are not covered by the Act. The employees are entitled to sickness, maternity disablement and dependents benefits, as also free medical care. For the requisite finances, the Employees' State Insurance Corporation is dependent upon contributions from employers and employees. For this purpose, the employees are divided into eight wage groups. The lowest group, consisting of workers whose income is below Re. 1 per day, is not to contribute. A low rate of As. 2 per week is levied on the next wage group and As. 4 per week from those whose wages are between Rs. 1-8 and Rs. 2 per day. In the higher wage groups contributions increase proportionately. Employees pay their share of the contributions only in those regions where the scheme is implemented when they will be entitled to the various benefits provided for under the Act. The employers in areas where the scheme is implemented are required to pay 1½ per cent of their wage bill, while the employers in other places contribute ½ per cent of their total wage bill. The health services will be run by State governments who will bear 1/3 of the cost of the medical care, the remaining 2/3 being borne by the Corporation. The Central Government meets 2/3 of the cost of administration, excluding the cost of benefits, for the first five years. The Corporation can acquire, sell or hold property, both movable and immovable, and invest moneys which are not immediately required. Such moneys should be invested in Government securities or as fixed deposits in the State Bank of India and to invest otherwise, prior permission of the Central Government is necessary. The extension of the scheme has been held up to some extent by disagreement between the Central and State Governments. For instance, in Bombay, regarding the sharing of medical costs. The financial implications of the scheme as far as the employers are concerned are yet to be studied.

Recently, two measures were introduced to provide for old age insurance for industrial labourers. They are the 'Coal Miners' Provident Fund and Bonus Schemes Act, 1948 and the Employees' Provident Fund Act, 1952, covering over 75 per cent of industrial labour. The Employees' Provident Fund Act extends to 20 States and is applicable to all factories employing 50 persons or more and engaged in the manufacture of cement, cigarettes, iron and steel, paper, textiles and electrical, mechanical or general engineering products. The Act covers only workers whose wages per month do not exceed Rs 300 and, factories owned by Government and local authorities are exempted. For the financing of the scheme, employers and employees contribute

6½ per cent each of the basic wages and dearness allowances payable to employees. Inclusion of dearness allowances in wages for the assessment of contributions has come in for criticism from employers. Employees can, if they so desire contribute more, upto a maximum of 8-1/3 per cent of their basic wage and dearness allowance. The provision of the Act became operative in November, 1952. The scheme now covers nearly 1.36 million workers in 1643 factories. Total contributions by employers and workers jointly by the end of August, 1953, amounted to Rs 4.47 crores. As the scheme is extended to other industries, these collections would be larger. In fact, the net loan borrowings of the Central Government, according to Plan estimates, mainly take into account these collections which thus provide means of development finance currently.

Growing unemployment in the country has recently focussed public attention on the problem. The Planning Commission have formulated an eleven point programme to meet this problem. The Standing Labour Committee has proposed a scheme for wage compensation of 50 per cent of total wages including dearness allowance for a maximum period of 45 days in a year. If relief is to be provided for, the question arises whether it should be largely in the form of assistance or insurance. Assistance on a big scale is not practicable in the present financial circumstances of Government; at the same time, it is very doubtful if a comprehensive unemployment insurance scheme can be implemented. Firstly, the financial implications of the present social security taxes on the employers remain to be assessed. Even the more limited social security measures that have been recently adopted are only partially implemented, and the Minimum Wages Act, 1948, under which rates of wages in a number of scheduled employments (one which was agriculture) were to be fixed, is yet to be enforced.

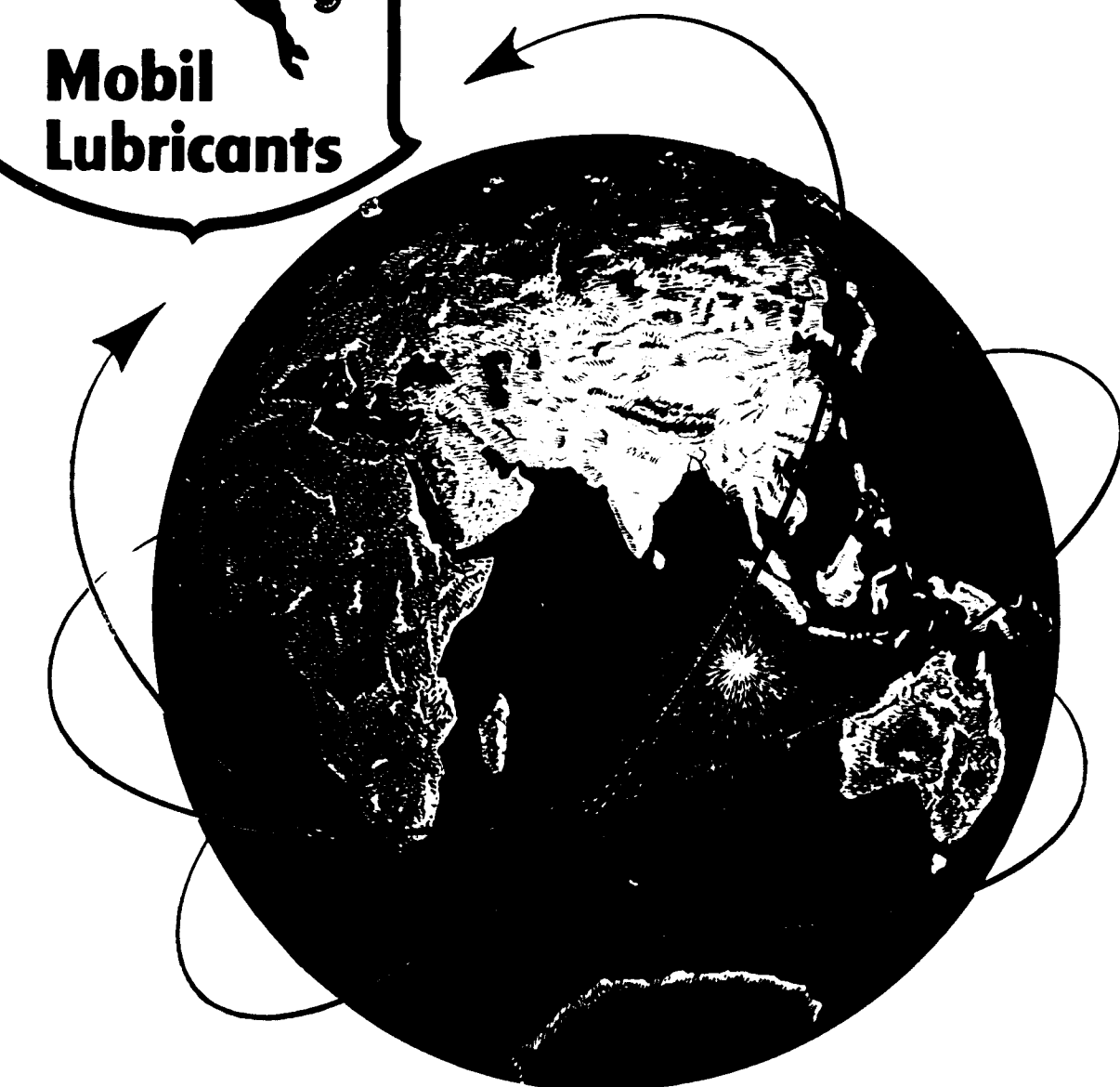
In a country in which unemployment exists on a large scale and is more or less endemic, the provision of better employment opportunities is prerequisite to any consideration of unemployment assistance or insurance scheme on a comprehensive basis. When the finances of public authorities are already strained to meet minimum requirements of development projects, only social security schemes of the highest priority—they too, on a limited scale and largely self-financing in nature, requiring little assistance from general revenues may be undertaken. Therefore, any scheme of unemployment compensation needs to be confined to a few cities and/or industries. In so far as the insurance idea is adopted, the coverages could be extended. Specific tax revenues may be earmarked as social security levies, for instance, central surcharges under Article 271 may be adopted as a regular feature of the tax system and may prove more acceptable if so earmarked. Similarly, a small social security contribution may be collected along with land tax and sales tax. By these means, a more or less universal contribution may be collected from the community for financing any limited social security schemes which may be implemented in terms of the provision made for social services in the Plan, in so far as contributions from beneficiaries and their employers do not suffice and a charge devolves on State finances.

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Accelerated Income Tax Depreciation and how it affects the Electric Supply Industry

By R. P. AIYER

THE concept of accelerated depreciation for corporate income tax purposes as an instrument enabling industry to mobilise new capital for expansion has come to stay. This has however given rise to complications in respect of the Electric Supply Industry in the country. This complication arises from diverse provisions with regard to depreciation between the Indian Income Tax and the Electricity (Supply) Act giving rise to deferred tax liability.

With rate regulation in India following generally the practice in the United States, it would be appropriate here to discuss how the issue is being tackled in that country.

In addition to the accelerated 5-year amortization permitted for portions of new utility plants on which certificates of necessity were granted during the Korean War, the US Internal Revenue Code of 1954 contains new and liberal methods of depreciation. As was the case with accelerated amortization, Congress' aim in providing the new methods was obviously to help finance plant expansion and new construction. The 1954 provisions are general in application, and no special permission is necessary (as with 5-year amortization) to put them into effect.

PROPERTY

- (1) Property 50 per cent certified as an emergency facility attributable to construction prior and subsequent to December 31, 1953.
- (2) Property (uncertified portion) attributable to construction prior to December 31, 1953.
- (3) Property (uncertified portion) attributable to construction subsequent to December 31, 1953.

The table below gives a comparison of annual and cumulated depreciation rates under the four possible methods, for typical years and assuming a 40-year life.

Comparison of Annual and Cumulated Depreciation Rates under Four Methods Assuming 40-year Life.

RATE ACCRUAL					CUMULATED RATE				
	StL	AA	DcB	SYD		StL	AA	DcB	SYD
	p.c.	p.c.	p.c.	p.c.		p.c.	p.c.	p.c.	p.c.
1st year	2.50	20	5.00	4.88	1st year	2.50	20	5.00	4.88
5th year	2.50	20	4.07	4.39	5th year	12.50	100	22.62	23.17
10th year	2.50	..	3.15	3.78	10th year	25.00	..	40.13	43.29
20th year	2.50	..	1.89	2.56	20th year	50.00	..	64.15	74.39
30th year	2.50	..	..	..	30th year	75.00	..	78.54	93.29
40th year	2.50	..	..	..	40th year	100.00	..	87.15	100.00

StL—Straight-line method AA—Accelerated Amortization
DcB—Declining Balance method SYD—Sum of the years' Digits.
..Not reported.

Under the declining balance method the undertaking may deduct up to double the straight line amount for the first year only, but in the second year this rate is applied

Under these provisions two new depreciation methods have been set up for possible use in tax returns—the "declining balance" and the "sum of the years' digits" plan. Adoption of these new methods raise various questions regarding regulatory, accounting and tax policies.

The Code applies in respect of new plant on which construction began in 1954, and the new property must have a useful life of three years or more. Applications of the new tax methods will result in heavier deductions for depreciation in the early years of service life with correspondingly smaller accruals in later years. Thus, income taxes will be partially postponed, though tax deferrals will be much smaller than with 5-year amortization.

If an undertaking elects to use the declining balance method (DcB) it may return to a straight line method at any time*. Different methods may be used for different portions of the property—such as one method for buildings and another for machinery. Moreover, the new methods can be applied to that portion of an emergency facility which has not been certified for 5-year amortization. Thus, the combination of methods in the table below might be used.

METHOD OF DEPRECIATION

Fifty per cent over five years as an emergency facility.

Straight line method.

- (1) Straight line method, or
- (2) Declining balance method, or
- (3) Sum of the years' digits methods.

this method, with an average service life of thirty three years, the annual depreciation would equal that of the straight line method in the twelfth year and thereafter becomes progressively smaller. The effects on income tax payments would, of course, be the reverse—greater in the early years.

The property will never be fully depreciated by this method, however. When about half the estimated service life has expired, depreciation will approximate 64 per cent, and at the end of the estimated life about 87 per cent. (These percentages would be only slightly higher in the case of property with a shorter service life).

The "sum of the years' digits" (SYD) method means the application of depreciation rates which are progressively lower each year. The rate for any year can be determined roughly by dividing the remaining number of years of estimated useful life (including the current year) by the number of years of the entire life, and applying the fraction to the rate for the initial year. (Actually, the rate is somewhat more complicated, requiring the use of algebraic formulae). Under this method, depreciation accruals are greater than straight line during the first half and lower in each subsequent year. This method is more liberal than the declining balance method and correspondingly permits greater tax savings. Assuming a service life of thirty three years, the depreciation accruals would amount to nearly 75 per cent in the first half of estimated life against 64 per cent under the declining balance method and 50 per cent with the straight line method. Moreover, it fully depreciates the property at the end of the service life.

While other specially devised methods of liberalised depreciation might be permitted under the Code, these are limited by the provision that depreciation accrued during the first two-thirds of useful life should not exceed that under the DcB method. The SYD method, which is not subject to this limitation, seems most advantageous—although once the utility has adopted this method it must stay with it, since it cannot change over to StL.

The Code also permits the use of older methods which were alternatives to the straight-line method, such as the sinking fund method. The latter method makes larger accruals to the depreciation reserve in later years rather than in earlier years, and hence would not have any favourable tax angle, although some companies might prefer to use it for their stockholder accounting.

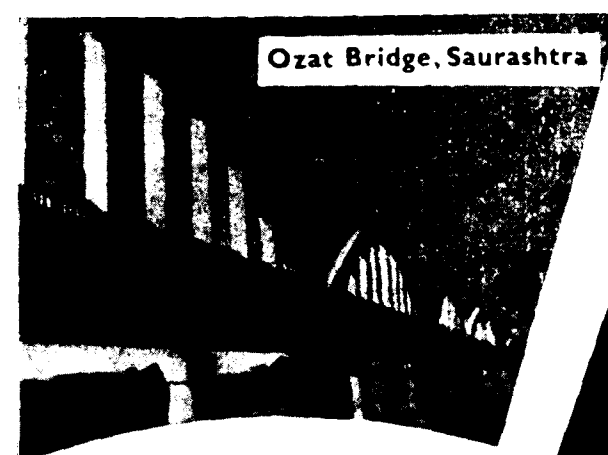
In common with the rest of the world, the regulated segment of US. Industry was beset with the problem of raising finance for development, and added to this it had to face hazards of uncertainty as to the possible stand which the Regulation Commissions in the country would take on the treatment of tax deferment arising from the impact of accelerated depreciation. The general trend of decisions by Regulation Commissions have however been that the difference between the tax relief and actual tax payment are directed to be placed in a special reserve for deferred federal income taxes.

There is also no specific record so far of the Commissions having enforced the Code on the utilities, if in the judgment of management such adoption is found inadvisable. This flexible approach however has been found not acceptable to Central Board of Revenue in this country.

It is hoped that this brief discussion will promote a greater appreciation of a vexed problem dogging the Electric Supply Industry in the country.

In contrast under the Indian Electricity (Supply) Act a Licensee has to adopt either the straight-line method of depreciation accounting or the compound interest method and once a particular method has been opted it cannot be changed.

only to the net balance, so that the net effective rate declines steadily. Also, estimated salvage is not deducted in setting up the original amount to be depreciated. Under



Ozat Bridge, Saurashtra



Konar Dam

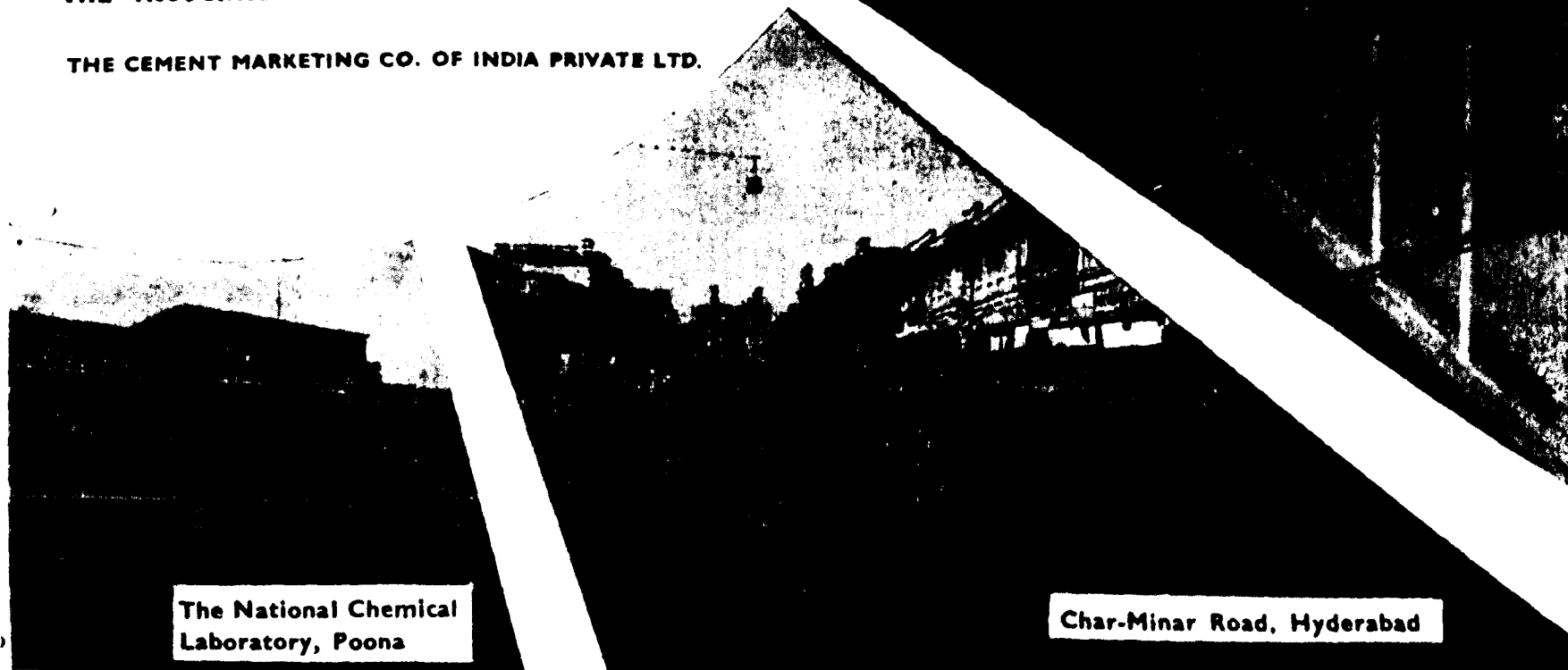
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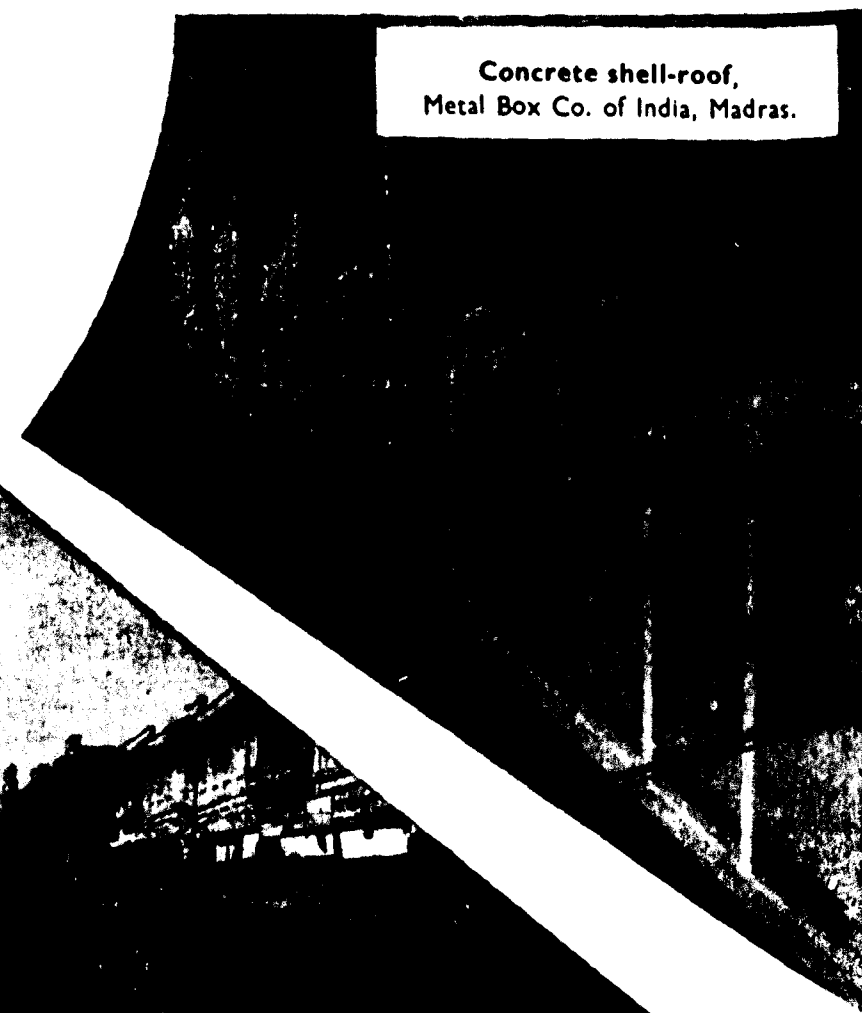
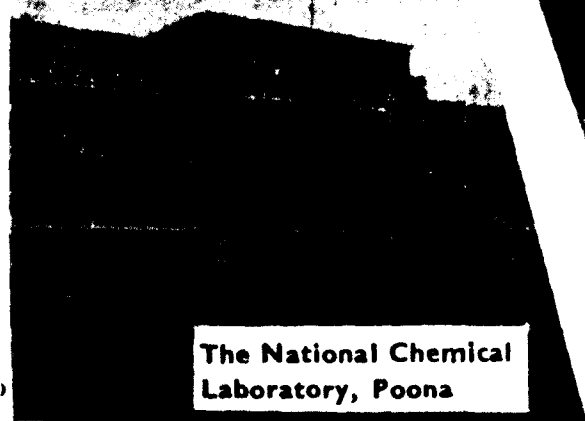
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TRANSPORT PLANNING

THE CASE FOR INLAND WATERWAYS

By U. SHANKER RAO

Need for correct perspective: Present Position: National Policy for inland waterways: Scope for small scale marine industries: Tractors as Tugs: "Tramping" on the Brahmaputra: Pipeline versus Bargeways Plan for cross-linking Calcutta with Ganga/Brahmaputra.

WHY do we need canals? How can we relieve pressure upon our hard-worked railways? Do you know that by canal a load of 50 tons or more can be moved by a small diesel engine? We would need two broad gauge wagons to do the same thing. Besides railways eat up precious steel and need costly equipment.

The need for developing canals and inland waterways in India has been recognised in many quarters. A vague disquiet exists that a national asset of considerable economic importance has been allowed to run to waste at a time when problems of transport and communications threaten to retard the progress of the Plan. But the subject of canals has been much misunderstood in recent years. While the public generally has some knowledge of relative advantages of rail, road, and coastal shipping, few seem to realise the commercial value of possessing a system that can contribute in no small manner to the improvement of transport and communications. This is probably because there is little passenger traffic on canals and their work is more or less out of sight.

If one makes a survey of the progress and history of transport in India one would then realise how unequal has been the attention paid to canals. While almost every mode of transport has received state subsidies and modern equipment the neglect of our canals and inland waterways have suffered since the advent of railways has continued.

NEED FOR CORRECT PERSPECTIVE

The first essential to make our canals and waterways useful and commercially active is to have a correct perspective as regards their future development and expansion. A clear appraisal of their relative place in India's transport economy is essential. To begin with, there is a big leeway that has to be overcome. For example our railways carry 35,000 million ton-miles, motor transport less than about 5,000 and bullock carts approximately 15,000 ton miles, while the share of coastal shipping is just about 2½ per cent of the railway tonnage and inland waterways accounts for only about 700 million ton miles. In foreign countries the expansion of railways is dependent upon other modes of transport such as road, and canals. In the USA the metallurgical industry is the basis of industrial supremacy. Coal, ores, and petroleum products can be hauled cheaply over vast distances. In Europe coal is only moved by railways when canals freeze. Since 1947 Britain has planned a new deal for her canals and throughout the country they serve industrial and agricultural areas. At central points along their routes well equipped warehouses, wharves, storage and distribution depots are established. The banks afford valuable sites for industrial development where loading and

unloading to and from canal craft can be carried expeditiously. The movement of raw materials by canals has been made cheap and thus manufacturers and factories can obtain their requirements without having to wait for wagons. Coal forms the bulk of water transport in most countries. This enables the railways to haul valuable goods at a quicker rate.

OUR CANALS: DESIGNED IN PRE-RAIL INDIA

The primary reason why our canals are unable to contribute their full share for expeditious movement of goods today is because they were originally designed in pre-rail India. It is perhaps little known that before the advent of the railways water transport held the premier place. Indeed the principal means of communications was carried out by canals and inland waterways. A tribute must be paid to Sir Arthur Cotton, a champion of water transport in the days of the East India Company, who had planned a marvellous system of waterways that had provided cheap transport in India. Just as we unconsciously visualize the construction of new rail links to meet our transport requirements, similarly there was a time in India when the whole conception of transport economy depended upon excavations of a network of artificial canals, both for irrigation and navigation. The method was simple—utilizing the facilities afforded by nature—a cut made here and there—either to join numerous back waters as in the case of Malabar or along the East Coast (Buckingham Canal) or to carry an alignment along the natural drainage lines of river deltas like in the case of Tolly's Nullah (Calcutta) which provided a sheltered route for country boat traffic from the rich jute growing areas of Dacca, Narayanganj, and Tapasa, now in East Pakistan.

The principal carrier was the country boat—so much ignored and overlooked in an era of steel and aluminium—whether it was the huge, cumbersome, Ganga "bhola" which brought rice from Barisal and jute from the tidal and riverine districts of Chandpur or the long, sleek, graceful "vallom" of Malabar which carried the famous spices and coir to Calicut for eventual export to foreign countries. Many of the canals were constructed and maintained at private cost and were designed after the narrow canals of Britain.

It was recognised that for strategic and commercial reasons, it was necessary to connect the principal cities of India, such as Madras, Calcutta, and Bombay, with those of the North: Kanpur, Lucknow, Delhi, Karachi, and Meerut. The basic plan for inter-linking these large cities was by a system of waterways somewhat like Brindley's scheme in England which conceived of a proposal to join the great ports of London, Liverpool, Bristol, and Hull, by cross linking the four main

estuaries—the Thames, the Severn, the Mersey, and the Trent. Excavations of canals was a lucrative proposition and many merchants of the East India Company had built their own canals. Indeed before the advent of the railways in India there was virtually a period when a sort of a "canal mania" existed and the great river valley projects that is the privilege of New India were conceived in some form or other by the early pioneers and veterans of water transport.

PRESENT POSITION

With the coming of the railways the whole situation changed. Water transport began to decline. Large scale development of roads made their economic position worse. Today, as conditions are at present, water transport in India is not on a good wicket. There are a number of factors that handicap their expansion. Though there are some 5,000 miles of canals and rivers available for navigation yet only a small part of this mileage is open for traffic.

In the North East area, the Ganga-Brahmaputra region, partition has dealt a severe blow to water transport as the passage through Pakistan territory would always remain an uncertain problem. Many of the other canals have silted up, lock gates damaged, and thus a solitary weak link in the system completely paralyses the entire waterways and boats cannot move and eventually they are abandoned.

Another factor that has received little attention in development schemes for water transport is that since the nineteenth century when our canals were originally designed the whole conception of trade has changed. Today India has taken a new shape. Steel plants with roaring blast furnaces are looming against new horizons. Bhilai, Rourkela, Durgapur, once obscure names are on the way to becoming great industrial centres. The Neiveli Project in the South may eventually mean less haulage of coal from the Raniganj collieries. Oil refineries have sprung up. Giant plants for fertilizers, cement, chemicals, and lignite have ushered in a new era of industrial renaissance in India. The ship yard on the East coast has given a new momentum and the manufacture of diesel engines and motor cars would further bring down the cost of movement of goods by roads.

DIFFICULTIES OF STEAMER COMPANIES

New cargoes—new destinations. They need new ideas.... But paradoxical as it may seem while there is every anxiety to improve our canals and inland waterways so as to relieve pressure upon the railways which have now become the major transport carrier, conditions of water transport are fast deteriorating. In a recent memorandum to the Government of India, the Joint Steamer Companies, who have been the pioneers of power transport on our rivers and who have been operating the "main Ganges despatch service" for over a 100 years have put forward proposals for suspending their steamer services between Calcutta and Bihar and between Assam-Cachar and Bihar—India's longest and oldest inland water way.

The memorandum opens with an indication of loss of Rs 24 lakhs annually and explains, among other difficulties, a serious feature that has to be noted in our future expansion schemes. The Ganges stretch between Bihar and East Pakistan has become commercially uneconomic after the partition. Other difficulties, cited in their memorandum, were the large demands on Ganges water for irrigation purposes which have steadily lowered the upland water discharge into the Ganga and which has impeded navigation so that progressively sailings have had to be shortened

owing to lack of depths of water. It may be noted that once large paddle steamers carrying passengers and cargo used to leave Calcutta and go up to Fyzabad on the Gogra, Gurumukteshwar on the Ganga, and Agra on the Jumna. There was regular steamer service on the Ganga. But today, owing to inadequacy of depths of water for navigation purposes 800 miles of riverways have been lost to traffic. Silting between Allahabad and Patna has limited navigation to another 350 miles down stream with Patna as the present terminal. River conservancy charges have also gone up and are about Rs 5 lakhs a year. The steamer companies have, on the suggestion of the Government of Bihar, agreed to continue their service upto the end of 1957 subject to certain conditions among which are increased freight rates between Bihar and Assam-Cachar, increased financial assistance from Government for river conservancy and a guarantee of 60,000 maunds traffic per month between Calcutta and Bihar.

While the future of water transport in N.E. India is becoming dubious, conditions in the South are less encouraging. The Backwaters of Malabar and the Buckingham Canal have both offered cheap and easy means of communications in the past. In Malabar, with the opening of the new rail link between Cochin and Quilon, a project that was deferred for almost half a century, movement of goods by water would be seriously effected. Indeed the Malabar Backwaters held a high place in the water transport system of India for consignees were offered the facilities of "Through Booking" from any of the canal ghats to railway stations and the absence of a rail link had in no way hindered industrial progress. But besides the new rail-connection between Cochin and Quilon there has been large scale siltation in the backwaters which have made oil companies one of the principal users of the canals to reduce their carriage of goods by barges.

It is understood that the oil companies are proposing owing to lack of water for carrying full cargoes in their barges and "cubes" to move their petroleum products by rail. This will also be found to be more economical as large ocean going tankers that come in from the Bombay Refinery can discharge directly into tanks from where they would carry the oil in tank wagons to the South East region—Madura, Tinnevelly, and Tuticorin. At present oil is moved by small shallow drafted tankers which carry it from Ernakulam to Quilon, but once this regular movements stops which provided the bulk of the income for canal and backwater maintenance, it will virtually mean a major setback for water transport.

On the Buckingham Canal, there is more or less, the same difficulty—lack of sufficient water—and boats cannot carry their full load. Thus haulage becomes uneconomic yet there are many commodities that need movement by water. It is relevant to mention here that the price of firewood in Madras is dependent upon depths of water in the Buckingham canal—deeper drafts mean full boat loads and hence a reduction in freights.

The vast part of the Orissa Coast Canal which provided a link between Calcutta and Cuttack has long been abandoned and only a small stretch from Ulubaria (Calcutta) to the interior is open for country boat traffic. The lack of a water link between the Ganga and the Hooghly owing to the siltation of the Bhagirathi which necessitates a detour of 400 miles via Pakistan territory has been another serious obstacle to development of water transport in India.

Finally the DVC Navigation Canal with its 22 locks in a stretch of 85 miles with a total

"turn round" time of 9 days for a 250 ton barge between Calcutta and Raniganj, a distance of 101 miles, has yet to prove its commercial utility.

DEVELOPMENT SCHEMES NEED NEW APPROACH

To sum up, the factual survey of present day conditions of water transport in India, would show that there is need for a new approach to development schemes. There is, at present, good administrative machinery set up to handle problems of development. Assistance is also available from the ECAFE.

Broadly speaking, the following facts have to be borne in mind before drawing up any schemes for development projects.

1. The railways are the principal carriers in the country. Long distance haulage of goods by water would not be economic in India. Both road and rail facilities have advanced to such an extent that water transport would not be able to stand competition.
2. Water transport would only be a commercial proposition if there is a careful system of rail river co-ordination. This particularly refers to the Ganga-Brahmaputra region.
3. An early allocation of goods for carriage by rail, river, canal, or road would be essential. At present there is some unhealthy competition and some consignees resort to water transport only when there is difficulty in getting wagons. Rationalization and reliable means for diversion of goods from rail to water would have to be provided for the trade.
4. Development schemes call for short term measures. Canals must help to tackle some of the problems of the day, such as congestion in ports, off loading facilities for satellite ports in the event of any established, and direct contacts with shipping for export and import of cargoes.
5. Besides rail sea co-ordination, an aspect that needs attention is Road/River co-ordination particularly in Bihar and Assam.
6. Facilities for movement of machinery, steel, and other bulky goods direct from the ships.
7. A survey for new connections by artificial bargeways so as to relieve pressure upon railways and roads. An analysis of the various factors that create port congestion particularly in Calcutta will show that transport bottleneck can be tentatively isolated within a triangular area comprising Calcutta, Siliguri, and Moghal Sarai. They form the three points of a triangle. Transport difficulties within this area create many problems. They are primarily due to break of gauge, wagon shortage, transshipment across Ganga, the need to move coal by rail, and growing pressure in Calcutta port.

A system of Artificial Bargeways would help to tackle many of the problems in this bottleneck triangle—all within a radius of 250 miles from Calcutta.

NEED FOR A NATIONAL POLICY

To utilise the full extent the potentialities of our canals and inland waterways, a first step, is the need for a national policy, as regards their development. Canals and inland waterways must be used to relieve the railways and co-ordinated programme of expansion is essential. Even today with their

many handicaps and a poor future canals are serving useful purpose in their own small way. During the War traffic on the East Coast particularly between Madras and Vijayawada was at one time greatly dependent upon the Buckingham Canal. Running parallel to the railways and often close to some of the stations canal boats were used as wagons and on all occasions when there was difficulty for booking wagon space the canal was invariably found to be useful.

Similarly in the North East sector the utility of the steamer services both as an auxiliary to the Assam Rail Link and a life line to Assam cannot be underestimated.

So far much emphasis has been laid on the expansion of the railways. Large sums and foreign aid has been used to increase rail facilities. The cumulative result has been that the railways have virtually usurped and monopolized the entire transport system of the country. Thus freights, loads, and all facilities depend upon the railways. Transport has become an expensive proposition and almost 25 per cent of present day costs can be cut down if there were adequate and cheap facilities for movement of goods. Today the railways have become the gyrating centre around which all other modes of transport have to shape themselves, coastal shipping to carry their overflow, inland water ways to relieve pressure upon them.

In drawing up a national policy for Indian water ways there is a close similarity to some of the problems that came up for consideration in Britain. Like in India, "British waterways and canals faced a dilemma and road/rail facilities more or less killed the canals. But there was a vital place for them in Britain's national economy and both for strategic and commercial reasons Britain could not afford to neglect them. Soon after nationalization, the Transport Act of 1947, the British Transport Commission, took under their control the independently owned and former railway owned waterway undertakings in their management by a single authority—the Docks and Inland Waterways Executive. A definite programme of integration, organization, and expansion for the development of canals and inland waterways was chalked out. A total of 1,766 miles of inland waterways was left open for traffic, abandoned waterways closed or converted into roads, and a national policy for co-ordinated expansion of rail, canals, and roads was undertaken.

In India there is no need for grandiose schemes of development but a simple scheme to bring all important canals up to a uniform standard of gauge and equipment and chalk up a programme to bring the whole system back into efficient use. Simple dredging, greater depths of water, efficient management, mechanization and the use of tugs and barges would give unrivalled opportunities to make use of a national asset for the benefit of our transport economy.

PIPELINE VERSUS ARTIFICIAL BARGEWAYS

Indian waterways are at a crucial stage. A correct step and the right action at this juncture when large scale plans and projects are being drawn for the future benefit of the country can help to give a permanent place for inland waterways and canals in India's transport system.

An outstanding example is in the movement of oil and petroleum products. The location of the Refinery for the oil resources of Naharkatiya (Assam) has been the subject of much controversy. So far no decision has been made. This offers an opportunity for inland waterways. Assam has a natural

*Courtesy British Transport Commission.

claim for its location in her own state. But transport is the biggest problem. The Assam Rail Link would never be able to handle movement from the new refinery. Even today owing to lack of adequate transport the Digboi Refinery is only able to move 400,000 tons of its output of 600,000 tons and is operating below capacity. Railing the oil is not only expensive but also physically impossible as the Link is incapable of handling more petroleum traffic.

To overcome this difficulty it was originally proposed to construct a pipeline across 850 miles of Indian territory to transport crude oil from Naharkatiya to the refinery site provisionally to be located at Calcutta, at a cost of Rs 100,000,000.

This proposal has now been altered and a plan to use the river Brahmaputra as a "natural pipe line" has been suggested. Briefly, the new scheme envisages using the river from Naharkatiya to Dhubri, the Western most limit of Assam, and then to construct a pipe line from there to Calcutta. This was estimated to reduce the initial cost of the pipe line project by over fifty per cent as Brahmaputra could be made navigable at a little cost and tugs and barges bring the crude oil upto Dhubri.

WHY NOT BARGEWAYS? PLAN FOR CROSS-LINKING HOOGHLY- GANGA-BRAHMAPUTRA

Now, this is where inland water transport, can receive the best form of state aid. With growing transport requirements and the need to meet any eventualities, a right course of action at this critical juncture, when large scale national projects are under consideration, would give a permanent place for water transport in India and make it a serviceable commercial auxiliary to our railways. This would also help to tackle at one stroke the whole of N. E. India's transport economy which has never been able to recover from the effects of the war and the partition.

Why a pipe line from Dhubri to Calcutta? Why not plan a system of artificial Bargeways and cross-link the Brahmaputra with the Ganga and the Hooghly? The problem of transport between Calcutta and North Bihar, on the one hand, and between Calcutta and Assam, on the other, has been a source of considerable anxiety. The authorities concerned are doing all that is possible to provide the maximum transport facilities and a tribute must be paid to the railways for the magnificent manner in which there has been a radical improvement in the whole area. Wagon turn-round, coal loading, handling at transshipment centres, have all been steadily improving. But in spite of all this, it is very essential, to work out a plan which would afford relief to the railways and prepare alternative means for the movement of goods which would have both commercial and strategic value.

One of the principal difficulties has been the break of broad gauge in the southern section of the Ganga and metre gauge in the Northern section and in Assam. Transshipment across the Ganga and the Brahmaputra would always present certain permanent difficulties—the need for changes of steamers, replacement of ferry steamers, and consequent delay in handling of goods between the two different gauge wagons. In these circumstances a canal would be the best link to overcome the many problems that are inherent with many handicaps. The disruption caused by floods is an annual feature in the transport to North Bihar and Assam.

The idea of artificial barge canals or Bargeways is not a new innovation. It was carried out in ancient India and a system of narrow

canals dug for the movement of country boats. In the days of the East India Company before the advent of the railways private merchants would take a license and dig a canal to serve their commercial requirements. The examples of Tolly's Nullah in Calcutta, the Buckingham Canal on the East Coast, and the Malabar backwaters, are standing examples how a series of narrow artificial cuts joining various natural waterways could provide the means for cheap transport. Today it is highly imperative that we improve the transport economy of West Bengal, Bihar, and Assam, with a system of artificial bargeways. With modern earth moving equipment and various other facilities, new bargeways could be dug as a part of transport expansion policy. New routes to pass through industrial areas such as Durgapur, Sindhri, Rourkela, and Tatanagar, could be surveyed and a line of artificial bargeways laid out which would link Calcutta with all the important centres and help to relieve pressure upon the railways and roads.

DIMENSIONS OF BARGE CANALS

Barge canals need not be very deep nor very wide. Their construction need not involve us to heavy initial expenditure, imported equipment, drain on foreign exchange, and other problems. Besides a pipe line from Dhubri to Calcutta for the carriage of oil, another problem that needs attention is for linking the coal fields with Durgapur so that the DVC Navigation canal could be used for the movement of coal from the collieries to Calcutta. Between Durgapur and the nearest colliery, there is a gap of about 20 miles which is without any transport at the moment. This distance cuts the DVC Navigation canal from the coal fields. Of the several proposals under consideration it is understood that this distance of 20 miles is going to be overcome by Ropeways so that coal could be carried by aerial ropeways from the collieries to Durgapur and then shipped to Calcutta by barges. In return sand could be taken for the use of the collieries. Movement by aerial ropeways a distance of 20 miles is going to be an expensive proposition—approximately 4 lakhs a mile of rope way. Here again, a barge canal would help to tackle the difficulty.

Tentative dimensions for Bargeways would be a canal 30 feet wide and 8 feet deep. This would enable barges of 100 tons capacity to be moved at a speed of approximately 4 knots—nearly four times the load of a railway wagon and at about half the speed for rail movement. Most of the land over which the canal would pass is soft mud and would present little difficulty for excavation. The highest level is in the Assam section—between Siliguri and Goalpara—which is no more than 300 feet above sea level. This could be tackled by a system of "stair cases" and locks. On the whole, operation and maintenance of artificial barge canals is much simpler and cheaper than training large rivers like the Kosi, Brahmaputra, and others.

Narrow canals have considerable commercial utility. For example the waterways system of Britain is primarily based on two principal types of canals—broad and narrow canals. The broad waterways are the river estuaries and enable craft of 400 tons to ply. But by far the most important and of relevant interest to India, are the narrow canals that were dug by Brindley in the latter part of the eighteenth century. The narrow canals are only 7 feet wide—the maximum width in certain regions being only 14 feet wide. Originally dug to convey coal from the Midlands the canal system provided the cheapest means for the movement of raw materials and contributed in no small manner to the success of the Industrial Revolution in England.

The narrow 7 foot canals extend from London to Stockwith on the Trent in the East, and from Sharpness on the Severn to Manchester, Liverpool, and Wigan on the West. Throughout the Midlands—400 feet above sea level—there is a net work of narrow canals that pass through tunnels and locks and help to carry coal and other raw materials. One of the principal trades is the pottery and glassware industry that primarily depends for its transport on the narrow canals.

Unlike India canals have many natural difficulties in England, such as passage over hilly country, lack of water, and a great disparity in levels. For example there are some 45 canal tunnels in England—the longest being 5,415 yards in length for passage of narrow boats. Another advantage of narrow canals is that it can be taken over rivers by Aqueducts. The Barton Swing Aqueduct is one of the most interesting engineering feats of the 18th century. This was originally a stone bridge constructed over the River Irwell but later on after the opening of the Manchester Ship Canal the problem had to be solved by using a steel span. It can be swung open to allow big ships to pass through the Manchester Canal quite often with a loaded coal barge in it and later on swung into place so as to form a continuous section for the Bridgewater canal. Thus here is a strange idea of two vessels—one sailing on top of another—which struck as the dream of a mad man when first conceived in 1761.

Other well known aids for overcoming height is the Anderton Boat Lift which is a hydraulic lift at Anderton on the River Weaver. It can lift two loaded cargo barges of 50 tons over 50 feet in 2 minutes and thus enable boats to complete the journey from one level to another.

SIZE OF CARGO BOATS ON NARROW CANALS

Narrow canals enable cargo boats of 70 feet length and 7 feet beam with a capacity of 30 tons and another type of 70 feet by 10 feet beam which can carry 50 tons of cargo. The narrow boats popularly known as "Monkey Boats" usually tow a smaller boat known as a "butty"—together moving a load of 40 to 45 tons. Such boats are not very different to the "Vallum" of the Malabar Back Waters or the Dony of the Buckingham Canal.

In the case of the proposed Bargeways a canal 30 feet wide and 8 feet deep would enable much larger boats to move—100 tons capacity with a draft of 6 feet—in addition to the wide variety of country craft that is already plying in the various rivers. There is enormous transport potential in our country craft and being purely indigenous and built of wood it will enable release of large quantities of steel for other industries.

Other advantages of artificial barge canals would be:—

1. An additional, independent route, between Calcutta-North Bihar-Assam instead of having to go through Pakistan territory. The river route to Assam necessitates passage through Pakistan.
2. An alternative route to the Assam Rail Link. Artificial Bargeways would provide better co-ordination between rail and river transport.
3. Besides commercial purposes Bargeways would also serve strategic requirements. In the event of any hostilities once again the railways would have to bear the heavy burden of traffic, and bottlenecks and congestion would follow. Bargeways would help to relieve this problem and provide alternative route—a continuous link, without any break of

gauge or requiring transshipment from Calcutta to Assam or North Bihar. NEFA areas need more transport facilities from Calcutta.

4. Restrictions on goods are very much less on a canal than on railways. Heavy goods could be moved much more easily by water transport.
5. Avoid break of gauge and transshipment problems.
6. A canal can be counted as a double railway line. It is open for both inward and outward traffic at the same time.
7. Besides Tugs and Barges country craft would be able to handle a considerable quantity of goods. Private enterprise would be able to play its part in transport movement.
8. A pipe line would only carry oil. Whereas a canal would enable the movement of other commodities such as tea, jute, coal, food grains, machinery, perishables, and other cargoes in addition to oil.
9. Damage by floods and earthquakes would be much greater to a pipe line than to a canal. A canal also serve as a flood outlet.

COST OF BARGEWAYS

The approximate total length of barge canals connecting Calcutta with Tatanagar, Durgapur, and Morhal Sarai, and then on via Siliguri to Goalpara in the Assam section comes to approximately 600 miles. Working at a rough estimate of Rs 1 lakh a mile for digging a canal by modern earth moving equipment the total cost would amount to Rs 6 crores.

This initial expenditure for inland waterways may mean tremendous investment. But further analysis into the cost and the vast benefits for the country's transport economy that would result would show that it is hardly 1% of what we have spent on the expansion of railways. The cost of the pipe line from Dhubri to Calcutta has been estimated to be approximately Rs 10 crores. The cost of aerial ropeways for moving coal from the collieries to Durgapur a distance of 20 miles would cost about Rs 4 lakhs a mile for the ropeway. As against these costs, and the limited utility either of the pipe line or the ropeway, a wide-scale system of artificial bargeways linking Calcutta with the important industries in the interior—none of them more than 200 miles away from Calcutta—and its great strategic and commercial value for the benefit of the nation would demand top priority for Bargeways.

Artificial Bargeways could be excavated in a period of 2 years. Supply of water for Bargeways could be made available from the rivers, reservoirs, pumping from mines and deep wells and from the dams that are being constructed.

Finally, if the Brahmaputra can act as a "natural pipe line", why not extend this benefit to the rest of the country? The congestion on the Assam Rail Link, the difficulties of steamer companies owing to shoaling channels and partition, and the absence of a water link between Calcutta and the Ganga are factors that will remain as chronic handicaps. In the circumstances, a system of artificial canals linking Calcutta with the "steel country", the coal mines, oil, jute, and tea industries would mark a new era in the history of water transport in India—a fitting corollary to our river valley projects—Bargeways. Cheap transport is a potent factor in the battle of inflation. Bargeways would reduce the cost of transport for raw materials by over 25 per cent to 50 per cent in certain cases and thus give a fair chance to

develop an Export market which has perennially suffered from heavy cost of transport, and increase its competitive power for capturing foreign markets.

PLAN FOR WATER TRANSPORT: LONG TERM MEASURES.

We have so far studied the critical position of water transport in India. What, then, is the answer? Its future rests upon Artificial Barge-ways, to make new links to serve the transport needs of modern India. With a view to improve India's transport economy and give a permanent place for inland water transport, the following routes for Barge Canals may be investigated:—

Assam Section: Goalpara to Siliguri (Dhubri is too close to Pakistan border. It is already a principal transshipment centre for the Link. Goalpara would help to de-centralize transshipment problems.) A barge canal between these two places would help to link Ganga with the Brahmaputra. The river from Goalpara eastwards is far more stable and presents less difficulties for navigation.

Siliguri to Ganga River: Two canals are necessary to effect this link. One from Siliguri to Thakurganj, about 27 miles, and from Baisi to Katihar, about 23 miles. From Katihar there is already a canal to Manihari Ghat join the Ganga. These two canals and the Mahananda would provide a direct water link between Siliguri and the Ganga river.

Bihar and West Bengal Sections: Mokhama to Durgapur—a line of barge canal. Another branch canal joining Tatanagar to Durgapur. From Durgapur the DVC Navigation canal provides a water link with Calcutta. A bird's eye view of this line of canals would reveal the vast industrial development that is under progress. Coal, minerals, steel, cement, oil and petroleum products, besides food grains and agricultural produce offer for large scale shipments.

East Coast: Vizag to Cocanada—a barge canal so that the whole of the Krishna/Godavary delta system and the Buckingham Canal could be linked with the port of Vizag. This would offer a line of navigation between Vizag to Madras.

Madras Harbour and Buckingham Canal: In the absence of a connection between the two the commercial value of the Buckingham Canal has been greatly reduced. This scheme is under consideration. An early implementation would help to reduce congestion in the Harbour and relieve pressure upon the railways.

SHORT TERM MEASURES.

Besides these new artificial links, another matter that needs attention is a scheme for integration and improvement of the present waterways. The following suggestions would help to give a new deal to the old canal system in India:—

1. Divide the waterways into Zones corresponding more or less to the Zonal division of the railways.
2. Make each major port as a base for waterways and re-align the system so that it would help to relieve pressure upon railways.
3. Encourage trade to use waterways by allowing "through booking" facilities.
4. Offer Rail Out Agency to water transport operators same as is being done to private operators of certain roadways.
5. Improve the present waterways by necessary dredging, offer warehouse facilities, landing and loading facilities.

6. Organise Country Boat traffic—set up small combines so that country boats could take a more useful part in transport economy. Social welfare schemes for boatmen and their families, state aid in the form of cheap loans for repair and purchase of new craft, and assistance for mechanization, wherever possible, are necessary. Boat registration and licensing should be improved checking pilferage, damage, jettisoning, and other evils. Trade is still suspicious of shipping their goods by country boats as there is no Mate's Receipt.

Country boats can be converted as Dumb Barges and tugs used for towage.

7. Tractors as Tugs: This facility is necessary particularly on the Buckingham Canal. Official restrictions on power craft hamper trade. In place of tug or power craft, canal boats, could also be towed by 30 H.P. Tractors. For example, in the sugar plantations of British Guiana, transport of sugar cane is principally done by artificial canals. With a view to avoid "wasting" of the canal banks owing to the use of power craft, sugar cane boats are towed by Tractors.

The use of Tractors would be a great boon as most of the canals pass through agricultural areas and the possibility of utilising tractors for towage would give a new opportunity for the use of tractors. Besides the Buckingham Canal, tractors can also be used between Benares and Balia, along the Ganga, where country boats are now towed by human power—a rope harness having from three to five men pulling boats, against the current.

Other advantages of using Tractors as Tugs for towing cargo boats are:—

1. Diesel Tractors provide one of the cheapest form of marine transportation. Cost of operation One Anna per ton per mile.
2. Engine space saved for cargo and boats can carry full boat load without incurring extra cost of engine.
3. A "train" of 4 boats could be towed by one Tractor—@ 25 tons per boat a total load of 100 tons can be moved. Like wagons boats could be left at any canal "sidings" and the tractor can carry on with its towage.
4. Tractors can be owned by co-operative societies and towage services provided without incurring investment of tractors by each boat.
5. The banks along the Ganges and on the Canals are not often wide or provided with good tow paths. Tractors could negotiate such areas as they are designed for working in fields and on uneven roads.
8. Improvement of River Conservancy Provision of pilotage, repair and salvage facilities.
9. Financial Assistance for Small Scale Marine Industries.
10. Berthing Facilities for Small Craft—Cargo Lighters, Barges and country boats.

TRANSHIPMENT PROBLEMS SOLVED BY VEHICULAR FERRIES.

One of the factors of transport bottleneck is the lack of adequate transshipment facilities across the Ganga. Movement is now confined to only three stations in a stretch of almost 500 miles. The completion of the new rail cum road bridge at Mokhama would help to

improve conditions. But the provision of vehicular ferries, operated by private enterprise, would give additional facilities. Small scale Tug and Barge companies can be operated



45-ft. Vehicle Ferry.

in a number of places on the Ganga, Brahmaputra, and the Hooghly. A 75 ton, general purpose, diesel engined ferry, with a turn table and retractable loading ramp would be a standard type suitable for many of the crossings. Road traffic would be considerably helped as there is a growing demand for consumer goods in Nepal, Tibet, and Bhutan.



Mechanised Landing Craft.

Starting from the extreme Eastward on the Indo-Pakistan Border near Rajmahal, there are many commodities that await to be transhipped across the Ganga. The absence of reliable ferry steamers run by private parties compels trade to resort to railways. Often short distance movement is restricted and goods are then sent by country boats. Perishables such as mangoes, fish, oranges, vegetables, and several other commodities wait on the Northern bank of the Ganges during the season and ferrying facilities across the Ganga would cut down the cost to the consumer in Calcutta.

Kutchha jetties and landing ghats lighting and warehousing would have to be provided and certain roads approaching river ghats have to be improved so that loaded trucks could drive straight on the vehicular ferries and cross the Ganga. In the post-war years there has been considerable industrial activity to the North of Calcutta. This has resulted in heavy traffic on the Grand Trunk and Barrackpore Roads. Jute, paper, rubber, aluminium and several other mills have their factories on the river bank of the Hooghly. Owing to lack of adequate facilities for movement by water most of the mills have to rely on road transport. Tugs and barges and vehicular ferries on the Hooghly river, above Calcutta would afford relief and also enable direct contacts with the ships avoiding congestion in the docks.

SCOPE FOR SMALL SCALE MARINE INDUSTRIES.

While long distance haulage of goods is beset with certain difficulties there is wide scope for starting small scale marine industries such as Tug and Barge operation, Cargo Lightering, Bunkering and Fresh Water Supplies to ships, and passenger ferries.

There is considerable traffic that awaits to be moved within small areas of Calcutta and around the principal transshipment centres on the Ganga. For example Tug and Barge companies may be operated in the following places:—

Sakrigali, Manihari transshipment section.
Rajmahal/Lalgola.
Monghyr, Monghyr Ghat.
Colgong/Karagola.
Bhagalpur, Barari Ghat.
Mokhama/Mahadevpur Ghat.

A commodity that offers lucrative scope for running small scale Tug and Barge companies is coal. Today the movement from the South Bank of the Ganga to the North is principally confined to the railways. Reliable Tug and Barge companies who could work as a Rail Out Agency would find its carriage worth their while. The following are some of the details:—

TRANSPORT OF COAL: SAKRIGALI TO MANIHARI.

Total Distance across the Ganga river—
7 miles (14 miles Round Trip).

Depth of Water available—
6 feet in Dry season.

Equipment necessary—
Two 150 BHP diesel engined Tugs and 8 coal barges of 100 tons capacity.

Approximate Quantity to be transhipped—
20 Wagons per day (About 450 tons per day) Coal to Manihari and return with general goods or parcels from the railways.

Size of Tugs—
50' by 13.5' Draft 5 feet.

Size of Coal Barges—
60 tons (B.G. coal wagons).

Approximate cost of Equipment—
2 Tugs and 8 Coal Barges: Rs 6 Lakhs.

Though Sakrigali/Manihari stations have been mentioned there are other places where similar movement of coal could be worked. Besides coal, other commodities that await transshipment are fertilizers, salt, food grains, cement, steel, and petroleum products in tins and drums.

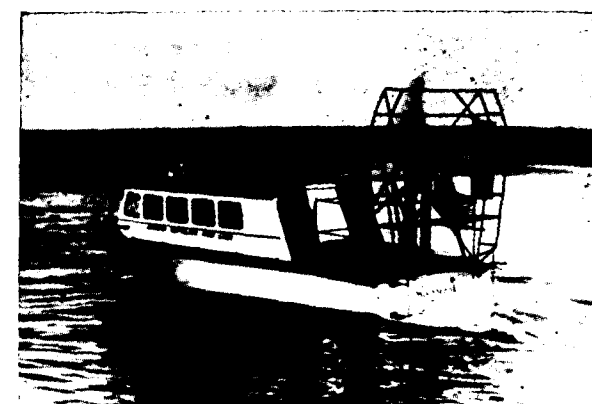
SCOPE AROUND CALCUTTA: TUG & BARGE COMPANIES

Besides the Ganga and the Brahmaputra rivers where there is ample scope for operating small scale marine transportation companies there is a growing demand for tugs, barges, lighters, and country boats around Calcutta port. The difficulties of handling cargo in the port are becoming acute and though the authorities concerned are doing all that is possible to give a "quick turn round" to shipping yet there are many factors that are beyond normal control. In this connection the suggestions made at the annual meeting of the Bengal Chamber of Commerce and Industry are of relevant interest. As immediate short term measures to relieve port congestion it was recommended that:—

1. A barge basin on the left bank (Howrah side of the river)
2. The rehabilitation of the Wagon Ferry terminal at Shalimar and its fitting out for the unloading of lighters.
3. Construction of a Jetty equipped for heavy lifts and having an area available

for sidings and storage sheds if necessary further up the river possibly at a site near Bansberia.

Besides these measures the operation of Vehicular Ferries capable of transporting loaded trucks would give relief to the heavy strain that is now experienced by the Howrah, Willingdon, and Naihati Bridges. Loaded trucks from the docks have to follow a long and circuitous route over these bridges where already there is heavy congestion which results in delay. The operation of a Vehicular Ferry so as to enable loaded trucks from the Dock area to cross the river would be of considerable help in the rapid clearance of cargoes. The Poojali Ferry which was worked



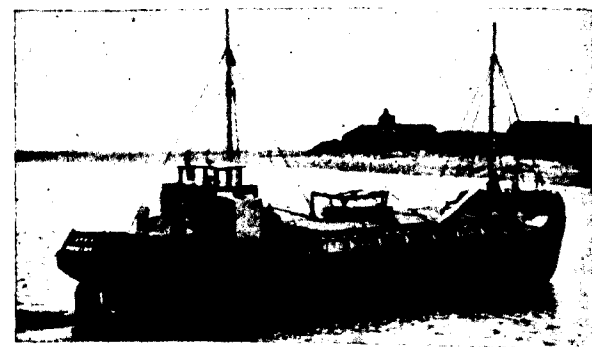
Water Bus.

during the War had done much to ease the strain on the roads North of Calcutta and particularly around the Howrah bridge. It is suggested that the ferry be revived. Other Ferries of a smaller size to handle holiday crowds to the Botanical Gardens could also be operated from Chandpal Ghat. On many of the Continental and American rivers there are combined passenger and car ferries which work as Water Busses. Traffic on the roads would be considerably relieved if suitable type of Water Busses could be operated between Howrah and Shambazar.

"TRAMPING" ON THE BRAHMAPUTRA (ASSAM CARGOES)

Operation of "tramp" shipping generally confined to the sea has also some interesting possibilities between Calcutta and Assam. Since the Partition there is a growing volume of traffic between Calcutta and Assam. At one time principally handled by the steamer companies it is now split and the Assam Rail Link carries a major portion of this traffic. The total quantity of traffic between Calcutta and Assam is about 1½ million tons per annum. This has given an opportunity for new comers to operate small shallow drafted vessels as cargo "tramps" on the Calcutta/Assam service. Ex-naval L C Ts with a capacity of 15 to 18,000 maunds find a lucrative trade between Calcutta and Dhubri, Tejpur, and other stations in Assam.

This traffic needs attention and state aid for the purchase of new craft, pilotage and conservancy facilities, and a recognition of

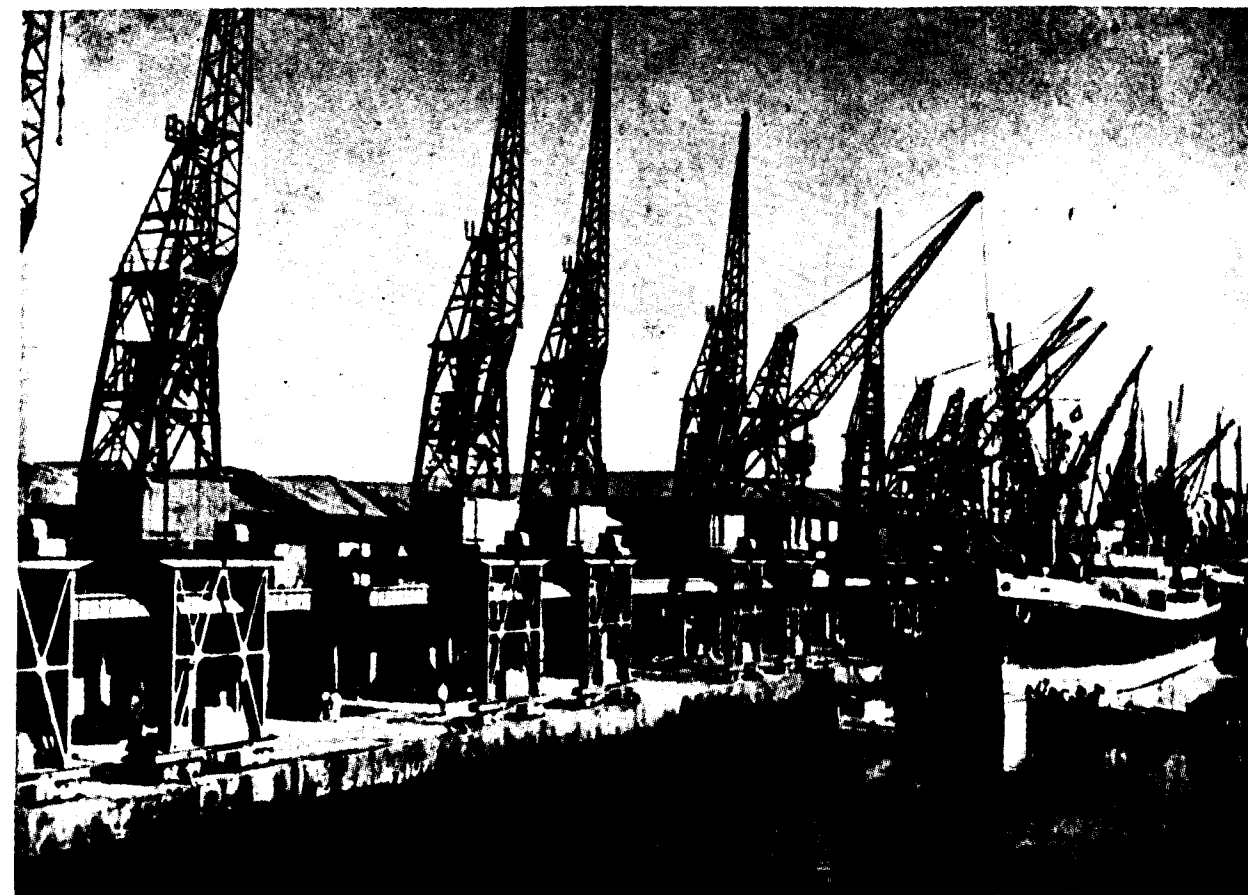


220-ton Motor Barge.

CRANES FOR INDIA'S PORTS

JESSOP MANUFACTURE CRANES OF ALL TYPES INCLUDING WHARF & JETTY CRANES, LEVEL OR NON-LEVEL LUFFING; OVERHEAD TRAVELLING CRANES, SWING JIB, PILLAR AND WALL CRANES; GOLIATH CRANES, ETC.

A view of some of the thirty-four Wharf Cranes designed, manufactured and erected to the order of the Bombay Port Trust. The contract included four 3 Ton Electric Level Luffing Wharf Cranes for Ballard Pier and twenty-four 3 Ton and six 6 Ton Cranes for Alexandra Dock.



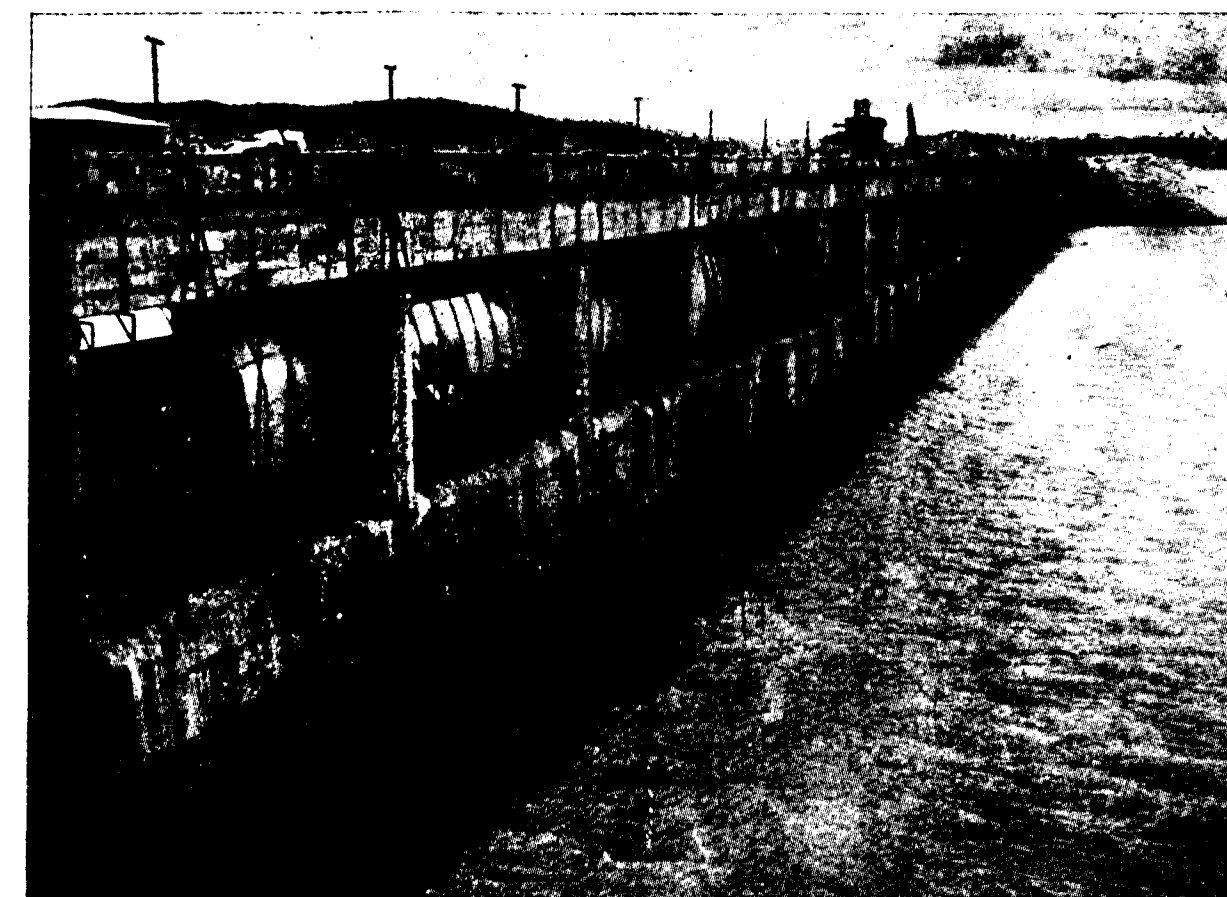
CALCUTTA. 1

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SLUICE GATES FOR INDIA'S DAMS

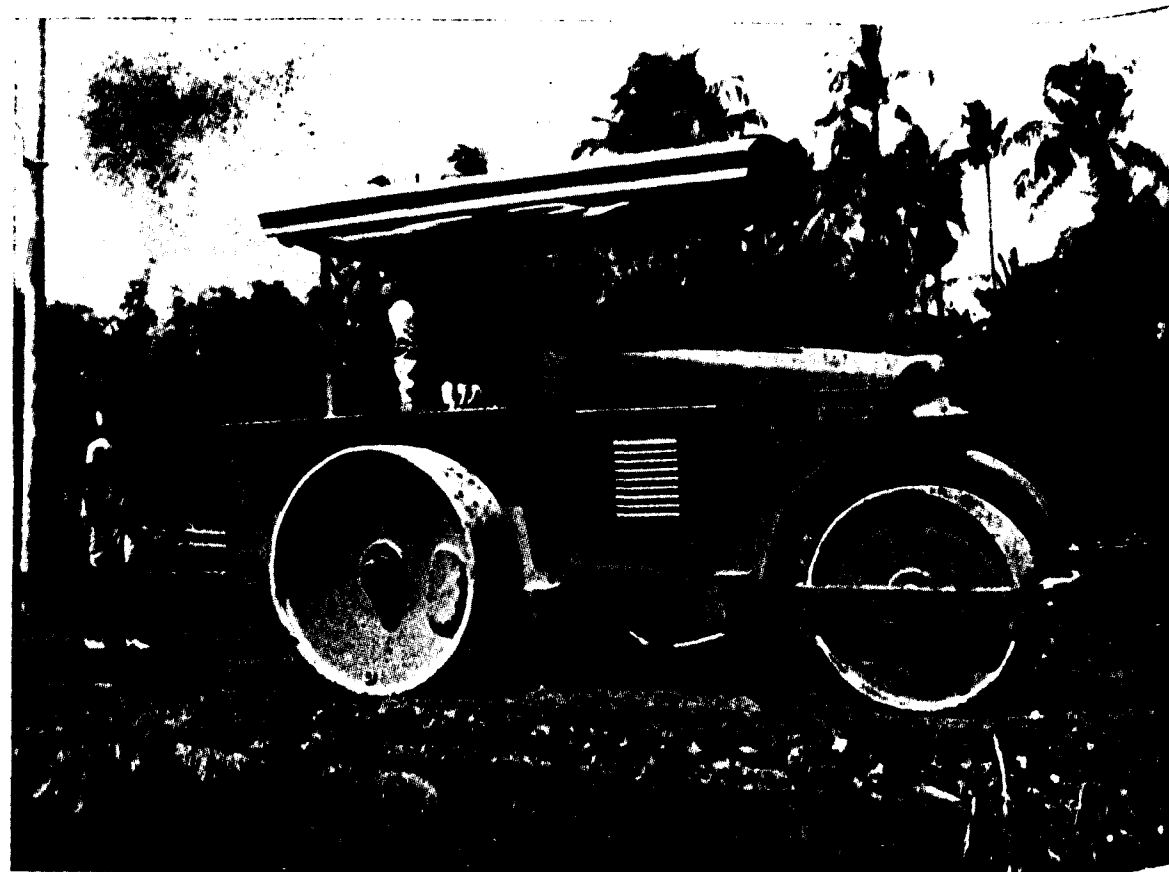
JESSOP SLUICE GATES, OF THE FREE ROLLER, WHEEL AND RADIAL TYPES, ARE IN SERVICE AT THAMBRAPARNI, KOPAI, DWARKA, BAKRESWAR, BRAHMANI, BOKARO, TILAIYA, DURGAPUR AND THE HIRAKUD MAIN DAM.

The picture below shows the erection of some of the 34 Jessop Radial Spillway Gates,—each 51 feet wide by 20 feet deep, operated by Electric Hoisting Gear,—at Hirakud Main Dam.

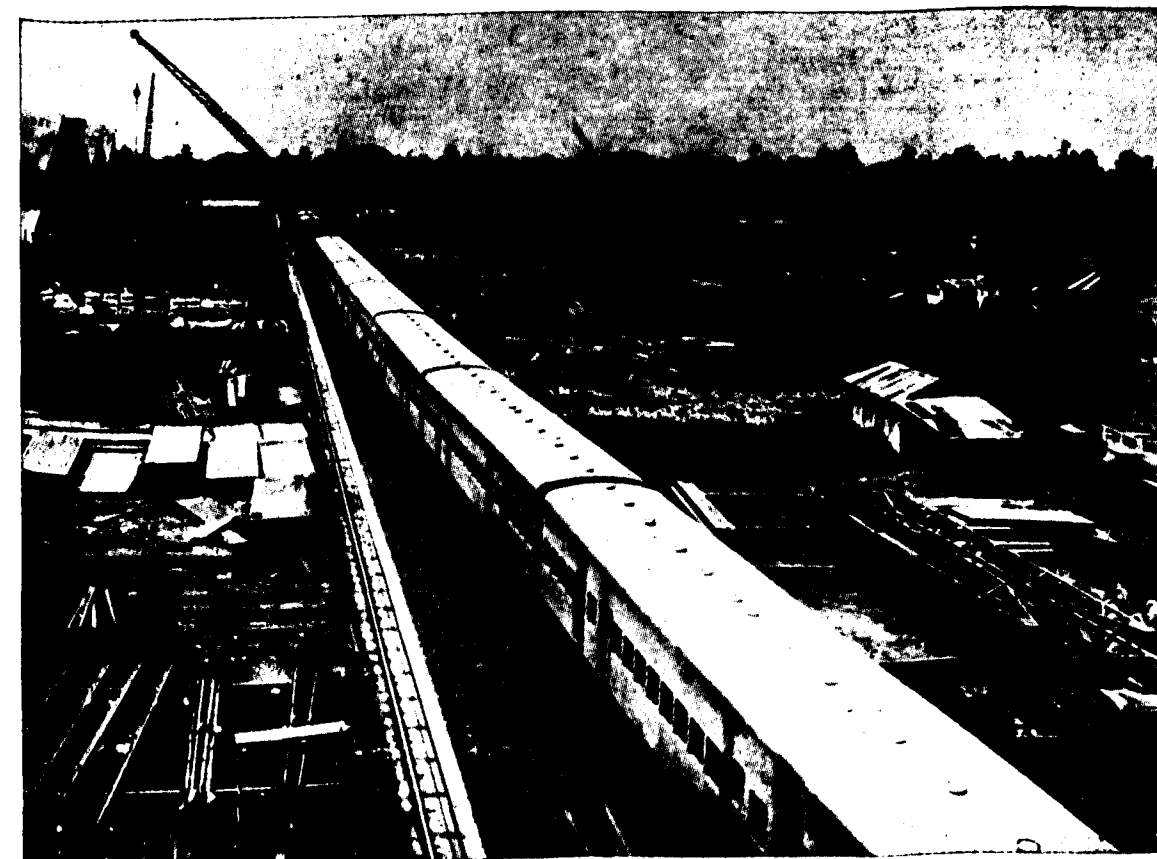


PRODUCTS OF INDIA OR INDIA'S PROGRESS

JESSOP & CO., LTD., ARE NOW PRODUCING IN THEIR DUM DUM WORKS THE AVELING-JESSOP DIESEL ROAD ROLLER, TYPE 'GCS', SIZE 8 TO 10 TONS, UNDER LICENCE FROM AVELING-BARFORD LTD., ENGLAND.



The Type 'GCS' Diesel Road Roller is shown here working on a road in the Kamarhaty Municipality.



JESSOP & CO., LTD., MANUFACTURE RAILWAY VEHICLES OF EVERY TYPE FOR GOODS AND PASSENGERS INCLUDING ELECTRIC MULTIPLE UNIT COACHING STOCK, BOGIES, TANK WAGONS, ETC., ETC. CAPACITY OF WORKS OVER 350 VEHICLES PER MONTH.

A line of Metre Gauge Bogie Coaches can be seen in the photograph on the left. Jessop & Co., Ltd. have supplied 450 of these Coaches during 1952-55 to the order of the Railway Board.

DIESEL ROLLERS FOR INDIA'S ROADS, WAGONS & COACHES FOR INDIA'S RAILWAYS

their place in the transport economy of Assam has to be made. At the moment they have to compete with the steamer companies who have been having a monopoly of the Assam traffic. Encouragement to "tramping" would enable Indian companies to share in this vast river borne traffic, relieve the Assam Rail Link, and increase the transport facilities between Calcutta and Assam, and between Bihar and Assam. Movement of goods in "smalls" and hence the need for small, shallow drafted craft that can call at the various stations in Assam. The primary need is new craft as the life of the present ex-naval vessels such as Tanac Tugs, L. C. Ts, and Z craft that are engaged in this traffic are becoming old and their operation uneconomic though there is ample traffic for employment of "tramps". Assam needs new industries. River transportation would offer considerable scope for private enterprise and regular feeder services would help to give quick "turn round" and improve transport facilities.

CONCLUSIONS.

In conclusion it may be added that our canals and inland water ways require a new deal. A clear cut national policy, modernisation of some of the nineteenth century projects, a careful programme of dredging and restoration and efficient maintenance is essential. Together with this there must be provision for development of a small craft industry—tugs, barges, ferries, passenger launches and motor boats—the very foundation for canals and waterways. An economic fillip to the country boat industry is necessary and a sense of consciousness of their valuable contribution in the improvement of India's transport requirements must be encouraged.

Finally, a better use of the foreign aid resources—whether technical or in the way of equipment, must be made. Waterways have

to be used to fight transport bottlenecks, port congestion, wagon shortage, and other handicaps that have been an outstanding feature of the past eight years. The Assam Pipe Line was to be owned and worked by a Rupee Company. Why not a Rupee Company for Assam Bargeways?

A glorious example where artificial barge-ways have conferred enormous wealth and great industrial prosperity is in the case of the Inter-coastal Waterway around the U.S. Gulf Coast, from Brownsville, Texas, to St. Marks, Florida. This vast stretch, made up of muddy, shallow, rambling barge canals, covers a distance of 1,116 miles and has helped to utilise the potentialities of 28,000 miles of inland waterways. The principle was simple. It was done the way in which people in pre-rail India did. Just cut a ditch through the marshes. From the parent canal, a number of branch canals, were taken out at intervals and passages were dredged to suit the particular needs of industries that had sprung up along its banks. For example a 27 mile cut through Louisiana marshes between Calcasieu and Sabine rivers has helped to link New Orleans and the Mississippi Rivers with the Gulf Coast of Texas. The Houston Ship Channel is a 50 mile cut and was opened in 1900. Smaller cuts—a nine mile dredged canal—was cut from the main waterway in order to ship goods for the chemical plant of Union Carbide and Carbon Co. while a 22 mile dredged channel was cut by the Chemstrand Corporation for their huge nylon plant.

The Intercoastal Waterway was pioneered by a Texas banker C. S. E. Holland who had carried on persistent agitation for a system of barge canals for a cheap way to carry their goods. At first, the Waterways, was only a 53 mile cut 40 feet wide and 5 feet deep. Today it has grown into a wide canal—125

feet wide, 12 feet deep along most of its length, fitted with lock gates, flood control dams, and several branch canals running to the interior. The biggest user of the canal is the booming oil industry, petro-chemicals, minerals, motor cars, and several other industries with a tonnage more than the Panama Canal.

What is needed today to tackle problems of transport around Calcutta is to make the port a centre of inland waterways. It has a traditional claim as it is the principal entrepot for North East India where the large paddle steamers bring the rich produce of Assam and give us foreign exchange. With Calcutta as the centre, with a radius of 250 miles, a system of artificial barge canals (vide suggestions) should be cut so as to link Orissa, Bihar, U.P. and Assam like a hub is linked by spokes to the rim of a wheel.

220-ton MOTOR BARGE

It is economical to build and operate, two men being the only crew necessary. The hull is of the double chine type with 3 in. welded steel sides and 1 in. deck and bottom, the 5 in. x 3 in. x 5 16 in. frames being spaced 21 in. throughout. Crew accommodation is forward, the fore-castle deck being wood-sheathed. Diesel-powered derricks up to 30-cwt. capacity can be fitted if required. Loaded speed should be in the region of 7 knots. The shipping weight without special equipment is about 80 tons.

MECHANISED LANDING CRAFT

This vessel is built of corrosion-resisting aluminium alloy, thus reducing the weight by about two-thirds, as compared with a steel craft, and enabling a greater load to be carried on the same draught. The speed running light is 9½ knots.

45-ft. VEHICLE FERRY

The vessel illustrated is built of aluminium alloy. She displaces only 11 tons, whereas a similar craft of steel would weigh 22 tons and have increased maintenance costs and draught. The Diesel engine drives a pair of 48 in. Hotchkiss cone propellers.

The Unequal Equilibrium Between Demand and Supply of Tea

It is unfortunate that the International Tea Agreement which expired over a year ago still remains unsigned owing to differences between the major producing countries. It was this Agreement to regulate production and exports, jointly followed by India, Ceylon, Pakistan and Indonesia that saved the Tea Industry during the slump of the 1930's and the following years leading right upto the Second World War.

India, as the largest exporter and leading producer of the commoner varieties of tea has, therefore, been left alone in any scheme of restriction or regulation of production. Producers in North India have in the recent past, often joined hands in the adoption of crop regulations schemes considered necessary to meet the exigencies of each situation. While these schemes have undoubtedly provided some relief and succeeded in striking a truer balance between supply and demand for the time being, their value has been necessarily limited. Such proposals have also proved irksome to producers of fine quality tea and in the absence of co-ordination with Ceylon and other producing countries, these unilateral arrangements cannot be expected to prove really effective.

Whatever the fate of the International Tea Agreement, the world supply of tea must substantially increase during the next five years as a result of the extension of tea planting in Africa, and the real answer to the problem lies not in the restriction of crops, but in the improvement of tea consumption all over the world and in the enlargement of the markets. The standards of living in this country will rise as a result of the accelerated industrialisation programme, and with a vigorous propaganda drive, it is not unreasonable to expect that internal consumption can be raised to absorb the available surplus of Indian production.

The Government of India have set a target of 750 million lbs. for the production of tea in the Second Five-Year Plan; with the improved scientific methods of cultivation now at the command of the Tea Industry, this target is likely to be fulfilled well before the conclusion of the Plan period, provided market conditions are favourable and justify an increase in production.

The Indian tea exports in the last five years have averaged at 425 million lbs. per annum. India will have to ensure that she does not fall behind Ceylon in the matter of effective propaganda abroad and to remain vigilant over her standard of quality if she is to retain her present leadership in the world markets.

It is conceivable that new avenues of trade may be found with Russia and East European countries, and assuming that Indian exports will rise by 25 million lbs. on this account, there would still be a surplus of 300 million lbs. for which a market should be created in this country if the Tea Industry is to flourish.

It is, therefore, of the greatest importance that the Tea Board take concrete steps for the attainment of this objective. In this connection, the forthcoming visit of Sir Percival Griffiths to India is to be welcomed, and it is hoped that the Government will lose no time in implementing his report on propaganda measures to be taken in this country. As production increases each year, there will be increasing quantity of surplus tea in India, and unless the market can be expanded at the same rate, the Indian Tea Industry may well suffer the ill-effects of over-production. However, should the internal demand improve and an average consumption of 300 million lbs per year be attained in India during the next four or five years, a target which is optimistic but not unrealistic, the Indian Tea Industry can look forward to a measure of stability and well planned expansion.

LOOKING back on the Tea Industry during the post-war years, the most outstanding problem confronting the Trade has been the lack of adjustment between supply and demand. Unlike pre-war days, Buyers' capacity to hold stocks has vastly diminished with the rise in the price of tea, and the tight money market conditions which have prevailed in the UK in recent years. The world markets have, as a result, become extremely sensitive to the slightest surplus or deficit in the available supply of tea from year to year. This market sensitivity and the absence of preventative measures either by the Industry in the major producing countries, or by the respective Governments, are responsible for the violent fluctuations which have become a regular feature of the tea market in recent years. Within a short period of four years, the Indian Tea Industry has experienced extremes of adversity and prosperity.

When in August 1952 the North Indian crop was reported to be nearly 40 million lbs. ahead of 1951, the market began to collapse, and although the fears of a considerable surplus in the supply of tea ultimately proved unfounded, by the end of 1952, Indian common tea reached the lowest price level ever in the post-war period. There were continuous withdrawals from the Calcutta Sales, which had to be suspended during October/November 1952, and there was a very large weight of tea which was carried over and could only be disposed of in the middle of 1953.

The working of the 1952 season proved difficult for a majority of the estates in North India, which were only able to carry on manufacture with the help of reserves collected in the years following the war. Re-planting and improvement programmes had to be postponed, which impaired the general efficiency of the Indian Tea Industry, while some gardens in the poorer tea growing districts were forced to close down entirely.

The consequent reduction in the supplies and the improving world demand at the lower price levels then ruling helped to revive the

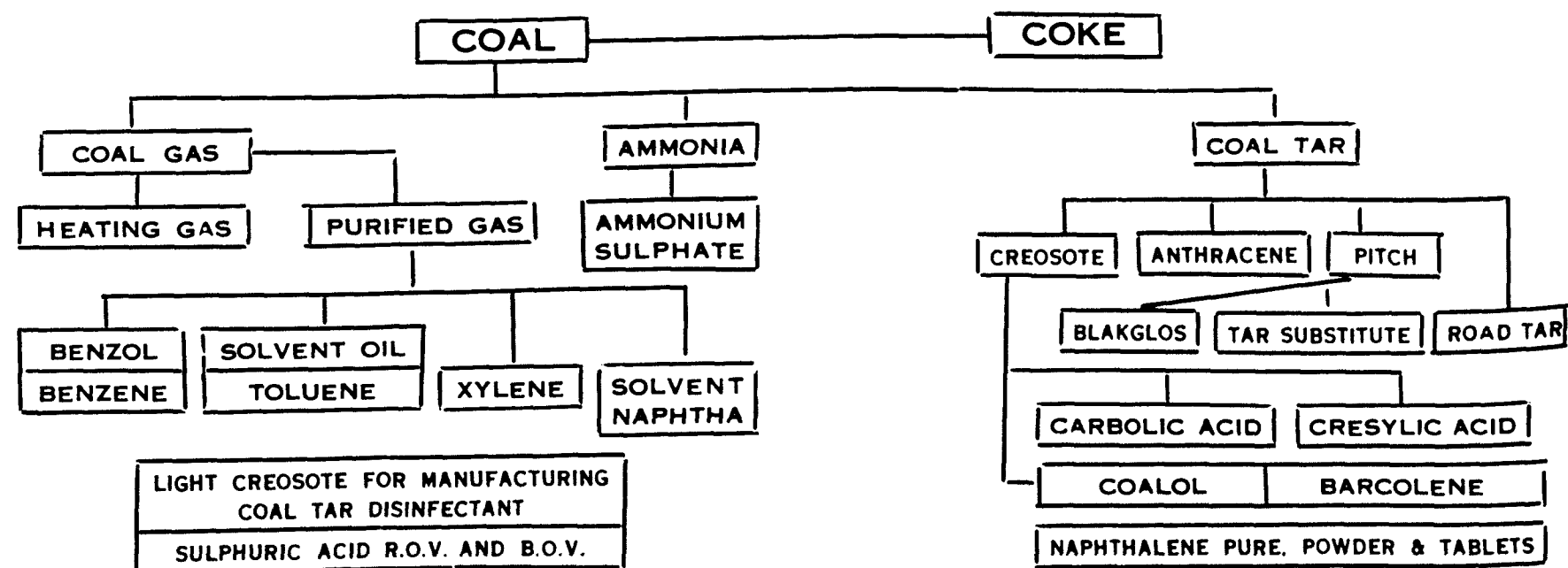
market in 1953, and the pendulum swung to the other extreme in 1954, when a shortage of tea was anticipated and Indian common tea 'for export' sold at an all-time record price. With the Government of India's wise policy of limiting exports, tea was, however, available for consumption in India at reasonable prices, although the world prices in 1954 were on an average over 200% of the levels ruling in 1952-53.

The prosperity of 1954, while it helped to replenish the depleted reserves and to revive the much-needed rehabilitation programmes, both in the field and the factory, brought in its train problems which were equally serious as in 1952. Seller's market encourages coarse plucking, with a resultant fall in the standards of quality, while the consumers' resistance which followed the high prices, again brought about a sharp decline in the market from March 1955, inflicting heavy losses on the Buyers who were caught with unsold stocks. Tea garden labour asked for wage increases and bonus payments which, although justifiable at the time, have become permanent burdens on the Tea Industry. The situation was further aggravated by added taxation, both by the Central and State Governments in India, which looked upon the Tea Industry as an easy source from which increasing revenues could readily be squeezed. As a result, the cost of landed tea in Calcutta has gone up by some eight annas in the last two years, a factor which has made all the difference between profit and loss to the growers of common tea during the current season.

The new tea producing countries where labour is still relatively cheap and where the new industry receives every encouragement from the local Governments, are able to land tea in London at nearly half the Indian cost price, which has resulted in a sharp reduction in our exports of common tea during 1956. The competition from these countries is likely to increase as their production improves and this is a matter which should receive the serious and immediate consideration of the Government of India.

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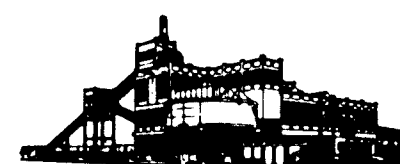
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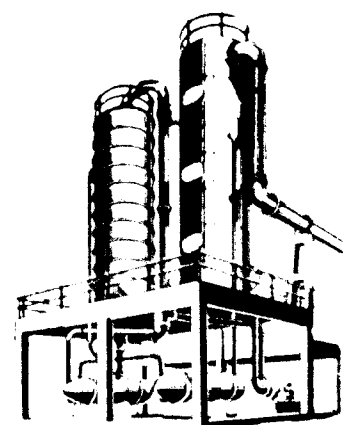
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Annual & Year Book 1956

THE problem of foreign exchange resources for implementing the Second Five-Year Plan has assumed considerable significance in recent months. The Union Finance Minister has pointed out that what is likely to hinder the speedy development of the Plan is not so much the inadequacy of internal resources, but the difficulty in obtaining sufficient amount of foreign exchange. It is, of course, not possible to anticipate what exactly will be the country's requirements of foreign exchange in the five year period though it is possible to have some broad idea about the nature of this problem.

The difficulties in regard to the correct anticipation are due to the fact that India's export commodities are subject to sharp fluctuations and this is particularly true of such items as tea, jute goods, manganese ore etc. Further, our requirements of imports also are prone to frequent changes. It has been estimated that even a 10 per cent deterioration in the terms of trade can make a difference of as much as Rs. 80 crores to the payments position in a single year.

So far as the first Five-Year Plan is concerned, it is significant to note that the problem of foreign exchange did not present much difficulty because of certain favourable circumstances. In the first place, the substantial increase in the domestic food production helped India to reduce the imports of this item on which we used to spend large sums in the previous years. Secondly, the progress in regard to the construction of some projects in the public sector was not as rapid as was expected with the result that imports of machinery and other capital goods were not upto expectations. Besides, the actual rate of investment in the public sector did not come about according to anticipation.

The table below shows the overall balance of payments during the first Five Year Plan.

OVERALL BALANCE OF PAYMENTS DURING THE FIRST FIVE-YEAR PLAN.
(Crores of Rupees).

	Pre-Plan 1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	Total during the Plan period
Imports	650.3	962.9	633.0	591.8	681.6	747.7	3,617.0
Exports	646.8	730.1	601.9	539.7	596.6	642.2	3,110.5
Trade Balance	-3.5	-232.8	-31.1	-52.1	-85.0	-105.5	-560.5
Invisibles	40.3	64.9	80.5	80.5	77.5	80.0	383.4
Official Donations	2.1	5.3	10.8	19.0	15.8	46.2*	97.1
Current Balance	38.9	-162.6	60.2	47.4	8.3	20.7*	-26.0
Errors and Omissions	-6.7	-45.0	-25.7	2.3	-12.9	2.8	-78.5
Official Loans	7.7	59.6	35.1	1.6	0.6	2.5*	99.4
Other Capital Transactions	-12.7	-20.6	-51.1	-20.3	-13.2	-11.0	-116.2
Change in Reserves							
Increase (+)			18.5	31.0	-17.2	15.0	-121.3
Decrease (-)		27.2	-168.6				

*Provisional.

It will be seen that in 1951-52, the first year of the Plan, the deficit on current account was of the order of Rs 162 crores. This was due to the abnormal level of imports amounting to Rs 962.9 crores. Exports too rose sharply to Rs 730.1 crores but obviously were not enough to offset the huge level of imports. The result was that there was a deficit in the trade balance of Rs 232.8 crores. But with the end of the Korean war and the substantial decline in food production, imports in the next year declined. As will be seen from the above figures, the current balance was favourable to the extent of Rs 60.2 crores in 1952-53, Rs 47.4 crores in 1953-54, Rs 8.3 crores in 1954-55 and Rs 20.7 crores in 1955-56.

But the position in regard to the Second Plan is fundamentally different. The programme of industrialisation has been drawn up in an ambitious scale and investment

INDIA'S BALANCE OF PAYMENTS

By ECONOMIST

amounting to Rs 4,800 crores has been envisaged in the public sector and considerable expenditure is also going to be incurred by the private sector in regard to the setting up

of new factories and the modernisation of existing units. The table below gives a rough idea of the trend of India's balance of payments during the second Five Year Plan.

INDIA'S BALANCE OF PAYMENTS ON CURRENT ACCOUNT.

	1956-57	1957-58	1958-59	1959-60	1960-61	Average for 5 years ending 1960-61	Total of 5 years ending 1960-61
1. Exports (f.o.b.)	573	583	592	602	615	593	2965
2. Imports (c.i.f.)	783	886	990	895	786	868	4340
3. Trade balance (1-2)	-210	-303	-398	-293	-171	-275	-1375
4. Invisibles (excluding official donations)	+62	+55	+51	+46	+41	+51	+255
5. Total current account balance (3+4)	-148	-248	-347	-247	-130	-224	-1120

It will be seen that the aggregate deficit over the five year period is provisionally estimated at about Rs 1,100 crores. India's exports are expected to improve from Rs 573 crores in 1956-57 to Rs 615 crores in 1960-61 and imports are estimated at Rs 786 crores in the last year of the Plan against Rs 783 crores in 1956-57. These figures are of course very tentative. But even so they give some idea of the magnitude of the problem. It is

also important to note that a large part of the deficit is expected to take place in the second and third years of the Plan. This is due to the fact that the pace of industrialisation will gather momentum by about this period with the advanced stage of the construction of steel plants etc.

How is the deficit of Rs 1,100 crores to be met? It is to be met by the following measures (a) by withdrawing from sterling balances, (b) by floating public issues in foreign money markets, (c) by arranging for bankers' credits and export credits for supply of goods from foreign countries; (d) by borrowing from the World Bank; (e) by loans and grants from other international bodies like SUNFED etc, (f) by private foreign investment and lastly (g) by loans and grants from friendly foreign governments.

It is obvious that it is by no means easy to obtain the resources from each of the above categories. Our success will depend not only on our financial stability but also on the maintenance of peaceful conditions in the world.

Even so it requires great efforts on our part to stimulate the exports and earn the maximum foreign exchange. The table below shows the expected earnings from exports over the Second Plan period as compared to those in 1954 and 1955.

MERCHANDISE EXPORTS.

	1954	1955	Last year of Plan. 1960-61	(Rs. Crores). Annual Average, second plan	Five-year Total, 1956-61
1. Tea	131	112	133	127	635
2. Jute yarn and manufactures	122	126	118	122	610
3. Cotton yarn and manufactures	72	63	84	75	375
4. Oils (excluding mineral oils)	11	39	24	22	110
5. Tobacco	12	11	17	15	75
6. Hides, skins and leather (raw, tanned and dressed)	29	27	28	28	140
7. Cotton raw and waste	19	35	22	22	110
8. Metallic ore and scrap iron and steel	23	20	27	23	115
9. Coal and coke	6	4	3	5	25
10. Chemicals, drugs and medicines	5	4	5	5	25
11. Cutlery, hardware, vehicles, electric goods and apparatus, and machinery	3	3	4	4	20
12. Others	130	151	150	145	725
Total	563	596	615	593	2965

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It will be noticed that all the major items in the export list are subject to sharp fluctuations. Moreover, we have to face fierce competition from abroad. Examples of these commodities are tea, jute goods, cotton textiles and manganese ore. We have no doubt made a small beginning by promoting the export of new items but they are unlikely to earn large sums of foreign exchange in the near future.

The following statement by Mr T. T. Krishnamachari puts the problem in proper perspective. "The problem of foreign exchange has been giving me personally and the Gov-

ernment of India generally cause for considerable anxiety. We are now engaged in phasing the projects in the Plan with a view to giving high priority to those which would save or earn foreign exchange. We are examining the obstacles, whether of procedure or policy which prevent an increase in our exports. We are seeking to establish export markets for commodities not hitherto exported on any large scale and we are undertaking a comprehensive review of the policies and procedures that inhibit foreign private investment".

As regards imports, the table below gives the estimates during the Second Plan.

		MERCHANDISE IMPORTS.			
		(Rs. Crores).			
	1954	1955	Last year of plan, 1960-61	Annual Average, second plan	Five-year Total, 1956-61
1. Machinery and vehicles ..	121	158	250	300	1500
2. Iron and steel ..	27	50	60	86	430
3. Other metals ..	24	25	40	44	220
4. Grains, pulses and flour ..	49	35	40	48	240
5. Sugar ..	31	20	7	7	35
6. Oils ..	94	63	90	82	410
7. Chemicals, drugs and medicines ..	31	24	33	32	160
8. Dyes and colours ..	19	18	15	17	85
9. Paper, paste-board and stationery ..	13	14	10	11	55
10. Cutlery, hardware, electrical goods and apparatus ..	28	36	29	29	145
11. Raw Cotton ..	58	54	54	54	270
12. Raw Jute ..	12	17	18	18	90
13. Others ..	113	130	140	140	700
Total ..	620	655	786	868	4340

It remains to be seen to what extent it will be possible to manage with imports of this order. Recent events indicate that our ex-

pectations at least in some important respects are unlikely to materialise. For instance, even within a couple of months after the start of

the second Five Year Plan, our estimates of food imports had proved incorrect. It now appears that food imports during the second Plan will be much more than was originally contemplated. Much of course will depend on the vagaries of the monsoon. As regards iron and steel, imports are bound to increase in the coming years. But if the steel projects in the public sector are completed according to schedule and if the private units also are able to carry out their schemes of expansion expeditiously, then it will be possible to effect considerable savings under this head.

So far as invisibles are concerned, the surplus is expected to be of the order of Rs 51 crores per year during the Second Plan. The comments of the Planning Commission on this aspect are significant: "A substantial fall in receipts of investment income is expected in view of the anticipated reduction in official holdings of sterling balances. At the same time payments of interest and dividends abroad will rise appreciably because of increases in private business investment as well as official borrowings. Compared to 1954-55, net payments of investment income are estimated to be higher by about Rs 20 crores on an average per year during the Plan period. On other items such as foreign travel, transportation and private donation, no significant changes in net receipts are expected". So far as the capital account is concerned, the Planning Commission has observed that the commitments on Government account are not expected to have any significant effect on the payments position.

Summing up, therefore, we may say that the problem of balance of payments presents considerable difficulty. But with imagination and realism it should not be difficult to overcome the difficulties and implement the Plan successfully.

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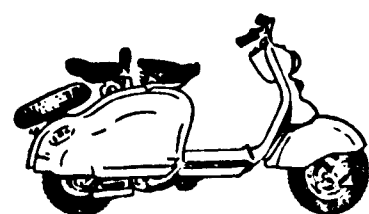
	1943	1955
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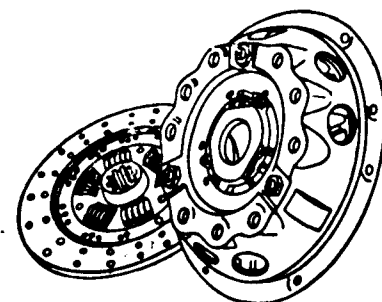
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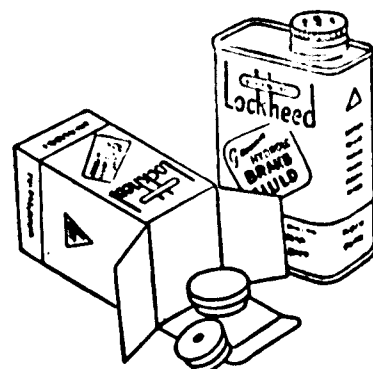


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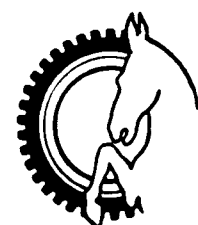
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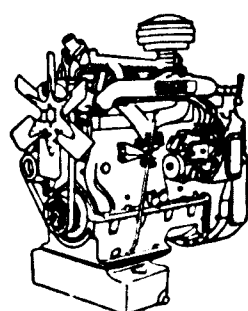
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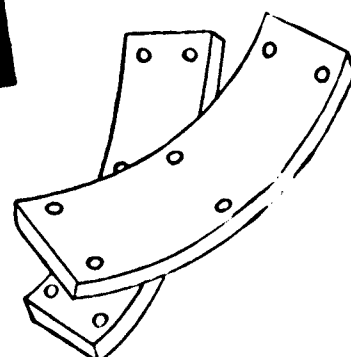
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Recent Trends in Banking

By P. A. SESHAN

THERE has been considerable discussion for sometime past about the effect that deficit financing will have on the structure of prices and on the banking system. On the first question it is generally agreed that a serious effort will have to be made to step up production, agricultural and industrial, through every available agency. As regards the effect on the banking system, it is pointed out that the quantum of deficit financing itself will be determined by the role that banks can play in financing the Second Plan.

In order to keep in check inflationary pressures and increase the working capital of lending institutions, there has been an anxiety to find out how the increase in plan expenditure has been reflected in increased purchasing power of the various sections of the community and to what extent it has become possible to think in terms of greater monetisation of the Indian economy. The developments during the past five years, since the end of 1953 particularly, can, in some measure, indicate the extent to which the banking system has been able to gather more deposits and what proportion of the currency in circulation is held in the rural side.

In the absence of precise data and with the varying economic conditions in the different regions in this country, it is difficult to arrive at any definite conclusions. But there are fairly clear indications to suggest that the recent additions to currency have remained, to a greater extent than before, outside the banking system and that it will be necessary to look for the 'pockets' of inflation before much damage could be done. If the surplus cash is held in sterile form in the rural areas it might not have any dangerous effect, at least immediately, while in the urban areas

it may be reflected in increased consumption and increased bank deposits.

So far as the trend of public expenditure in 1951-56 is concerned, the rural areas have benefited more than the urban areas. Alongside a higher level of agricultural production larger sums are, therefore, held in cash. There is warrant for this view from the trend of developments since the end of 1953 when the expenditure on the Plan was stepped up and it became necessary to resort to large-scale deficit financing. In the first two years, apart from the absence of any significant increase in public expenditure, there was also an import surplus which kept in check inflationary pressures, if there were any. It has always happened that the banking system has been directly affected by a net export or import surplus. Thus, during the period of the Korean war there was an increase in both deposits of scheduled banks and notes in circulation. The advantage on account of the Korean boom was, however, available only for one year prior to the commencement of the Plan. It will be actually found from the figures given at the end that, from the beginning of April 1951 to the end of 1952, banks experienced a declining trend of deposits and that there was also a large decrease in notes circulation on account of a lower level of foreign balances. After the end of 1952, however, the experience of banks has been more satisfactory and a sizable addition to demand and time liabilities has been recorded. The increase in working capital has certainly been helpful.

In comparison with the happenings in 1942-46, it would be agreed, however, that the additions to notes in circulation have not been accompanied by additions to deposits,

demand and time, in the same proportion. It will be clear if it is pointed out that in 1953 total deposits increased by Rs 7.38 crores against a rise in notes circulation by Rs 33.40 crores; in 1954, by as much as Rs 94.19 crores against Rs 74.97 crores; and in 1955, by Rs 90.02 crores against Rs 161.49 crores. In the first four and a half months of this year there was naturally heavy expansion of currency against ad hoc securities and notes in circulation rose by Rs 154.30 crores. Deposits, on the other hand, improved by only Rs 39.26 crores. It might be that, on account of the seasonal demand for funds and the higher level of production in the case of many industries, combined with a higher level of prices, funds in the organised sector have been effectively utilised and there has not been any significant increase in deposits. But even allowing for this possibility, there is reason for the view that there has been a shift in the incomes from the urban to the rural areas and that larger cash is floating about.

This view can be substantiated by an analysis of the figures relating to demand and time liabilities of scheduled banks and notes in circulation for 1950-56 and 1942-46. Expressed as a proportion of notes in circulation, the net demand and time liabilities have declined from 74.17 per cent at the end of 1950 to 70.0 per cent on March 30, 1956. The trends up to the end of September, 1955 were satisfactory to some extent and the banking system benefited significantly by the increased purchasing power. The losses in deposits encountered in the first two years of the Plan were made up to some extent. Thus, the percentage of total deposits to notes in circulation rose from 70.74 on March 30, 1951 to 79.00 on September 30, 1955. In the subsequent six months there was decline in the percentage to around 70. It may be that seasonal factors were at work. Since the end of March, however, the upward trend has been arrested because of the heavy draft on foreign balances. Large imports of steel, cement, foodgrains and plant and machinery have resulted in a decline in foreign balances held in both the Issue and Banking Departments of the Reserve Bank of India to Rs 529.91 crores on December 28, 1956 from Rs 746.12 crores on March 30, 1956. This decline of well over Rs 200 crores has naturally retarded the growth of deposits. In fact, there would have been actually a bigger decline but for the fact funds were returning from upcountry centres and new deposits more than offset the drain on account of the phenomenal increase in imports of particular categories of producer and capital goods and foodgrains.

The process of decline in foreign balances cannot, however, be a regular feature because under the Reserve Bank of India Act a mini-

TABLE I.

(In Crores of Rs.)

Date	Notes in Circulation	Demand liabilities	Time liabilities	Total of Demand and Time liabilities	Col. 5 as per cent of Col. 2
1	2	3	4	5	6
28-12-51	1,141.00	553.74	292.47	846.21	74.1
26-12-52	1,092.11	517.46	313.27	830.73	76.0
28-12-53	1,125.52	508.10	330.01	838.11	74.6
13-12-54	1,200.40	567.16	365.14	932.30	77.7
30-12-55	1,361.08	600.25	413.06	1,022.31	75.0
30-3-56	1,466.64	631.10	411.32	1,042.42	71.0
28-9-56	1,400.23	627.15	455.34	1,082.49	76.8
28-12-56	1,406.67	644.74	457.01	1,101.75	75.2

TABLE II.

Changes in Notes in Circulation and Demand and Time Liabilities of Scheduled Banks in 1942-46.
(In Crores of Rs.)

SCHEDULED BANKS.					
Date	Notes in Circulation	Demand liabilities*	Time liabilities	Total of Demand and Time liabilities	Col. 5 as per cent of Col. 2
1	2	3	4	5	6
1942	570	335	111	446	78.2
1943	841	501	157	658	78.2
1944	1,010	616	203	819	81.1
1945	1,211	673	280	953	78.7
1946	1,225	730	331	1,061	86.6

TABLE III.

Trend of Deposits and Advances of Scheduled Banks in 1951-56.

Date	Demand liabilities	Time liabilities	Total of Demand and Time liabilities	Total Advances	Col. 5 as per cent of Col. 4
1	2	3	4	5	6
28-12-51	553.74	292.47	846.21	542.52	64.2
26-12-52	517.46	313.27	830.73	468.33	56.3
25-12-53	508.10	330.01	838.11	461.09	55.4
31-12-54	567.16	365.14	932.30	538.41	57.7
30-12-55	600.25	413.06	1,022.31	531.45	57.2
30-3-56	631.10	411.32	1,042.42	760.80	73.0
28-9-56	627.15	455.34	1,082.49	754.42	69.7
28-12-56	644.74	457.01	1,101.75	788.46	71.5

N.B.—Demand liabilities of Scheduled banks form at present about 95 per cent of demand liabilities of all classes of banks.

mum of Rs 500 crores in foreign balances has to be maintained as cover against the note issue. Having regard to the need for maintaining a working balance of Rs 50 crores in the Banking Department, the maximum withdrawal henceforth can only be Rs 150 crores in the normal course and Rs 250 crores in an emergency.

A similar trend was noticeable in the first year of the First plan period. It may be that, with the receipt of liberal foreign aid and a more careful policy in regard to imports, the balance of payments position does not become uncomfortable. In any case over a five year period the growth of deposits might not be affected by more than Rs 100 crores on account of an import surplus.

In contrast to the developments in 1942-46, the scheduled banks have not, therefore, benefited to the extent they should have on account of the larger volume of notes in circulation, firstly, on account of the changed character of the expenditure and, secondly, on account of the use of available foreign reserves for securing badly needed imports. From the table given above it will be seen that in the four years from 1943-47 there was an increase in bank deposits with largescale deficit financing. In 1943, total deposits were higher by Rs 212 crores against an increase in notes in circulation by Rs 270 crores; in 1944 by Rs 161 crores against Rs 169 crores; in 1945 by Rs 134 crores against Rs 201 crores and in 1946 by Rs 108 crores against Rs 14 crores. For the whole period, deposits were, therefore, higher by Rs 615 crores against an increase in notes in circulation by Rs 655 crores. Nearly the whole of the additions to notes in circulation was thus reflected in higher deposits with scheduled banks. This might be due to the difficulty in spending available funds on account of the

scarcity of various commodities. Again, the increase in purchasing power came about mainly in the urban areas, as stated above. With the result, the percentage of deposits to notes in circulation was as much as 86.61 in 1946.

Having regard to the progress of industrialisation during the past few years, one would have expected that the banking habit would spread further and that the features noticeable in advanced countries will be repeated here. In the U.K., bank deposits are over four times the notes in circulation. At present, in India only about 25 per cent of the total volume of trade is handled by the organised credit structure while in the U.K. the whole economy is fully monetised.

The trend of deposits of scheduled banks to notes in circulation in the next two years will probably provide some guide about the extent of rise that might take place during the period of the Second Plan. But it will require serious effort, as mentioned above, to increase the proportion of bank deposits to notes in circulation to even above 100 per cent. If this could be done the size of deficit financing can be much smaller. In any case, bank deposits can be expected to record a sizable increase. On the assumption that notes in circulation will be well over Rs 2,000 crores at the end of 1960-61, total deposits, on the basis of 80 per cent of notes in circulation could be Rs 1,750 crores by 1960-61. (A ratio of 80 per cent has been assumed as there may be a further running down of foreign balances by Rs 250 crores.) This figure could be much higher if there is vigorous branch banking and effective coordination between the Reserve Bank of India, the State Bank of India and other scheduled banks.

There is evidence to suggest that larger funds are available in the rural areas and

that ways and means should be devised for putting to productive use these funds. Until recently, the co-operative banks were not occupying an important place in the banking structure. But it is significant to note that particularly those co-operative banks which are having paid-up capital and reserves of Rs 5 lakhs and above, have been able to report a more than doubling of deposits along with a sizable increase in the paid-up capital and reserves. The number of reporting co-operative banks also has increased notably. Thus, the co-operative banks in the abovementioned category had a paid-up capital of Rs 3.31 crores and reserves of Rs 4.22 crores with total deposits of Rs 49.50 crores in 1947-48. By 1954-55, the number of co-operative banks increased to 140 from 56. The paid-up capital nearly trebled to Rs 11.20 crores and the reserves more than doubled to Rs 9.63 crores. The total deposits were as much as Rs 114.51 crores, against Rs 49.50 crores. Available funds have been utilised rather effectively and investments have risen by only Rs 14 crores. That is, to the extent of the increase in the paid-up capital and reserves.

Co-operative banks having paid-up capital and reserves between Rs. 1 lakh and Rs. 5 lakhs have also had a favourable experience in the same period. The paid-up capital increased from Rs. 2.73 crores to Rs. 5.76 crores and reserves from Rs. 2.81 crores to Rs. 4.14 crores. The number of reporting banks rose to 432 in 1954-55 from 267 in 1947-48. Total deposits rose over by Rs. 5 crores to Rs. 30.54 crores and there was demand for all available funds. Investments were actually slightly lower. A further increase in deposits can be expected to take place in the coming years and it would be worthwhile to find out whether the pace of progress could be aided strategically.

But the stage has been reached where it has become necessary to give greater attention to the extension of branch banking or, on the model of the U.K. and other advanced countries, to promote district banks. The larger banking institutions can also have working arrangements with the smaller and medium-sized banks which operate in the interior in order that the collection of deposits can be done more vigorously. In the present context, it has become necessary to have the fullest use for available resources as there are competing claims and we are witnessing the phenomenon of an acute shortage of loanable funds even with a sizable increase in working capital. The base of the credit structure has obviously to be enlarged as State borrowing will have to be on a much larger scale from the organised capital market while the needs of trade and industry have to be properly cared for.

It would now be appropriate to examine how the increase in funds could be utilised and to what extent the Central and State Governments would benefit by the larger working capital at the disposal of the Scheduled and Co-operative Banks. Non-Scheduled Banks also can come into their own though it will be found difficult to restore the lost confidence on account of the development in the immediate post-partition period.

Co-operative Banks may be able to lay by some funds. But the increase in investments since 1947-48, is not flattering. Everything depends on the success of the new measures that are proposed to be implemented.

As regards the scheduled banks which are engaged in extending short-term credit, while there is no doubt that they will witness a sizable increase in deposits, there is no doubt also that there would be full use for such

increased deposits and that the Government cannot expect support from the banking institutions for their borrowing programmes as in the former years. In 1942-46, against the increase in deposits by Rs. 615 crores, advances rose by only a little over Rs. 150 crores. During 1956-61 it would be a matter for gratification if banks can finance the requirements of trade and industry and avoid a credit squeeze. Easy conditions may not prevail in the money market during a period of active expansion and it will be necessary to devise ways and means for expanding the bill market. In the last one year particularly, virtually tight conditions have prevailed in the money market and the call rate has not been below 3½ per cent. The drain of funds from the country on account of the import of steel, capital goods and other items has 'checked' the growth of deposits. As at the same time, there has been larger demand for funds on account of the larger imports on Government account, a higher level of industrial activity and higher prices, there has been a virtual squeeze.

Against an increase in deposits of scheduled banks by Rs. 70.44 crores between December 7, 1955 and December 7, 1956, total advances have risen by as much as Rs. 168.08 crores. It has naturally been necessary to borrow heavily from the Reserve Bank of India against usance bills and securities which are higher by over Rs. 45 crores, while investments have declined by Rs. 25 crores. Cash balances are at the barest minimum.

It is, therefore, feared that the requirements for the busy seasons, particularly that for 1956-57, might create some difficulties if there is no planning in advance. The Finance Minister has had discussions with banking interests in recent months and there is anxiety to devise measures by which short-term

credit of a seasonal character might be provided more easily.

If the general level of prices does not prove to be very much higher, there might be small surpluses available for investment in Government securities having a maturity date in a short period only if the import gap is reduced appreciably, as it should be. For the present, however, the prospects of any support from scheduled banks are not encouraging.

The main support to the various loans floated by the Governments will, of course, be forthcoming from the Insurance Corporation, the provident funds and various trusts while the State Government, can, with advantage, explore the possibilities of borrowing in the countryside as was done by Madras this year. Henceforth, there are brighter prospects for the States to borrow on a larger scale than the Central Government. The latter can be assured of net borrowing to the extent of Rs. 50-75 crores a year on account of the ready sources at their disposal. If the State Governments can raise another Rs. 75 crores for their part, the target of the Second Plan can be easily fulfilled without the banking system being strained in any way. Thus, if the scheduled banks can take care of the requirements of industry and the Governments plan their borrowing programmes intelligently, there will be no 'clash' of interest.

Indian Banking has, therefore, entered an important phase. The new opportunities should be properly utilised and the basis of the banking structure considerably strengthened. Through increasing monetisation of the economy and availability of ampler bank facilities of various kinds, the machinery should be created in such a way that the work on future plans can be carried out without much difficulty and the cost of credit for various purposes is not unduly inflated.

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WORLD ECONOMY, PRODUCTION AND TRADE

THOUGH at a slightly more modest pace than in the preceding year in some areas, particularly in Western Europe, world production and trade staged further expansion in the year July 1955 to June 1956. On the whole, the expansion of international trade was ahead of that of international production, and industrial plant and equipment was markedly strong on the demand side. The high demand for capital goods which was tending to grow into a wider international range reflected the investment boom which was also more or less of a world-wide character.

For the first half of 1956, total world export was 10 per cent higher in volume and 12 per cent higher in value than for the 12 months before. But for the monetary and fiscal restraints which many countries imposed on the pressure of domestic demand, world exports might have shown a much higher record—a circumstance which indicates that the potentialities of economic expansion could fully be utilised for one reason or other.

But as against the monetary and fiscal restraints, the raising of tariffs and such other direct impediments to trade were generally conspicuous by their absence. In many countries, import control and tariff barriers were further relaxed and in a few the relaxation extended to the flow of investment funds. While industrial countries took more of agricultural products, the latter opened their doors to more liberal imports.

Agricultural raw materials and foodstuffs witnessed a comparatively smaller range of price fluctuations; other raw materials, drinks etc. and textile fabrics recorded sharper fluctuations in prices. The cessation of the downward trend in the prices of the principal agricultural products and their increased volume of trade reflected a more balanced distribution of the expansion of world exports. In this expansion, the industrial countries as a whole fared better, Japan, Germany and the United States reaping the largest gains.

World shipping, in spite of substantial additions proved inadequate; rates went up and after the Suez Canal crisis, the dislocation was extraordinary in relation to peace-time standards. Industrial production was marked by a special emphasis on new outlays. Barring the changes brought about by political crises on the economy of certain countries, the latter half of 1956 was marked by nearly the same trends in production and trade.

Among the principal national economies, US investment and production reached new highs. In the second quarter of 1956, its exports attained the seasonally adjusted annual rate of 23 million dollars. And for the year ending June 1956, machinery metals and coal represented nearly three-fourths of the increase in non-agricultural exports; the value of coal shipments going up by 60 per cent; the export of cotton recovered after the slump in the first half of 1955. Government's disposal programmes, coupled with a genuine increase in foreign demand pushed up total agricultural exports to a level about two-fifths above that of the previous year. The value of US imports also rose up, facilitating the smooth financing of the expansion of exports and the accumulation of dollar assets in the hands of other nationals.

In Soviet Russia, official estimates claim the largest grain crop ever recorded. Industrial production was also higher, though not to a corresponding degree. In Britain, exports to

the Western hemisphere were tending to rise rapidly, especially in the latter half of the year. But the improvement in the foreign trade position recorded for the first half of 1956 was largely wiped out by subsequent developments. West Germany has come out with the most glowing colours; it is estimated that its production of steel reached up to 24 million tons and foreign balances rose by over 4 billion dollars. Certain domestic troubles and uncertainties caused sporadic setbacks in production in recent months.

France was among the few industrial countries, whose exports declined in relation to the previous year's level. Its foreign trade deficit increased, pushing domestic price levels along side with it. In the sphere of industrial production and trade, Japan stood only second to Western Germany. Japan's rate of ship-building for export exceeded that of any other country, and in cotton textile exports, Japan secured the third foremost place. Japan's total export trade rose by 30 per cent in value for the year ending June 1956, along with a roughly corresponding expansion in industrial production. Australia and New Zealand, having faced a steady decline in foreign exchange earnings for nearly eighteen months since mid-1954, started recouping later.

Among the 1956 trends of production in Eastern Europe and the policies influencing them, as reviewed in the UN Economic Bulletin for Europe, the restoration of incentives to the individual producer stands out prominently. In Bulgaria, the agricultural producers have secured a general increase in prices. The Soviet Union, Poland and Czechoslovakia have fallen into the same line. The Bulgarian Government increased payments for obligatory deliveries from 20 to 30 per cent and have held out the promise of similar increases for contractual deliveries from next year. Much higher percentages of increase were given to wheat, apples and wool.

In the Soviet Union, sugar beet price was raised by 50 per cent. The producers of wool, fruits, berries and grapes are among the other important beneficiaries. From next year, provided the harvest is favourable, the State's share of grain from the Kolkhozy will be substantially less. The farms are also given the option of substituting wool and meat for compulsory deliveries of grain, a step obviously intended to encourage stock-breeding. A similar concession in Poland is reported to be aimed at discouraging premature slaughter of animals. The Government of Eastern Germany have offered tractor and machine services to large private farms at rates hitherto applicable to smaller farms. Fiscal concessions for members of higher-grade co-operatives were announced in Hungary where several industries were also offered increases in wage rates.

The Soviet Union has taken decisions on a more comprehensive programme, in which, among other things compulsory deliveries of milk would be abolished, the planning and direction of socialistic enterprises would be substantially decentralised, management and work councils granted more independence and additional payment from profits devoted to staff welfare. A revised definition of the Kulak is expected to encourage the growth of medium peasants employing hired labour.

The way in which the economy of China is going to be regulated for the next five years is indicated by two important statements, one by Chou En Lai contained in the Proposals for the Second Five Year Plan for Development of the National Economy, and the other by

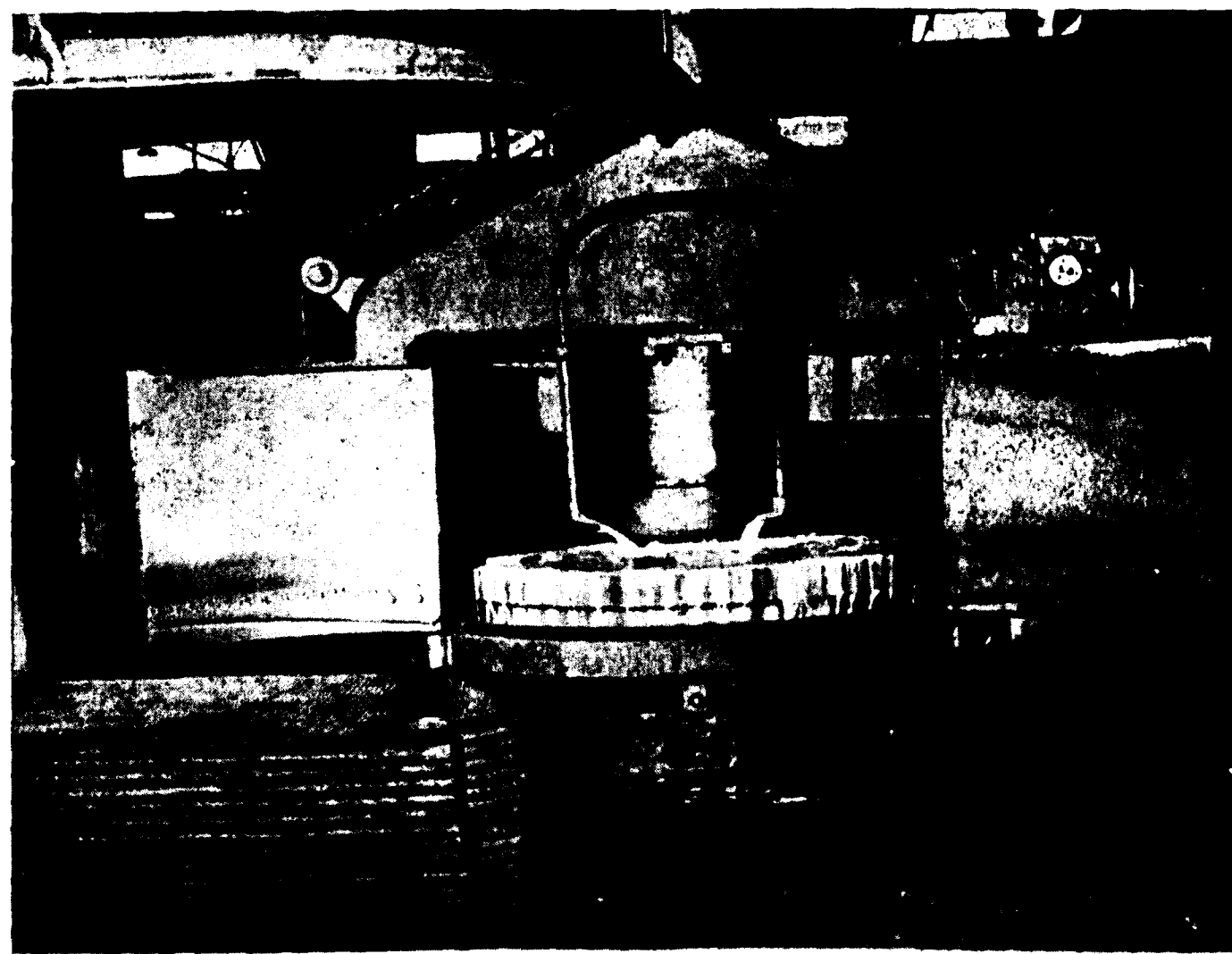
Chen Yun, on the same subject. An extract from Chou En Lai's statement is given below:

"As a result of the victory in socialist transformation, socialist economy has assumed a predominant position in our country. This enables us to make better use of the law of value, within proper limits, to stimulate production of those industrial and farm products that are small in amount but great in variety, and that need not be purchased and marketed in toto by the state, so as to meet the many-sided needs of the life of the people. In order to meet the situation described above and prevent a lowering of quality and reduction in the variety of products resulting from over-rigid and excessive control, we shall, now and in the Second Five Year Plan period, adopt many important measures in the field of commerce. For instance, a number of free markets will be organised in planned way under the leadership of the unified state market; producers will be allowed, within certain limits, to market their own products; the method of selective purchase by the state will be adopted in regard to certain industrial products of daily use; and the method of grading and fixing prices according to quality will be adopted in regard to all commodities. Far from disturbing the unified state market these measures will supplement it in a helpful way."

Chen Yun says, "The condition of our socialist economy will be like this; in industrial and commercial production and operation, the state and collective ownership will form the main body, but a certain amount of individual operation will be attached as a supplement. In the planning of production, the primary portion of our farm and industrial products will be included, but at the same time, a part of these products will be allowed, within the limit of the plan, to be freely produced according to the changing market conditions. Such a market in our socialist economy is by no means the same as the free market under capitalism, but a part of the unified state market. In the united socialist market the state market is still predominant, but a free market under the leadership of the state, with certain limits, will exist. Such a free market will function as a supplement to the unified state market."

In the organisation of large-scale enterprises, the medium and small-sized business, particularly on the distributive side, will be associated in an ungrudging manner. This association is intended to avoid waste and in catering to the varying needs of the population in the different localities. In industry, the medium-sized and the small-scale firms will generally be the rule. Individual enterprises will be mostly confined to handicrafts, retail distribution, farming within the non-State sector and personal farming within the collective farms. Ideologically the set-up will be inspired by a combination of the laws of the Socialist economy and "the law of value," the latter term being a rough equivalent to the law of supply and demand in a free economy. That every economic arrangement, whether it falls within the scope of individual enterprise or not, is eventually governed by considerations of total national welfare and the requirements of a socialist economy is unambiguously stressed. Wherever there is non-State production or a free market these are permitted only to maximise production and to keep the flow of goods and services in conformity with the requirements of every section and taste. These are the broad principles under which the Chinese economy is to be piloted for the five years, 1958-1962.

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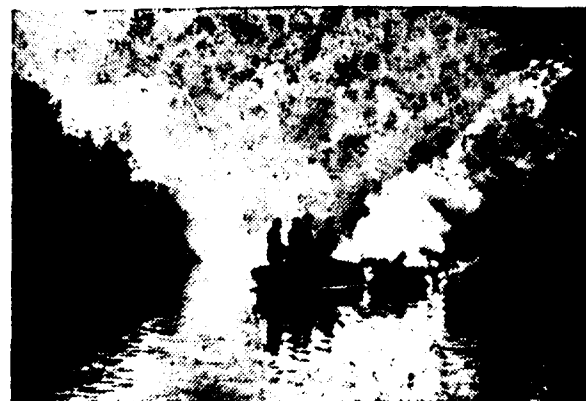


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India and the Metric System

By P. E. MEHTA

PERHAPS there is no country in the world where there is so much diversity of weights and measures as in India. There are, at present, over 150 different weights and measures in use in the country, and the Maund varies in weight from 280 to 8,320 tolas. In central India, when a person purchases a seer of butter, a seer of ghee and a seer of wheat, he gets three different types of weights, and we could not get any explanation why this was done. Such chaotic diversity in weights and measures, which are constantly used in our daily life, is a source of terrible confusion. It hits at the basic root of the unity of the country as a whole, and is the biggest obstacle to a planned and quick development of the country. Thus, the necessity for a new system of measures and weights for the country cannot be overemphasized. We feel that India should adopt the Metric System as it is a Scientific, International Standard System. It may be argued by some that instead of introducing a foreign system such as the Metric, we should bring in uniformity in weights and measures existing in the country; but, it must be remembered that the seer, bigha, hath, chhatak are all arbitrary units, based on local tradition or accident, and they generally vary in value from district to district. Furthermore, there will be objections from the other parts of the country, if the weights and measures of one place are made as the basis for a countrywide standard, and provincial and regional jealousies will be aroused. The Metric System has been acknowledged even by its opponents as the most scientific in the world; and, except for the USA, the UK, and some of the Commonwealth countries, the rest of the world has adopted it. Even in countries with non Metric measures, the Metric System is recognised under law and the decimal system of coinage is used in the USA.

The Lok Sabha has accepted the principle of introducing the Metric System in India; and legislation with regard to decimal coinage has already been passed. Even in the Philippines and in South Korea, which have strong links with the USA when the question of a new system of measures was taken up, the US experts recommended the Metric System, which was adopted. Thus, Korea and the Philippines, Russia and China, Norway and Argentina, Sweden and Brazil, Greece and Egypt, Germany and Turkey and many other countries, did not consider the Metric System as a foreign system when they adopted it, but as the most scientific and easy system from the viewpoint of day to day transactions. It is inevitable that, unless we adopt a modern scientific system of measures and weights, the tempo of our industrialisation and progress will suffer. The adoption of the Metric System in India will not only facilitate the work of the engineer and the scientist, but also the peasant and the worker, the housewife and the school teacher and will promote our basic unity and all round progress.

ADVANTAGES OF THE METRIC SYSTEM

The advantages that will accrue by the adoption of the Metric System are summarised below:

- (1) It will remove the disabilities arising from the diversity of the current weights and measures.

- (2) It will facilitate the widening of trade and commerce and rationalise the progress of industries.
- (3) It will strengthen national solidarity.
- (4) The Metric system is superior to other systems as it has a symmetrical structure, based on the ratio of 10 and corresponding to the decimal place value notation in the representation of numbers.
- (5) It is entirely a decimal system whereas, in the Imperial or the FPS system, we have to work in such numerical steps as 14 pounds to a stone, 16 ounces to a pound, 480 grains to an ounce, etc., etc.
- (6) It is very easy to express.
- (7) Scientists throughout the world use the Metric System. The Research Institutes even in the USA and in the UK use the system. It is uniformly used by the Electrical Engineers all over the world.
- (8) In day-to-day transactions of trade and business, the Metric System has the advantage of easy comprehension and more convenient practical application.
- (9) In the Metallurgical and Engineering Industries, which are the basis of the industrial progress of a country, the Metric System has three basic advantages:
 - (a) in calculation, where at least 30 per cent of the time is saved;
 - (b) in the preparation of drawings, where also 30 per cent of the time is saved as compared to the FPS system; and
 - (c) far better tolerances and limits can be observed in the Metric than in the FPS system.

- (10) The measures of area and volume are obtained by squaring and cubing measures of length.
- (11) The system is universally recognised under the guidance of an international body consisting of representatives of all countries subscribing to its activities. There is no internationally recognised body responsible for the FPS system, which can in any way compare with the International Metric Conference, as there has been virtually no tendency for the countries using the FPS system to come together to establish and maintain a greater degree of uniformity.

- (12) The advantages accruing to the Engineering industries are as follows:

- (a) Machine Tools: The cost of change-over from the FPS to the Metric system will be negligible. The average cost of change-over will be under 1 per cent of the total cost. The uniformity and standardisation and greater precision and tolerances will be the advantages;

- (b) Drawings: The difficulties that are encountered in giving certain dimensions in fractions and decimals could be avoided by the adoption of a uniform decimal dimensioning in millimeters. The drawing scales can be given as 1 in 100, 1 in 200 etc., etc. At present, there is no uniformity in giving fractional and decimal dimensions.

- (c) Fabrication of Capital Goods and Precision Machines: The tolerances in machine fabrication and metal working industries at present is expressed in thousands of an inch. In the Metric System the accuracy will be far better than that in the FPS system. This will have a far reaching effect on our growing Engineering Industry.

The Metric System uses the decimal subdivision of units, either multiple or part of the basic unit, and are denominated by prefixes of the units, which are usually positive or the negative potency of ten. Thus, the units are expressed as:

Terra (T)=10¹² Units
Giga (G)=10⁹ Units
Mega (M)=10⁶ Units
Kilo (K)=10³ Units
Hecto (H)=10² Units
Deca (D)=10 Units
Deci (d)=10⁻¹ Units
Centi (c)=10⁻² Units
Mili (m)=10⁻³ Units
Micro (μ)=10⁻⁶ Units
Nano (n)=10⁻⁹ Units
Pico (p)=10⁻¹² Units

The following example may be useful: 10⁻³ = 1/1000 of a meter, which may be written as 1 mm (one millimeter); and this avoids all fractions and, from the prefix, we can find out whether the number is a fraction or a multiple power of the Unit. The same prefix can be used for units of length, weight and time; and this is proof of the easy expressibility of the Metric System.

With regard to temperature measurement, it is somewhat astonishing that, as late as the 16th century during the Renaissance period, scientists felt the necessity of measuring temperatures. In 1592, Galileo made a primitive thermometer whereby expansion of the air indicated the degree of heat. The inventor of an improved air thermometer was Amontons (1702). The first thermometer using mercury was constructed by Fahrenheit (1686-1736) a German physicist who also worked out the scale named after him. This scale has been adopted in the UK and the USA and is valid there since then.

In France, Rene de Reaumur introduced in 1790 the Reaumur scale of the thermometer which has as its zero point the freezing point of water, and the boiling point of water at 80° of the Reaumur scale.

The third and the most scientific nomenclature in temperature measurements was suggested by A. Celsius, a Swedish physicist, in 1742. It is remarkable that he subdivided the boiling and the freezing point of water into 100 grades i.e., on the decimal system, about 50 years before the Metric System was introduced. It is rather strange that, in the

UK and the USA, the German subdivision made by Fahrenheit is valid, and in France the Reaumur system has been abolished and the Celsius system adopted. The Celsius system is now used by all countries using the Metric System.

The Metric System of temperature measurements has its lowest point at minus 273.16° C, called the absolute zero point, at which the movement of the molecules comes to a stand still. There is no limitation in the upward temperature scale. The use of mercury as the indicator for temperature is due to its stability; it can be used between—39° C, the freezing point of mercury, and 356° C, its boiling point. For temperatures below minus 39° C, alcohol is used and for temperatures over 356° C, special thermometers filled with gases which prevent the mercury from boiling are used. Temperatures over 750° C are measured electrically.

Steam or gases under pressure are measured according to the Imperial System in pounds per square inch. In the Metric System, the pressure is indicated in kg cm² called one atmosphere. Here, again, we find in both Kilogram and centimeter square the Metric System with all its advantages in calculation.

The atmospheric pressure which is very closely the same as the technical atmosphere (at) is equal to the weight of 760 mm mercury column.

Precision measurements in industry are made by reading micrometer callipers. The inch micrometer is rather clumsy in that each turn of the screw does not give the same measurement whereas, in the Metric Micrometer, each reading of the turn is tuned to 0.5 mm and readings can be made to within 0.01 mm—an accuracy rather difficult on the inch micrometer.

The International Metric Thread was adopted in 1898 by the International Metric Congress. It

has a thread angle of 60° and the diameters of screws specified range from 6 mm (1 mm pitch) to 80 mm (6 mm) pitch.

Both the UK and the USA, which follow the FFS system, have different systems of screw threads; this fact greatly hampered their war efforts due to considerable difficulties in the combined effort to secure interchangeable production. The Axis powers, which followed the Metric System had no such difficulties.

A number of conferences were held in 1945 and 1946 on the Unification of Engineering Standards between the UK, Canada and the USA with the object of arriving at a series of standards for screw threads (including pipe threads) limits and fit, drawing practice and metrology in mechanical engineering. Though considerable progress has been made for an early agreement on a number of specific screw thread forms for special applications, the drawback in comparison to the Metric System will still remain.

OBJECTIONS TO THE METRIC SYSTEM

It is said that, in matters concerned with retail trade and distribution, the Metric System may have certain shortcomings. To some, the decimal and the number ten as the base of our number system is found less convenient as the present base 12 can be split into halves, thirds, fourths, sixths, whereas ten can be split up into 5 and two only. This, to our mind, is not an important shortcoming.

No doubt, there will be certain difficulties during the transition period in adopting a new system but the advantages will be so far reaching that any flimsy objections can easily be overcome.

Opponents of the Metric System sometimes say that it is unnatural to force an artificial system on the naturally grown standards; but this is not true, and it has been proved by scientists that the building of houses, furniture

and other aspects of human convenience may be standardised by systematically adopting the Metric standards.

Before the introduction of the Metric System in Europe, similar standardisation had been in use in Denmark, Holland and Germany. The basic dimension in use was 4 feet and this has been changed over, in all the countries, to the Metric System by 1.25 meters.

The British basic dimension of 4 feet comes to 1.219 meter, which is very close to the European dimension of 1.25 meters. Even the USA follows similar dimensions in its sky-scrapers and prefabricated houses.

A standard series of dimensions can be obtained by doubling the basic dimension of 1.25 meter, and thus we arrive at the progression of 2.5, 5, 10, and so on, always a multiple of the basic dimension. The standard dimensions of the basic building elements have been adapted to the system, especially bricks, hollow blocks and other materials.

The standardisation of papers for drawings, writing, books and all other purposes is absolutely necessary. The standardisation of paper sizes will bring in a standard filing system, uniformity of office furniture and the sizes and folding of engineering drawings.

SUGGESTIONS FOR THE TRANSITION PERIOD

The Council of Indian Standards Institution in its report of December 22, 1949 on the Metric System under para 5 has suggested the following period of transition:

"The period of transition of about 15 years foreseen in three phases—

- (a) preparatory—3 to 5 years, comprising a programme of education and propaganda.
- (b) change of system—5 years, during which the type of legislation proposed by the

Centre will be adopted by all the State Governments.

- (c) the final phase—3 to 5 years, at the end of which the change will have to be completely accomplished, the metric system being then the only legal system.

We feel that the transition period allowed for the weights and measures should not be more than 5 years. The first two years should be for education and propaganda and the final three years for complete adoption of the system. In case of change-over for engineering drawings and machinery a further period of five years should be allowed, but no compulsion or direction is necessary in this matter as in competition and supplying machines and equipments to metric standards the firms will have to fall in line.

We are sure that, if the Indian Standards Institute looks to the question in 1957, it will certainly modify the suggestions given in 1949 in view of the Revolutionary Industrial policy of the Government of India. We offer the following suggestions for the change-over:

- (1) The Government of India should enact a Bill in Parliament some time this year to adopt the Metric System. In our opinion, the maximum transition period allowed should not be more than 5 years, as persons who suggest a slow transfer in the view that it will take sometime for the people to get accustomed to it do not see the real interest of the country. A

speedy change-over will be far more beneficial than a long transition period.

- (2) A high power committee of experts should decide on the nomenclature for the new system. We think that we should adopt the Metric nomenclature with any peculiarity in pronunciation under Indian conditions. The nomenclature should be tried out for three years in the country and reports collected from all district officers as to how the new terms are used at the village level.
- (3) An officer on special duty should be appointed for the change-over to the Metric System; and he should be given adequate staff. He will look after and co-ordinate the work in the several central ministries and in the State Governments.
- (4) All Community Project officers and officers of village level should be given a refresher course in the new system, so that they can work for it at the village level.
- (5) During the transition period, the weighing machines should be marked in Kilos and Pounds, and the measuring instruments in feet and centimeters.

CONCLUDING REMARKS

In this nuclear age when we talk about the peaceful use of Atomic Energy, all calculations in the atomic science are made with the Metric System, so if India wants to attain its rightful position, it has to fall in line with the rest of the world.

There is no doubt in our mind that the Metric System should be introduced at a very early date by an Act of Parliament. India is on the threshold of an Industrial Revolution the type of which has no parallel in the twentieth century. For accelerating our Industrial potential, the Second Five-Year Plan has laid a great stress on Heavy and Basic Engineering Industries. We have already stated that 30 per cent of the time can be saved in the Drawing offices and Designing offices where engineering calculations are made. Thus, if the Metric System is adopted the work planned for in five years for the Engineering Industries can be accomplished in three and a half years.

We shall conclude this article by quoting the Prime Minister, Mr Jawaharlal Nehru, who said two years ago: "Our Parliament has accepted the principle of introducing the Metric System in India and legislation has already been passed in regard to coinage. The rest will no doubt follow. It is important, however, that there should be full publicity about this system and the obvious advantages that it will bring to us. We are, on the whole, a conservative country and it is not very easy to change old-established customs. But I am sure that our decision to adopt the Metric System is the right one from every point of view. For the scientist, the technician and the statistician, it is the only system that can be used. But even to the people generally this will bring relief and many facilities. There will no doubt be slight inconveniences to begin with, but this will not last."

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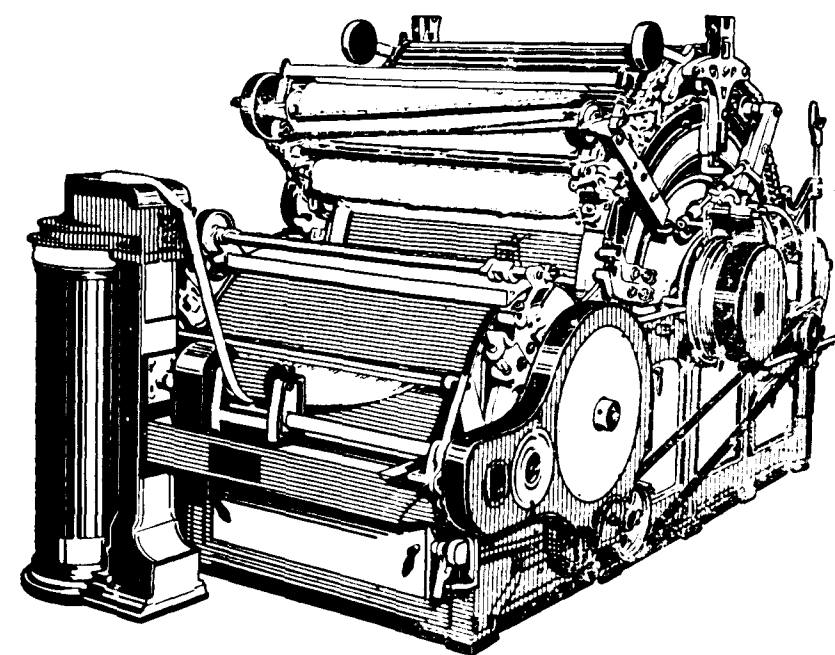
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The Price Situation

THE erratic movements of the prices of certain essential commodities in the course of 1956 pose the question as to what the normal price level should be for the period of the Second Plan. In the late 40's, a similar question arose, and the expert answer was that it should be somewhere between 170 and 200 per cent of the immediate pre-war price level. At that time the Government also appeared to be keen on stabilising prices within this range. Soon after the Korean boom set in, and what was considered feasible before 1950 was never attempted afterwards. The economy became gradually adjusted to a whole-sale index which ruled generally above 300. The succeeding price crisis was one which called for keeping agricultural prices from falling below certain limits, instead of taming a general inflation.

By 1954, aids to farmers have come into vogue and many State Governments had a rough time with Opposition parties championing the cause of the agriculturists who stood to lose by the price relationship which had by then emerged between the agricultural and the industrial sector. Private industry itself felt rather alarmed at what it had regarded as a dangerous fall in the purchasing power of the peasant-consumer.

In the transformed relationship between agricultural and industrial prices, spokesmen of private industry were embarrassed to recall that ever since the advent of the war, they were crying hoarse against the flight of money to the rural areas and the inequitable prosperity of the grower. Likewise amidst the sporadic spurts in the price of foodstuffs taking place off and on recently, the politicians professing anxious sympathy for the consumer seem to have coolly forgotten how only a year back they were loudly bewailing the lot of the food-producer confronted with a falling price. It is paradoxical that whatever be the turn in price trends, the politician is ready with his heart bleeding, for some one or other, not in the least caring how inconsistent he is in his sympathies!

The primary blame for this state of affairs lies elsewhere. We are inclined to take the Government to task for two reasons; firstly, they have not cared to enquire seriously into what should be a normal price level or at least the normal range within which fluctuations will be permit-

ted and to strive for the attainment of that level or range. Until this is done, price changes will continue to be the Opposition politician's lively pastime, giving rise to a great deal of furore and excitement. Even from the purely political standpoint, it is bad that the most sensitive aspect of economic life should be permitted to take such whimsical expressions every now and then.

There is another serious danger. In the public mind, deficit financing and inflation have become more or less the two sides of the same coin. There is no doubt that some of the less guarded statements of Government spokesmen also lend colour to this misleading impression. Every little rise in prices here or there is immediately seized upon by the habitual critics of the Government and presented as the embryo of a wild inflation. Actually, not more than a few isolated pockets in one or two States might have been affected and the authorities themselves might have hurried relief as quickly as possible. Public impressions however tend to be exaggerated, and seldom subside without leaving some damaging effect on the reputation of the Government.

At the outset, it is necessary to enable the general public to distinguish a general rise in prices from the freakish and localised boomlets. In spite of the soothing assurances from the spokesmen of the Union and the State Governments, the figures do show that there has occurred a considerable increase in price levels since May 1955. The Economic Adviser's general index of whole-sale prices rose from 341 in June 1955 to 393 in the first week of June 1956. The Food articles showed a rise from 277.3 to 356.5 points; of these, cereals recorded the sharpest increase from 314 to 468; the index of manufactures had shown only minor fluctuations over these months and the increases for semi-manufactures and industrial raw materials have been far less than those for food articles.

It has, however, to be borne in mind that the index of vegetable oil had risen from 348 to 558, and among manufactures, the residual category in which a number of consumer products enter, recorded a rise of 100 points from 286 to 396. For many commodities, the rise in retail prices was much more. By the end of the year, the wholesale price index had further risen to

417.6, touching 422 earlier. The index for food articles stood at 392.0, more than 35 points above the mid-year level, but still below the year's peak; cereals stood at 476 as against 397 at the commencement of the year and 468 at mid-year. In eighteen months, cereals had risen from 314 to 476, i.e. by about 50 per cent. Barring manufactures, where the increases remained comparatively small, every major group had advanced substantially. Vegetable oils stood at 620 at the end of the year, against 426 at its commencement. The miscellaneous group rose from 548.7 to 594.1. The average for all commodities showed a rise of 37 points to 417.6.

The situation is rather disquieting and there is force in the contention put forward by Sir Chintaman Deshmukh in one of his recent speeches at Allahabad "that there were certain conditions attached to the policy of deficit financing which can be ignored only at our peril".

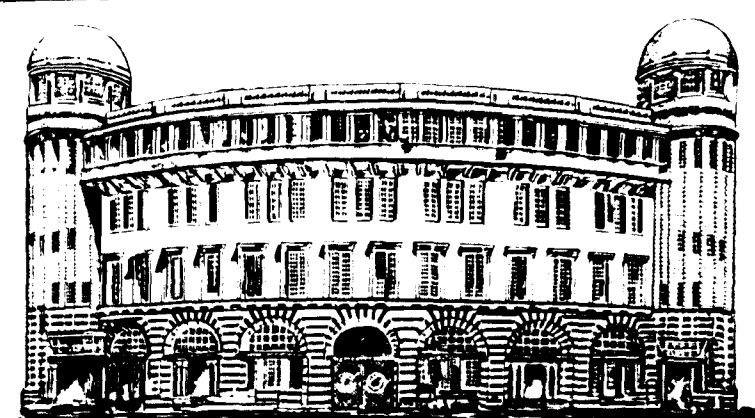
There is no use attempting to deny that the economy has imbibed an inflationary trend. On the top of this, there have also been emerging pockets where the price increases are further inflated by either genuine local scarcities or through hoarding activities. The two problems will have to be dealt with independently of each other.

The first step in tackling inflation is the courageous admission that there is one. The more it is sought to be evaded or underrated, the greater will be public dissatisfaction and the less determined the effort to check it. Once the upward trend in prices is honestly taken up as a problem, the Government can without the least remorse apply all the techniques on hand to fight it. Just now the economic set-up is such that wherever necessary production could be speeded up at more than the normal pace. In agriculture, it has been found possible to step up production ahead of schedules. There is an ambitious and flexible programme for agricultural production in the Second Plan. It is unduly pessimistic to think that the country will run the risk of a food shortage. Whatever small gaps are likely to occur could smoothly be met by the Government moving in buffer stocks which are normally held in sufficient quantities.

Production and inter-State movement of crops, stocks and storage have become increasingly a matter of normal administrative control, so that without special strain on the part of the Government, the situation could be sized up periodically and shortages anticipated and provided for with reasonable promptness. The hoarding propensity, which undoubtedly leads to most of the local shortages could be effectively stifled through the relentless enforcement of the Reserve Bank's powers for selective credit control. Individual ingenuity which skips even this will have to be suitably met. In East Bengal, for instance, hoarding is severely penalised.

With the extensive revenue, agricultural, marketing and commercial staff which the State Governments have under them, it should be possible to keep a vigilant eye on price trends in every area, to sense the advent of shortages even before these occur and to be ready with reinforcements wherever necessary. While inflation on a national scale calls for monetary, financial and tariff adjustments, the local shortages are invariably amenable to more vigorous administrative measures. More often than not, the latter may demand more attention than the former.

Lately, the Government themselves have been providing the impetus for price increase. Steel, cement and coal are examples fresh in our minds. State taxation is another fruitful source. Some price has necessarily to be paid by the people for achieving a gradual increase in their standards of living. But they must be made aware of the limit and impressed with the readiness and capacity of the State to see that the limit is kept.



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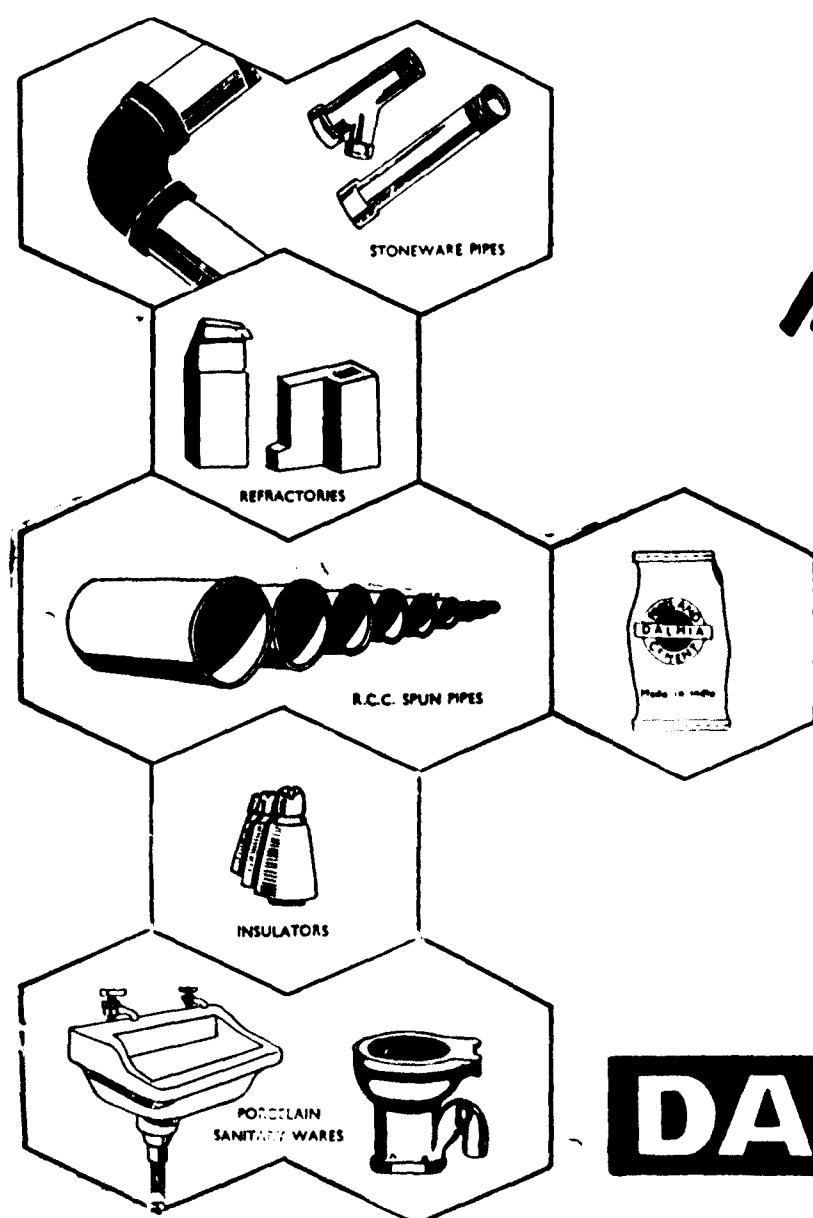
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Rail Transport in 1960-61

IN examining the railway plan, it is necessary to understand the pattern of movements connected with the economic expansion that is planned. The volume of transport called for, its source and destination, and the present condition of the routes through which it has to move—all these call for study. The targets of production in the Second Five-Year Plan run as follows:

	Estimated Production (In million tons) 1955-56	1960-61
Foodgrains, Oilseeds, Cane, etc.	76.3	89.4
Cotton and Jute	1.6	2.5
Iron Ore	4.3	12.5
Coal	36.8	60.0
Finished steel, etc. and their products	1.7	5.6
Cement	4.8	10.0
Miscellaneous goods	1.1	6.0
Total	125.0	186.0

The railways carried about 115 million tons in 1955-56. Over current performance, then, 60 million tons more have to be transported by 1960-61, allowing for a similar lag in the full realisation of the targets. On the rough—est estimate, they must then have 50 per cent more rolling stock. They have now about 250,000 wagons and 6,500 locomotives (all gauges) to haul them, and asked for 3,300 additional locomotives and 127,000 wagons for lifting the 60 million tons extra traffic. The expenditure under rolling stock was first Rs 467 crores but is now reduced to Rs 380 crores.

ORE AND COAL HAULAGE:

The steel industry, which claims the largest share of transport, will be located mostly in Central India, the heart of the ore area, and needs larger haul of coal than of ore. The average ore lead is 150 miles and of coal 280 miles. In the choice of the sites of Rourkela, Bhilai and Durgapur, the most efficient utilisation of line capacity and wagons has been a fundamental consideration. The requirements of new lines and other line capacity works as also of wagons and locomotives are the lowest compared to any other alternatives and there is no scope of a further cut in these.

The ore and coal have to come mostly from new mines; they as well as the supplementing tonnages from existing mines are to be carried over routes worked to maximum capacity. New lines, doublings and capacity works are thus inescapable from Jharia coal fields to the Rourkela and Bhilai Plants, and from the new ore fields of Central India to these works. A

section of the Eastern Railway, from Jharia to Barkakhana, is to be doubled and a new line from Barkakhana to Rourkela laid to provide the shortest and quickest lead. Had the devious routes via the Adra and Tatanagar areas the ability to carry all these extra trains—12 in number each way—then, a postponement of nearly Rs 20 crores in opening up the new routes would be possible. But these lines are saturated, and are even now a curb on expansions in this area.

Next to steel, coal claims attention. Of the 23 million tons extra production, 20 million tons will require rail transport, the balance being taken up by pithead losses, local use and short road hauls. Of these, 13 million tons are to reach industries other than steel, distributed far and wide in the country. From the Bengal and Bihar coal fields alone, nearly 5 million tons extra coal have to move west of the big rail junction of Mogul Sarai from the Central India coal fields, another 4 million tons beyond Nagpur and Katni to western India, and between the two about 1 million tons have to move South, the rest being consumed in areas closer to the coal fields and toward Calcutta.

The finished steel has also to move in all directions from the centre of the country where production is concentrated. To the distant places 22 trains of coal and about 10 to 12 trains steel and steel products have to be despatched. It is not as though the areas through which these trains run will be in a static state of production—they are humming with development activity even now. These areas generate the additional food grains and oilseeds, cotton and jute, cement and fertilisers, cloth and yarn and hundreds of other consumer goods. Many of them will move more than once in the search of the best markets and the transport load is not the mere 25 million tons or so that the production increase in these sectors represents.

CROSS-COUNTRY MOVEMENT:

The difficulties of moving goods freely from the North to the South, or from any part of India to the West are too well known to the users and railwaymen. 2,500 miles of doubling at a cost of Rs 125 crores, 600 miles of conversion of metre to broad gauge at a cost of Rs 27 crores and other improvements by way of expansions to yards and increase in the number of block stations, etc., to cost in all Rs 195 crores is the first proposal were to eliminate these bottlenecks.

Doubling between Allahabad and Kanpur was calculated to open up free movements to the North and Northwest, mainly for coal; the

return from the granaries of India to East India would put that region above scarcity in food grains and oil seeds. Coal movements to the industries in Bombay—Ahmedabad region are restricted by the single line section Katni—Bina—Bhopal—Ujjain—Ratlam—Baroda. Doubling of these sections is essential for coal, steel, cotton and textiles. Similarly, for free movements between North and South, the single line stretching between Delhi and Itarsi must yield place to a double line.

Coal supplies to the South for industrialisation of the peninsula can never be satisfactory without doubling selected lengths between Waltair and Gudur—and only these were proposed, and not any indiscriminate long lengths, where alternate routes for diversion can be used to fuller capacity.

Everywhere, the proposals were intensely purposive, and from a railwayman's point of view unnecessarily stingy, as both for convenience of execution as also for long term developments, it is better that continuous stretches are improved to have a cushion for absorption of surges in traffic inevitable in a vast country in the throes of industrialisation.

MODEST DEVELOPMENT:

With the allocation cut to Rs 1,125 crores, the western route will be doubled only from Ratlam to Baroda, from the North only in patches between Delhi and Agra, on the East coast only 30 miles out of a total of 124 between Waltair and Rajahmundry, though Bez-wada—Gudur is retained. Almost unaltered, only the doubling between Kharagpur and Nagpur stands as it must with three steel plants in between. In all 1,000 miles of doubling had to be axed out of 2,600. Similarly, conversions have come down to 265 miles from 600 between Bhimavaram and Bez-wada and Guntur to disperse the traffic of Musulipatam by broad gauge but similar needed relief to Mormogoa harbour by doubling upto Poona and larger movements in Saurashtra by broad gauge are denied. These will not suffice; for, free movements will still be modulated by priorities and modified by restrictions.

The original proposals attempted to open up vast areas of undeveloped land with no communications. But curtailment to 850 from 3,000 miles has restricted these to the requirements of the big industries. Nearly 350 miles are for serving new sources of raw materials, and 130 miles for carrying them. Other diversionary needs account for another 100 miles, leaving only 270 miles for opening up the country; even this is not in the backward areas and may be looked upon more as short cuts except perhaps Guna—Ujjain link in Madhya Bharat. There is no scope for any further reduction.

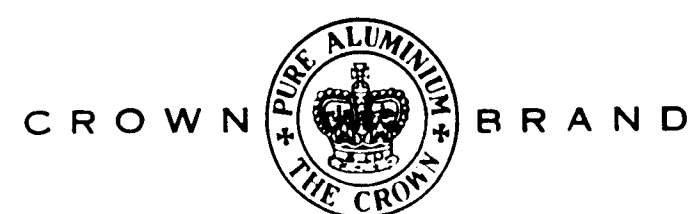
Similarly, the outlay on electrification has been reduced from Rs 130 crores to Rs 80 crores; from 1,500 miles to 826 miles. What is left now is mainly the Calcutta Suburban Sections and a small length of main line from Burdwan to Gomoh, a distance of about 120 miles. Igatpuri to Bhuswal 191 miles and Madras to Villipuram 100 miles. The earlier proposals were intended to create the needed capacity for coal and ore movement between the Asansol and Barajamda areas.

THE COST OF DIESELS:

The palliatives that now have to be devised still leave the routes saturated and make movements less sure. The use of diesel locomotives on these sections becomes inescapable and thus a dependence on foreign fuel is created. The locomotives themselves cost more than the electric, are more difficult to main-

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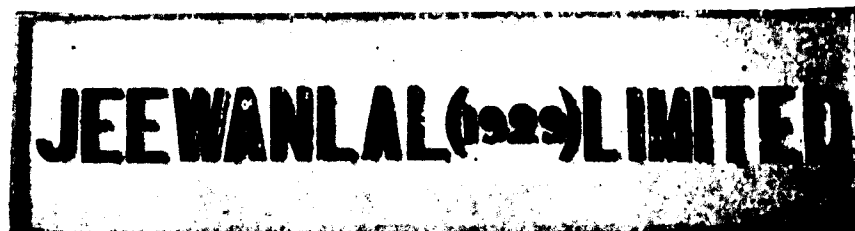
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tain and spares have to come from abroad. Except for the longer time involved in electrifying the routes owing to the heavy site works involved, this postponement of electrification has no merit either in terms of ultimate capital outlay or operation costs; in fact, both will be more, and any small works done by way of additional stations, etc., would represent avoidable expenditure, as electrification is inevitable and these works are redundant when electrified. But, in view of the experience in diesels this will give, the expenditure may be justified as educational.

Th overall cut has also affected signalling improvements, training facilities and track rehabilitation. The last item has been the most suspect. Provision was made for the renewals of 2,000 miles per annum, or 10,000 miles in five years. Against a total railway mileage of 34,000 this at first glance is high. But renewals are not confined to the main running routes alone, but to the yards and loops also, in fact to the 50,000 miles of total track in the rail system. There are in the 34,000 miles alone, nearly 600 miles of rails over 40 years, the balance represents essential renewals or condition basis due to metallurgical defects and fatigue making them unfit for the higher speeds and loads called for in the heavier movements of traffic.

In reducing the expenditure from Rs 125 to Rs 100 crores, a risk is taken by postponing renewals or alternately in preventing higher speeds, both retrograde steps in the light of continued and accelerated expansion proposed in the country. The high speed de luxe Janata introduced in October last was accepted with hesitation by the railways due to old

track condition, and the speed had to be reduced to 65 from the 75 or so originally contemplated. Railway engineers know how quickly the permanent way deteriorates beyond a certain age and what extra labour and anxiety then go behind its uneconomic maintenance. The slow movements and hold ups to traffic owing to the inability of the old engines to maintain speeds or to haul full loads immediately after the war can be forgotten only at the risk of bringing railways to a standstill when they must move so much more. Yet it is such rehabilitation that many theoreticians would seek to postpone. They have their eyes besides the track on the 900 locomotives, 24,000 wagons and 7,000 coaching units due to be replaced.

DEMAND, VOLUME, COSTS:

The criticisms epitomised by Professor Galbraith seek to direct attention on three aspects of railway investment. Are the estimates of investment requirements reliable in respect of the general nature of the traffic demands, their volume and the cost of works? Have the works been planned with an eye to save or at least postpone expenditure? Is it necessary that the railways should carry all the load instead of diverting some to other agencies costing less in capital outlay? There is almost a sub-conscious conviction that railways have an insatiable hunger for capital and by clubbing private ownership with public all over the world, Professor Galbraith has given it the indisputableness of a habit. Against the carefully computed figures, what is the more revealing data that a visitor has at his command in so short a time? Against a richness of experience born of struggles under difficult

conditions and reinforced by the success of a healthy post independence growth, what is the intuitive knowledge that puts a finger so unerringly on the chink? The pattern of development in any sector has to be designed to suit the temper and circumstances of a country; and from this angle, the second and third questions must be examined in greater detail.

It has been suggested that doublings and electrifications are more than what are essential. The reasons behind the proposals under the first head have already been explained. Without improving the movement capacity in these regions, prosperity cannot be spread. More distant areas have to be supplied with more coal and steel, for these regions to improve their standard of living and capacity of earning. The average leads of goods being more, the number of wagons and locomotives has to be greater than what a mere proportion of the lifted tonnage will indicate.

Electrification in the curtailed programme is essentially to ease the suburban travel conditions round Calcutta, and the balance to enable more trains to be run in certain busy sections without having to increase the number of lines, a costlier process. Every work that is proposed is the most economical of several alternatives examined. Urban overpopulation has to be relieved by suburban development possible only with quick and cheap transport from the city. With rapid industrialisation around, business houses in Calcutta are bound to increase. The city can stand no further population pressure and residential areas must be dispersed and placed remote from the place of work.

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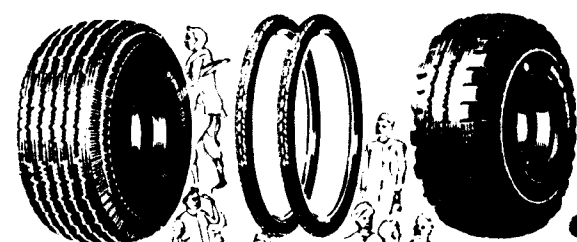
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CURB PASSENGER TRAFFIC?

Nor is the suggestion to curb passenger travel to release capacity for goods movement very apt. The Five-Year Plan relies for its resources on the small savings it can tap and the unbacked money it can safely create. It is a picture of the future that the present can draw which must enable both measures to succeed. Such a picture must be filled in by the people themselves, all that Authority can put forward being an outline; to attempt any detailing will be fruitless as it will be branded visionary. People must thus move about and see with their own eyes the practical results of sponsored objectives, verify by mutual contact all that is publicised after editing, share the mutual experiences of pleasure and pain in the process of transformation. The success of loans is in a large measure thus dependant on travel. Only the confidence in ability and possibility these contacts promote can offset any misgivings at the creation of much paper money. For this to be non-inflationary the first requisite is the faith of the common man that it is going to yield the results expected; he can then hold himself. It would be imprudent, then, to place any curbs on his free movements or on his acquainting himself of the progress. Sharing the knowledge of prosperity or happiness is a traditional urge of the Indian people; it is necessary to capitalise this as a policy to show what is on the way. Checks will breed only suspicion and undermine the flow of saved money to conserve which Railway expenditure is sought to be curtailed.

OPTIMUM UTILISATION:

The argument that better efficiency can offset needed capital expenditure has its limits. Every industry has a level of optimum utilisation, and in common with many others in the country, the railways have used up all surplus "installed capacity". Comparisons of a few most material yard sticks of performance during the war, in 1950-51 and 1954-55, will show how efficiency has improved though very little additional equipment has been provided.

	1941-42	1950-51	1954-55
Coach miles (in four wheeler units) for passenger traffic—all Rlys. (in crores) ..	106.7	95.7	107.8
Loaded wagon miles for goods traffic—all Railways (in crores) ..	173.7	144.0	172.2
Coaches in daily use in four wheeler units ..	16918	13222	14867
Wagons in daily use ..	153000	152697	161569
Coaching vehicles miles per day ..	141	164	166
Net ton miles per wagon day ..	441	434	485
Engines available for use ..	4350	4257	4344
Net ton miles per locomotive in use ..	26982	27261	29345

(Figures for Broad Gauge. Other gauges show similar trend).

It will be seen that the total goods and passenger traffic has grown in four years and the increase in locomotives, wagons and coaches has not been in proportion. The greater traffic as represented by the coach and wagon miles has been handled owing to more efficient working as revealed by the locomotive, coach and wagon miles per day. The last two, the real index of active use, are appreciably higher than the peak was years' efficiency.

It is common knowledge that productivity has come down due to a certain temper of the labour, and improvements are attributable largely to managerial and technical skill. To hope for more, when signs of labour unrest are more marked, will be unwarranted, and basing a large scale industrialisation on any

such false expectations would be extremely dangerous. Yet in computing rolling stock requirements, higher targets of performance are assumed. In fact, an over equipment would be an effective measure against the greater bargaining power that a mounting demand on transport will give to the rail-workers. What is most essential now is the achievement of the industrial and agricultural targets so as to spread greater contentment and employment over a larger number, that the resulting enlightenment and fear of losing what is gained might be a sober check on hasty agitation. The supply of raw materials and distribution of finished products for consumption must be placed on an undisturbable footing: a seeming extra cost, if any, will be balanced by the overall dividend.

"BUILDING FOR ETERNITY":

To condense railway thinking on expansion into the two alternates of "building for eternity or to get safely by the next bulge of traffic," as Professor Galbraith has put it, is an over-simplification of the problem, at least as far this country is concerned. In the passage from an agricultural to an industrial economy, the several hurdles on the way have to be cleared one by one and in an order of priority. Business interests know how their plans for expansion are thwarted by the inability of the railways to guarantee the requisite transport. There are occasions when the scope of activity has been severely curtailed by the rationing of railway wagons. There are others where past failures have scared investment and available surpluses have been turned over as banker's credit to finance imports.

The history of every industrialised country shows that industrialisation had advanced rapidly only when transport was ahead of industries or when that had been assigned first priority in planned progress. The fears of the private sector that, in the event of shortage of rail transport, the available quantity would be preferentially seized by the public sector cannot lightly be brushed aside. Scared by the experience of the past when coal wagon scarcity every day threatens to shut down power stations and accumulations in the godown block up capital, free enterprise has reason to be reluctant to expand its activities. This is very serious in the light of the heavy deficit financing necessary, as the private industrialists because of their familiarity and experience in the line are better fitted to flood the market with goods earlier than a striving State enterprise. That the plans of the railways are unnecessary or overambitious has not been proved on any solid data: the case is rather that they are not far reaching enough to place the transport capacity ahead of demand to give the fillip to industrial expansion.

SEA OR ROAD TRANSPORT:

The contention that either sea or roads can replace rail transport in India cannot be serious. In a country of long distances and distant coast lines, transport is synonymous with railways. The rich ore and coal areas are in the centre of the country. Ore processing or conversion has necessarily to be close by and the products are to move far and wide. Coal as a prime source of heat and power has to move all over, against small or big demands. The bulk of the materials precludes road carriage: iron and steel and its raw products are examples. Nor are there roads of the size and standard for moving what may be termed general goods. These have to be made and then the vehicles found and hauling agencies arranged. Against experience in transportation that the railways command, road transport organisations have yet to learn

the skill. And it is not as though all this can be purchased at no cost.

The computations are simple. A six ton diesel lorry covers 20,000 miles of loaded movement a year; the average load on the round trip is reckoned at 4.5 tons from investigations. This means that its annual capacity in ton miles is 90,000. Assuming the average lead of goods to be 260 miles as found from railway statistics, to lift 1 million tons, 3,000 lorries will be required. At Rs 35,000, this costs Rs 10.5 crores. The net ton miles per wagon per annum is about 175,000. To move 1 million tons an average distance of 260 miles requires 1,500 wagons at a cost of nearly Rs 2 crores and locomotives and miscellaneous stock valued at an equal amount at the most. The operating costs of road haulage are considerably higher: a Government study has put this at 72 pies per ton mile against a freight range of 21 to 40 pies for railways. Petrol and diesel are imported, whereas coal is indigenous. While Railways have moved fast toward self sufficiency in equipment, road trucks and spares have to be imported to almost the full extent of such expansion requirements. Apart from all this, experience in sound management of roads is yet to be gained.

There is something in short hauls being diverted to roads, as also short distance passenger traffic. Various factors, including rooted trade habits, stand in the way of a quicker change over, and these are best left to absorb the additional haulage that may be demanded in local areas as the economy grows in the course of years rather than to relieve the railways in the immediate years: with the best of efforts the change over will be slow and only small. The USA with such good highways and abundant production of both cheap fuel and lorries carries only 10 per cent of its goods by road. The Indian road system is inadequate even at the present level of traffic and needs some Rs 400 crores for immediate expansion to moderate standards. To carry any sizeable share of the 60 million tons of additional goods or divert any significant percentage of the 125 crores passengers on railways, the amount may have to be trebled or more. Road equipment wears down quicker and with an average life of five or six years compared to 35 or 40 of railway stock, the rehabilitation expenditure in the Plan period itself can upset all the capital saving relied on by Professor Galbraith.

TRAVEL FOR PLEASURE?

The deterrents to passenger travel are increased fares, deliberate overcrowding and pious propaganda. It does not logically follow that rail travel should be rendered dearer, with an all round price increase; one cheap item at least is soothing; that this should be the product of a State enterprise, may be particularly satisfying in an era of nationalisation. A comparison of rail fares in India with other countries is misleading without the corresponding figures of per capita income, rural, urban and average. The remedy of higher fares follows an assumption that people travel for pleasure. The recent concessions introduced provide a good test of this. The number of circular tour tickets sold and the passenger miles covered thereby are insignificant. Then again, had travel been not of necessity, there should have been a marked drop in the number of passengers and passenger miles after the fares were raised from 1st April, 1951 to the extent of about 20 per cent.

Comparative figures are:

	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55
Passengers carried (in crores)	123.9	129.9	124.7	120.4	123.8	127.5
Passenger miles (in crores)	3846.5	4023.1	3903.0	3553.6	3909.5	3831.6

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Though immediately following the fare increase there was a drop, from 1953-54 travel started increasing. The drop has not been anything to enable withdrawal of trains to run more goods trains or coaches to reduce the replacement. 1953-54 registered a feeble expansion of economic activity and progress of engineering projects and it is reasonable to deduce that the increase was on business. As the Second Plan activities gather momentum, more men must travel on business. The 15 per cent increase now planned just covers the expected demand on this score. An increase in fares may only be a source of revenue, not of carrying capacity. With such an inevitable demand for passenger accommodation, failure to provide more trains can act as an irritant. Not providing the means to satisfy a legitimate urge to verify, publicity of success elsewhere may be suspect for want of contact with progress. The suggestion of 'selective travel' is extremely impractical. Any such control has in it besides a large corruption content. The larger volume of fruitless work that must be tackled by a greater number of staff is wasteful of manpower. Having promised for five years to improve passenger comforts and marking progress therein by special action like the annual allocation of Rs 3 crores exclusively for their amenities and high level check and supervision of the progress. It is risky now to attempt a reversal of the tide of expectation. It will be unwise to do so: it has taken all this special attention to get railwaymen to get back to the habit of attending to passenger comforts.

The goods offering must then be cleared by augmenting railway equipment and resources. The extent of more improvement in utilisation than can be secured must be left to the Railways to assess. The line capacity works and rolling stock necessary and the replacements due to age and condition that are inescapable, are for calculation by those who know and not the millions who presume. A continued rise in efficiency has been assumed by them in their estimates; those outside cannot substitute their figures for these.

Public tributes unstintedly have been paid to the Railways for their achievements after Independence. They at least have been extremely realistic in the assessment of their capacities or the costs of their statements: that the present outlay can move only 43 million tons out of the 60 million tons extra production is an authoritative and awesome pronouncement.

NEED FOR DELIBERATE CUSHION:

All estimates are on averages, but when the slower rate of production in labour intensive plans gets replaced by machines either to catch up with lags as in Ambar-Charka yarn still under experiment in the first year of the Second Plan, or for greater supply of goods in the earlier years to offset the paper money created to finance the construction of heavy industries, surges in

transport demand arise. These can be met only by providing for a deliberate cushion by a calculated over-development. It is also forgotten too often that a Rs 4,800 crore developmental expenditure involves considerable movements of construction materials, and these may at times be superimposed on the products of expansion. The peak of this expenditure will be in the 4th and 5th years, when a figure of Rs 1,200 crores per annum may be assumed. From an analysis of successful projects, specially on railways, executed in record time and within estimated costs, it is possible to compute roughly the transport requirements—30,000 wagons daily will have to be found for the construction traffic which will amount to 90 crores wagon miles in the year, which is 40 per cent of the traffic handled in 1954-55 with a construction share of Rs 500 crores expenditure only. By this time, steel industries would be demanding their full raw materials, coal production would have gone up considerably and agricultural targets nearly hit; in other words, about 45 million tons of new traffic would have developed. With the pace set by this time for construction activities, the tempo would go on to the Third Plan and impinge on the full production from the Second. Allowing rail transport capacity to remain so utterly inadequate is to check the speed of growth for ever. When they press for their full demand, the Railways have all this in view. When Trade pleads for the cause of the Railways, these fears are before them.

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Export Promotion

THERE have been two periods within recent memory during which Indian exports soared to almost incredible heights. One was the time of the Second World War and the other was during the Korean War. The distinctive common characteristic of both these periods was the emergence of a sellers' market in most of the commodities and goods which entered prominently into world trade. At the same time, there was a point of marked contrast between these two periods in that, while, in the first, the direct or indirect compulsion of the State was a conspicuous phenomenon, in the second, the profit motive was lacking in any extra reinforcement; nor did the Korean boom imply any serious privation for the domestic economy.

This reminiscent preface owes its justification as a contrast. Impelled by a sense of emergency, the State was able through suitable administrative and fiscal measures to secure a volume of exports nearly commensurate with the requirements of the time. What happened in 1951 was more or less a windfall, through an otherwise disagreeable international development. The experiences of these two booms have also left an inflated sense of profit-expectations.

At the present, this country is in a position wherein it hopes neither to secure the benefits of a sellers' market as was possible in the post-1939 and 1951 booms, nor to accommodate the privations which rendered feasible the hefty earnings of foreign exchange during the war years. The world has entered into a phase in which, even in the field of essential commodities like foodgrains, there is no longer any unrelenting pressure of shortages.

It may even be said that the tables are turned against India, because the country is now proceeding on a course of economic development with a clear shortage of foreign exchange and with an equally clear need for keeping imports on a level which does not allow much elbow room for manipulation. It is better to look this difficulty straight in its face rather than to belittle or evade it. India has a real problem of foreign exchange. That both the State and the business community understand it as such is itself some contribution to its effective solution.

But current thinking on this problem seems to lack the precision and single-mindedness necessary for a programme where all the interests concerned would agree. To say that our industrialists and manufacturers should become thoroughly export-minded, that there should be a positive approach towards the problem of export promotion or that the Government must provide the suitable fiscal and administrative environment, assumes that there has been too much complacency or indifference hitherto or that the State has not been sufficiently appreciative of the difficulties of private business. Whatever is to be done for the stimulation of exports

will have to proceed on the basis that either or both of these assumptions are largely or wholly true.

Even a general glance at the comparative figures of exports in the last three or four years would show that, on the whole, the trends are not unsatisfactory. Many of the engineering goods are forcing their way into the foreign markets. When machinery and mill works, cinematograph equipment, electric fans, etc., bear an encouraging record, it would be unreal not to take stock of the creditable advance registered in quality. Many of the more important declines are in value, and not in quantity; at least, the setback in terms of value has been steeper than that in terms of quantity. Tea, for instance, shows a 26 per cent decline in value between 1954-55 and 1955-56, while the quantitative fall is only 12 per cent. Tobacco has actually gained in quantity, while in value it dropped by 9 per cent.

These facts and figures taken at random do show that the processed commodities and industrial manufactures on which India's future export trade will have to concentrate are not after all giving a poor showing. And, as export trade has hitherto remained mostly in the hands of private business, the latter's record in this field cannot be said to be blame-worthy. In other words, there is little to point to any general complacency or indifference on the part of private business to export opportunities. In the present situation, such a record is surely comforting. Perhaps, it may not be quite enough to face the future.

Export promotion has become a necessity and a problem, primarily because the entire complexion of India's economy and export trade has undergone a change during the last two decades. At first, the export of industrial raw materials slowly began to lose in proportion; once this process got into its stride, the industrial output of India started gaining its place in the export structure. This transformation in the character of the export trade did not pose any serious problem at the outset or in its early stage as it coincided with a long period of boom. It is only now that the concomitant task of the nation is being pressed by national and international circumstances.

A new outlook and new organisational changes are called for by the simple fact that India is already facing regular competition in international trade with some of the foremost industrial nations of the world. In textiles, Japan and Britain are no longer a factor which stifled the growth of the Indian industry; they have become common competitors in the foreign textile market. India's near monopoly in jute goods is being assailed by Pakistan. Even in raw products like tea and pepper, foreign competition is tending to become increasingly severe. Once this funda-

mental change seeps into the realisation and outlook of the business community and the State, the solutions will automatically suggest themselves, as there is hardly any pioneering work to be done.

Organisationally, a sound start has already been made; the work of the Export Promotion Councils and Commodity Boards is bearing fruit, though it is possible to suspect that, in this particular sphere, too many bodies, non-official and quasi-official, are tending to steal the show. While we do not belittle the importance of the new organisations which are springing up in one industry after another, economy and co-ordination, no less than the need for every industry to understand its problems as part of a comprehensive picture of the economy as a whole, might betoken less and not more of such bodies. For instance, an independent Commodity Board for tobacco or cashew-nut should be able to look after the problem of export, rather than a separate Export Promotion Council. The tendency to isolate export promotion as a special branch of study or investigation should not be carried to extremes, particularly when the industry concerned occupies a relatively small place in the economy. In respect of certain goods such as cotton textiles, it is contended by private industry that the Government's policy of regimenting production, with a ceiling on mill output, is more responsible than any other cause for the setback in exports. When there is also the admitted competition of cheaper goods, the force of this contention cannot be precisely assessed. All the same, it behoves the Government not to give room for complaints of this character. It equally behoves the industry to revise its ideas on profit margins and to see that the extra production intended for export is marketed outside and the traditional preference for Indian cloth revived and stabilised even if it is not possible to squeeze into new avenues. Wisely, the Government of India have now given more elbow room for textile mills and this adaptability in policy can be expected in similar circumstances arising in the future.

Various political and economic factors are tending to create a new pattern of regional trade among the Asian countries. Just as India has been able to cut successfully the import of consumer products and concentrate more and more on the import of industrial machinery, other countries in Asia are also seeking to achieve increasing independence in respect of essential goods. In this process, of all-round economic growth, a new inter-regional dependence is emerging. The possibility of trade between Asian countries on a basis of agreed individual specialisation has attracted the notice of economists. Any country which adjusts itself promptly to this new situation will lighten its problem of export promotion. Britain, with all its economic advantages has come to face a problem of the same character as India. In some respects, it is even worse, with many of the traditional markets for Britain's exports getting almost completely out of purview. British production has adapted itself to the growing foreign demand for new categories of goods.

For some time to come, India will have to put up with deficits on the trade account. This would be a small compensation paid for the accelerated pace of economic development implied in the Plan. Neither is it an intolerably oppressive burden. Both the private and the public sectors can now look forward to imports of machinery and parts, largely on a system of easy instalment credit. Once the passing exigencies created by the Plan requirements are kept apart, the problem of export promotion will be seen to be reduced to manageable limits.

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"PRODUCTION of food and raw materials must remain not only for the Second Plan but for several years to come a major desideratum". (Second Five Year Plan). This is the statement which underlies the approach to the question of food production in the country. Evidently, the object is set for realization on a long term basis, and this is suggestive of the nature and extent of the problem as it had existed in the country and as it presently exists. Primarily, the food problem implies a shortage of sufficient food supplies to keep the population in a healthy state. And, in the context of the predominantly agricultural character of the economy, this shortage of food supplies is but a reflection of the backwardness of the agriculture of the country and the low economic development, and suggests by way of solution, rehabilitation and modernisation of agriculture. Seen in this light, self sufficiency in food supplies becomes the essential barometre of the economic efficiency of the country.

Closely allied to the agro-economic fact of inefficient agriculture and contributing to aggravate the difficulties of ensuring adequate food supplies, is the population problem. The core of the population problem consists of two elements. One is the existence of the massive structure of population estimated at 357 millions by the 1951 census, which needs an increasingly larger quantity of foodgrains for consumption. The second and more dangerous element is the continuing rate of growth of population which, estimated at 1.3 per cent per annum, is really a matter for alarm and concern. The demographic structure produces its impact on the food situation, which in the light of the upward trend of the population movement, has necessarily to be adverse, by reducing the net area cultivated per capita. In India, it has been found that the net area sown per capita has been reduced from 109 cents in 1891 to 84 cents in 1951. This obviously points to the need for checking the rate of growth of population. But the population problem, presenting as it does problems of human nature, which by their very nature are intractable, is not immediately amenable to a solution at Govt. levels. No doubt, the restriction of early marriages, by diminishing the birth rates, may be expected to ease the situation to some extent. And it has been found that, in India, the period of greatest fertility among women is between the ages of 15 and 19. Thus, the raising of the minimum age for marriage for women to 20 would, in the long run, tend to reduce birth rates to a safe and healthy level. It is further argued that the population problem moves in a vicious circle, the continuing rate of growth of population itself being but a product of the low economic development of the country. On this plane it is argued that the economic development of the country especially industrialization and urbanisation, would go a long way towards alleviating the pressure of population. If the experi-

FOOD PRODUCTION

IN THE SECOND FIVE YEAR PLAN

ence of the present day advanced countries can be the basis for any belief in regard to movement of population it can be assumed that a particular level of industrialisation along with a changed social outlook, which is almost an inevitable accompaniment of big economic changes, would bring in its wake a change in the demographic pattern of the country, a change in the direction of a slowing down of the rate of population growth. But these changes lie far distant in the future and this leaves the matter of increasing the food supplies to be solved from the agro-economic point of view by the adoption of both intensive and extensive cultivation. And this is the task which has been taken up in the first and second Five Year Plans.

Food Production in the First Five Year Plan:

The food problem latent in the depressed character of the agriculture of the country and in the upward trend of the demographic pattern was precipitated into the dimensions of a major crisis by the Second World War, bringing in its wake the inevitable system of physical controls of price, movement and distribution of food grains. The partition of the country, by taking away a major portion of the irrigated land of the country, the irrigated area having been reduced from 24 per cent to 19 per cent of cultivated area, as well as large areas of wheat lands, made the position worse. Large scale imports of food had to be arranged as a short-term measure, to ward off a

major crisis and but for the timely wheat loans from America would have proved a big drain on our foreign exchange reserves. It was under such auspices that the First Five Year Plan was inaugurated. The shortage of food supplies being very acute then, emphasis was laid in the Plan on the attainment of self-sufficiency in food supplies. Accordingly, an increase of 7½ million tons in foodgrains was laid down as the target of production to be attained by the end of 1955-56. The completion of the first Five Year Plan saw the country emerge out of the food crisis in a state of self-sufficiency. For foodgrain production exceeded the targeted level by 3½ million tons and stood at 65 million tons in 1955-56 as compared with 54 million tons in 1949-50.

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The course of foodgrains production during the first Five Year Plan is given below:

	Million Tons.						
	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56
Rice	23.2	20.3	21.0	22.5	27.8	24.2	25.5
Wheat	6.3	6.4	6.1	7.4	7.9	8.5	8.5
Millets	8.5	8.0	8.3	10.4	12.4	12.6	12.0
Other Cereals	8.0	7.0	7.5	8.9	10.2	10.0	9.0
Total Cereals	46.0	41.7	42.9	49.2	58.3	55.3	55.0
Grains and Pulses	8.0	8.3	8.3	9.1	10.4	10.5	10.0
Total Foodgrains	54.0	50.0	51.2	58.3	68.7	65.8	65.0

The successful implementation of the programmes for food production in the Plan resulted in a reduction in the quantity of foodgrains imported into the country. The quantity of foodgrains imported came down to less than a million tons in 1953-54 as compared with 4.73 million tons in 1950. The increased production of foodgrains in the country also enabled the Government to scrap the system of controls in regard to prices, movement and distribution of foodgrains in the country. But the self-sufficiency that has been attained is at a level much below accepted nutritional standards, the intake of food

in terms of calories per adult for 1955-56 being only 2,200, against what is considered by nutrition experts the minimum, i.e. 3,000. Thus there is a great leeway to be made up, and the Second Five Year Plan takes up the task of increasing the food consumption in the country.

Food Production in the Second Five Year Plan:

The characteristic feature of the Second Five Year Plan, which has a bearing on food production is flexibility in regard to targets of production. The emphasis is on maximum production, a limit to which is set by the framework of

financial allocations provided for food production. The financial allocations made for food production are part of the schemes for raising the general production of agricultural goods. The total amount provided for agriculture is Rs 341 crores as against Rs 240 crores provided in the First Plan. As set out originally in the Plan, the targets for food production envisage an increase in production to the tune of 10 million tons, and this is expected to increase food consumption from 17,202 per adult per day to 18,302 and in terms of calories from 2,200 to 2,450.

The target for food production was fixed after taking into account the rate of population growth for the period of the Second Plan, which was estimated at 1.3 per cent per annum, the increase in the per capita income of the people consequent on the full and successful implementation of the Plan and the likely change in demand for food in view of the quickened pace of industrialisation, as contemplated in the Plan. Since the publication of the Second Five Year

INDIAN FINANCE

Plan, the target for agricultural production including food production was considered to be conservative and well below what is considered a safe level in view of the heavy deficit financing envisaged in the Plan. Accordingly the Plan targets for agricultural production, including food production were raised and the revised targets envisage an increase in food production by 16½ million tons. The targets it is to be noted are to be achieved within the financial frameworks for agricultural production provided in the Plan.

The above targets are to be achieved by the practice of intensive as well as extensive cultivation. In the latter field the Planning Commission have set out a programme for reclamation and development of an area of 3½ million acres by the Central Tractor Organisation as well as the State Tractor Organisations. But the emphasis is on intensive cultivation to encourage which the Plan has made provision to increase the supply of irrigation water, fertilizers and improved seeds. As regards crores has been provided, the expenditure a total outlay of Rs 486 crores is expected increase in the area irrigated at the end of the Plan being 21 million acres. The important feature in regard to irrigation that distinguishes it from that in the first Five Year Plan is the stress which the Second Plan lays on medium sized projects. It has been found that medium sized projects are quick yielding in nature. Thus as compared with the First Plan, the individual schemes are less costly. The first Five Year Plan provided for 7 irrigation projects costing more than Rs 30 crores, 6 costing between Rs 10 and Rs 30 crores, 54 costing between Rs 1 and Rs 10 crores, and about 200 costing less than Rs 1 crore each. In the Second Plan, of the 188 new irrigation projects to be taken in hand, there is none which is expected to cost more than Rs 30 crores, some ten will cost between Rs 10 and Rs 30 crores, 42, between Rs 1 and Rs 10 crores and the remaining 136 will cost less than Rs 1 crore each. Apart from the medium projects an outlay of Rs 20 crores has been provided for the construction of tube wells. The total area under irrigation is expected to increase from 67 million acres in 1955-56 to 88 million acres in 1960-61. As regards the supply of fertilizers, the Government have a programme for increasing the consumption of nitrogenous fertilizers from 610,000 tons in 1955 to 1.8 million tons in 1960 and in the matter of improved seeds, seed multiplication farms numbering about 3,000 and covering an area of 93,000 acres are sought to be established. The most important scheme for raising food production is the contemplated extension of the Japanese method of cultivation to areas not covered by it now.

A rough idea of the impact of these schemes for agricultural development, on the production of food in the country will be evident from the following statement, which gives figures for the increase in food production attributable to

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the various schemes:

	Million Tons.
Major Irrigation	2.4
Minor Irrigation	1.8
Fertilizers and Manures	2.5
Improved Seeds	1.0
Land Reclamation and Development	0.8
General Improvement in Agricultural Practices	1.5
Total	10.0

Apart from the schemes noted above, which have a direct bearing on agricultural production, the agricultural programmes in the Second Five-Year Plan also embrace the field of Community Development Projects and National Extension Service Schemes. It will be recalled that the schemes were started at the commencement of the first Five-Year Plan, with a view to rallying the rural folk in an effort toward self-betterment. And though the programmes of these cover a variety of fields, being essentially a rural movement, it is natural that agricultural improvement should loom large in their activities. They have been a great success in the areas introduced and it has been found that intensive cultivation has made headway since the inauguration of the first Five-Year Plan only in areas covered by Community Development Projects. The Second Plan makes a total outlay of Rs 227 crores for these two, the aim being to bring the entire country under the scope of the two schemes, and, if this succeeds, it might be hoped that the country would be set on a higher level of agricultural productivity.

An important adjunct of the agricultural plan meant to raise production around is a price policy which would make cultivation remunerative to the cultivator and, at the same time, keep a proper balance between the production of various crops, especially the food crops and the commercial crops. It is gratifying to note that this has not been lost sight of in the Second Plan and the latter makes provision for a scheme of buffer stocks of foodgrains so as to keep the price of foodgrains at a remunerative and safe level. It is worthy of mention that the Government have already made arrangements for the import of six million tons of foodgrains, to serve as buffer stock, to provide for contingencies in the course of the Second Plan.

The Second Plan thus carries forward the process of intensive cultivation initiated in the first Five-Year Plan. As to how far the Plan will be a success in the matter of obtaining the targeted food production will remain, in the light of unpredictable factors that govern agriculture largely a matter of speculation, though the success that has attended the food production drive in the first Plan, will scarcely leave any doubt about the possibility of the targets being realized. The basic criterion of the success of the Plan would remain not the attainment of the total targets fixed but the rise in productivity achieved and the resulting increased outturn obtained per acre of land cultivated. It is to be noted in this connection that the success achieved in the agricultural sector in the first Five-Year Plan has

been largely due to the extension of cultivation as will be evident from the fact that during the first Five-Year Plan the total cropped area increased from 326 million acres before the Plan to 352 million acres in 1954-55. The area under food crops rose from 257 millions to 272 million acres, while the area under commercial crops rose from 49 million acres to 60 million acres.

Extension of cultivation makes the production of crops both food and commercial costly and uneconomic. Further the scope for extensive cultivation itself is limited. The statistics for land use available in the country no doubt point to the existence of large areas of land classified as 'fallow' and cultivable waste, the total cultivated area in 1954-55 being 1,84,95,000 acres against total cultivable area of 2,45,80,000 acres. But their situation in areas having unfavourable climate and inaccessible water supplies makes the cost of reclaiming them prohibitive in the short-run, and the full reclamation of these lands can be envisaged only as a long term measure. The press-

ing need of the moment is intensive cultivation and the scope for increasing the agricultural production in the country by means of

intensive cultivation is indicated by the wide difference in the per acre yield for the major crops in India and elsewhere.

Country.	Yield per acre in lbs.			
	Wheat.	Rice.	Sugarcane.	Cotton.
Egypt	1,918	2,998	70,302	535
Japan	1,713	3,444	47,534	196
U.S.A.	812	2,185	43,270	268
China	989	2,433	..	204
India	660	1,240	34,944	89

It will be seen that intensive cultivation, if practised on a large scale, promises to raise the productivity of land in the country and it has been estimated that total agricultural production can be doubled in a period of 10 to 20 years in this way. This is no doubt a matter of Governmental outlay in regard to irrigation, fertilizers and improved seeds. Especially it is true that the spread of intensive cultivation hinges on the availability of adequate water supplies, and the use of fertilizers and improved seeds would fail of producing favourable results unless combined with adequate water supplies. And the scope for increasing artificial supplies of water

is great considering that at present the area irrigated in the country is just 26.9 per cent of the total cultivated area, the area irrigated being 4,968,000 acres against total cultivated area of 1,84,95,000 acres. Apart from such matters of Governmental concern, much also depends on the attitude of the cultivator. It is necessary that he should shed sentimental considerations and take up agriculture as an economic proposition. It might be hoped that the spread of the Community Development Projects and National Extension Service would educate the cultivator to a right attitude to problems of agriculture.



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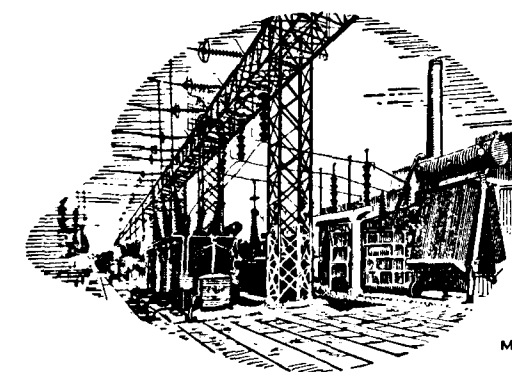
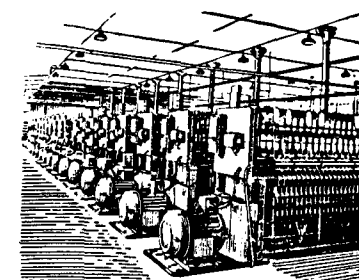
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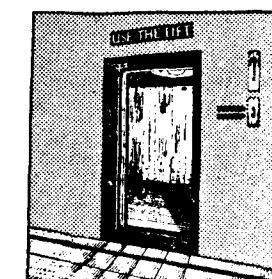
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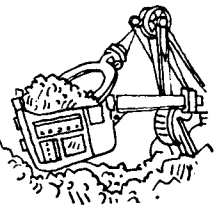
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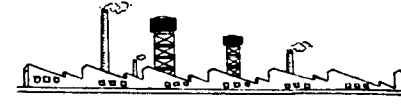
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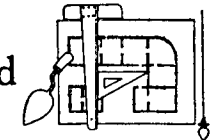
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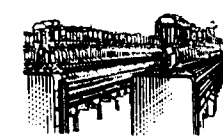
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THERE is scarcely an industry more liable to, and affected by, competition than Jute. Competition has come principally from two sources—other producing countries and alternative products. India is exposed to their full force in what are now buyers' markets. She has no longer her once big advantage over rivals. There is Pakistan with the most modern equipment, easy access to high quality raw jute and a relatively cheap labour force. The recent rupee devaluation makes her all the more formidable. Japan is forging ahead and is challenging the supremacy of Indian burlap. Her emergence as a large exporter to the USA is a development which may well transform the long-term outlook. There is the recovery of European industry to a level, in some cases, above pre-war. Manufacturers in France, Holland and Belgium have formed themselves into a European Federation and with increasing co-operation, they are likely to tread even more heavily on our toes. Brazil, now using jute grown within her borders, is near markets of much concern to India.

Almost without exception producers abroad are strongly protected in their home markets. The likely direction of their exports is, therefore, vital importance to this country, especially when world capacity is on the increase. In the midst of these factors, the incursion of substitutes has to be constantly reckoned with in any attempt either to regain lost markets or capture new ones. One way or another, it seems that Indian exporters will have to face extremely complex market conditions.

Although jute goods have lost part of their markets, the basic economic advantage of their being a cheap packing material remains unaffected. As far as the Indian industry is concerned, 1954 was quite a satisfactory year from the point of view of exports. In 1955, too, the industry found itself in a better position in the world markets. But, in 1956, conditions were entirely different and mills had to undergo various difficulties in obtaining their raw material supplies. Pakistan exploited her advantage to the utmost and the recent decision to increase the export duties on certain varieties of jute was the latest in a series of measures, apparently aimed at making things harder for Indian mills.

The precarious position of the industry in 1956 was highlighted by the IJMA's decision to reseal 5 per cent. of the looms with effect from the 17th September. This followed the resealing of 2½ per cent of the looms in July, offsetting the unsealing measures adopted earlier in the year—2½ per cent in January and 5 per cent in February. This restored the position of the industry as it was at the end of 1955. It was, however, satisfactory to note that the stock position, throughout the year, remained healthy. The

following table shows the month-wise stock, production and export figures for 1956:

STOCKS.			
End of:	Hessian.	Sackings.	Total*
1954 ...	23,300	45,000	68,300
1955 ...	23,500	35,100	58,600
1956:			
January ...	25,800	45,300	71,100
February ...	28,200	52,500	80,700
March ...	30,300	56,200	86,500
April ...	35,900	62,700	98,600
May ...	40,600	71,100	111,700
June ...	37,500	82,000	119,500
July ...	38,500	93,200	131,700
August ...	28,200	98,600	126,800
September ...	29,400	88,200	117,600
October ...	30,800	77,300	108,100
November ...	24,700	67,100	91,800
December ...	19,700	64,700	84,400

1957:	January	22,900	68,500	91,400
*Includes also Other Varieties.				

PRODUCTION			
Year: Month.	Hessian.	Sackings.	Total*
1953 ...	388,900	450,500	839,400
1954 ...	388,900	506,100	895,000
1955 ...	401,400	574,700	976,100
1956 ...	415,200	615,500	1,030,700
January ...	30,300	52,600	82,900
February ...	32,000	54,700	86,700
March ...	34,800	57,800	92,600
April ...	32,900	55,000	87,900
May ...	35,800	59,600	95,400
June ...	35,000	57,300	92,300
July ...	34,300	52,900	87,200
August ...	35,400	48,300	83,700
September ...	35,500	43,900	79,400
October ...	34,700	40,500	75,200
November ...	36,800	41,800	78,600
December ...	37,700	41,300	79,000

1957:	January	38,800	43,500	82,300
*Includes also Other Varieties.				

TOTAL EXPORTS INCLUDING INTERNAL CONSUMPTION			
Year: Month.	Hessian.	Sackings.	Total*
1953 ...	402,900	457,500	860,400
1954 ...	389,766	536,552	926,318
1955 ...	400,837	579,642	980,479
1956 ...	419,660	578,920	998,580
January ...	28,213	41,567	69,780
February ...	29,109	47,331	76,440
March ...	32,396	55,581	87,977
April ...	27,150	47,775	74,925
May ...	31,017	51,409	82,426
June ...	38,277	46,524	84,801
July ...	33,277	44,599	77,876
August ...	45,876	54,029	99,905
September ...	34,424	43,276	77,700
October ...	34,078	51,471	85,549
November ...	43,079	51,417	94,496
December ...	42,765	44,241	87,006

1957:	January	34,378	39,309	73,687
*Includes also Other Varieties.				

Meanwhile, price movements in both Jute and Jute Goods markets were mostly influenced by the speculative activity in Phatka. The lowest levels were touched

during the second quarter and the highest levels in the third week of December. Except for a temporary setback in May, prices of Raw Jute ruled firm throughout although the closing tone was a shade quieter on lack of mill interest.

At the beginning of the year, conditions remained generally firm due to speculative buying induced by healthy stock position. Although overseas buyers showed some reluctance to follow the advance in prices, it was generally believed that there was little possibility of any recession in prices; especially when the market for Raw Jute continued to rule firm. While mills were anxious to reduce further the cost of production by increasing production

by unsealing 2½ per cent of the looms with effect from the 9th January, they were not, at the same time, able to obtain their requirements of raw jute in full. They also decided to unseal another 5 per cent looms with effect from the 20th February after reviewing the crop and production position. But, it was felt doubtful whether any increased flow of enquiries would be sufficient to absorb the higher level of output, especially in the face of keen competition from Pakistan. The tone of the market remained, however, steady till the first week of March after which it turned easy due to restricted enquiry.

The general tendency was to wait for a clearer picture of the effect of increased production on

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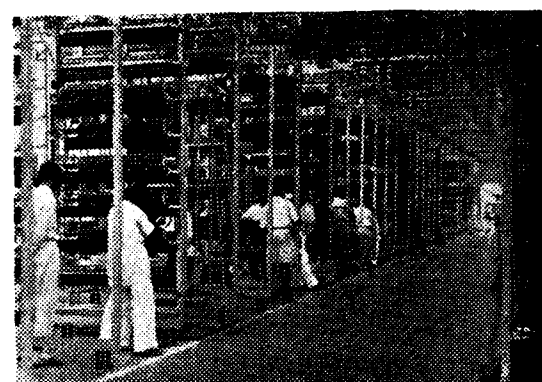
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stocks and to get an idea of the probable size of the next jute crop. It was felt that the second increase in loom capacity was not quite warranted. Two main factors—the news of heavy curtailment of output in the US automobile industry and the persistent rise in raw jute prices—appeared to make the position a little disquieting.

Meanwhile, overseas buyers seemed to be bidding time in the hope of a further fall in prices or in anticipation of minimum rates being imposed. Moreover, they felt confident that, with the steadily rising production and stocks, and expectation of a bumper crop, prices would not show any rise. Most circles, therefore, held the opinion that the only really permanent way out of the dilemma was to regulate production according to demand and improve the quality and quantity of raw jute supplied to the mills and not through the fixation of minimum prices. On the contrary, the European group of mills were in favour of a reduction in working hours. Thus, opinions appeared to be divided as to the best way to get the trade out of the difficulty. All things considered, there was a strong case for lower prices for raw jute which should not, however, deter the incentive of cultivators to grow more. There was even a suggestion for giving an export bonus in cash as a short-term expedient.

It was, however, clear that the Government were averse to limiting production. For, they expected that there was bound to be an increased demand on account of the expected rice purchases from Burma and increased consumption of cement in India. They also felt that a shortage might even be reached when demand would cut deeply into stocks and artificial method of controlling production would only help speculators to be continually active in their dealings, resulting in an instability in prices. Thus, the situation was rather confusing at the middle of the year when prices were pushed down to the lowest levels on renewed liquidation by weak holders.

The market, however, gave a better performance from July due to speculative activity, being influenced by various factors. Mainly amongst these were, the expectation of overseas demand for stock-piling in view of the international tension following the nationalisation of the Suez Canal and the IJMA's decision to reseat a total loomage of 12½ per cent looms from the 17th September. Despite limited interest shown by overseas buyers due to instability in prices and the announcement made by the Pakistan Government with regard to the increase in export duties on Jute Cuttings and Ropes, general sentiment continued to remain better till the end of the third quarter.

Meantime, reports were pouring in to the effect that, since the abolition of the export duties, the

Continental manufacturers were not able to compete with the rates quoted by the Indian mills and there exports had fallen considerably. Also, there was a good deal of speculative buying in Sackings, mainly due to the fact that those buyers, who had so long been purchasing heavy goods from Pakistan at a cheaper rate, were compelled to turn to the Indian markets following the reports that the bulk of production of these classes of goods would be required for internal consumption in that country.

Except for a temporary setback in prices in October in the absence of any enquiry from overseas buyers, the market continued to present a firm front with prices advancing steadily to touch the highest levels for the year in the third week of December. Despite the fact that overseas buyers showed reluctance to enter the market at rising levels as they had already bought heavily in the anticipation of delays in the arrivals of goods at their destinations, speculators pushed up prices on reports of the boom-like conditions prevailing in the Pakistani jute market and enquiries from Burma. The tone, towards the close of the year, was a shade quiet following the news of the decrease in US burlap consumption in November and reports of poor shipping orders for December.

★

RAW JUTE:

Except for a temporary setback in May in sympathy with the sharp fall in manufactured goods prices, the market for Raw Jute ruled firm throughout last year. From the beginning of the year, sellers were reserved in their ideas of prices, being encouraged by various factors. Mainly amongst these were, the IJMA's decision to unseat 2½ per cent looms with effect from the 9th January and another 5 per cent looms from the 20th February, the announcement by the Pakistani Jute Board with regard to the increase in the minimum export prices of all grades, reports of difficulties experienced in the despatch of jute from Pakistan, of flooding in the low-land areas of both India and Pakistan and the unfavourable weather conditions in some of the jute-growing areas. Mills were, on their part, buying sparingly in order to meet their immediate requirements.

Despite the reports received during the middle of the year that the new crop was not much affected and the condition of the plants was satisfactory, sellers remained reserved on reports of damage to the crop. Communication and transport difficulties also brought the movement of jute to a standstill. Some circles were inclined to believe that the discriminate policy adopted by Pakistan would hamper the flow of jute into India. As a matter of fact, imports from that country were showing signs of decline. Thus, the decision to

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reseat 2½ per cent looms from the 16th July had little effect on sentiment as it was felt that there was no possibility of any immediate fall in prices unless the disparity between the prices of Indian and Pakistan jute was narrowed down.

There was, therefore, a wide difference in sellers' and buyers' ideas of prices during the last quarter of the year when sellers were even in a position to dictate terms with the mills in view of the fall in imports into mofussil centres consequent on the hazards which the floods had caused to river transport. With only small stocks, mills were naturally compelled to make their purchases at advancing levels. Taking advantage of the situation, stockists were reluctant to offer in large quantities as they were holding the bullish view that, due to shortage of Indian jute, mills would be forced to pay high prices toward the end of the season. Thanks to the withdrawal of buyers, higher levels could not be retained till the close of the year.

While continued stability of the jute industry is highly desirable for smooth execution of the Second Five-Year Plan, it is, however, difficult to see the industry making much of an impression on the main objectives of the Plan. The only direction in which it can normally be expected to make its impact felt is the narrowing of the gap between the demand and supply of foreign exchange. But the trend here is far from encouraging. The trade and industry are concerned at this staggering fall of revenue. They are in frantic search of a corrective, which is not yet in sight.

The Second Plan recognises that it will be difficult to maintain expanding export markets in the face of competition unless an extensive programme of renovation is undertaken. But, the increase in the cost of production is the manufacturers' great problem now. Apart from the problem of surplus capacity, the mills are faced with un-economic raw material prices and an increase in wages. Much has already been done in the way of modernisation which has been undertaken as rapidly as capital

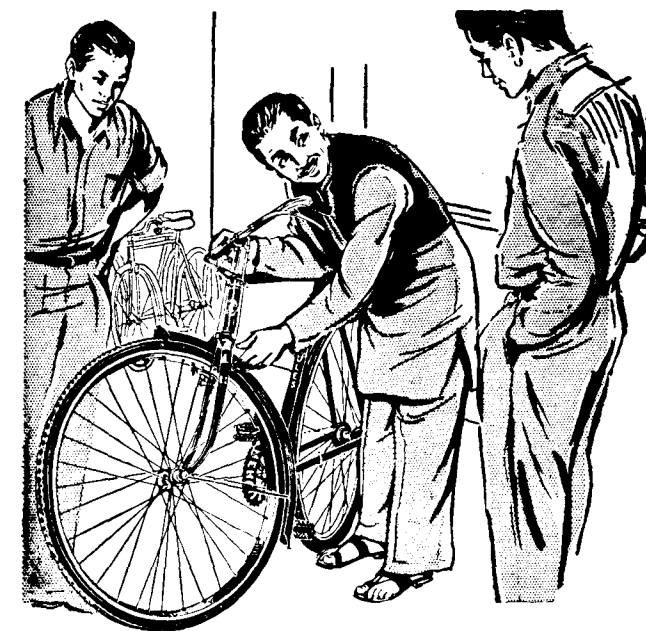
can be found and new machinery is available. Even so, progress has not been commensurate with requirements. The industry stands in need of much re-equipment and the improvement has still far to go before there can be grounds for confidence.

It is obvious that Raw Jute has played an important part in the present situation. It seems that quite a lot of the raw material has gone underground in the sense that it has not yet been offered for sale. It is now known that the 1956/57 crop has, by no means, been small or "famine" size. According to the official figures, the Indian crop is 4.22 million bales. Including the carry-over of 2.15 million bales and 0.5 million bales of Bimli and Mesta crop, the total jute available in the 1956/57 season will be around 12.87 million bales. The Pakistani crop is placed at 6 million bales although nobody lays credence on this figure. Even so, there will still be some leeway to be made up between supply and demand. In case the mills decide to work with the full complement of their looms, the Indian industry will continue to be at the mercy of Pakistan. It cannot be denied that the high prices ruling for the raw commodity at present are positively injurious to the industry although there is a belief that the availability in the 1956/57 season will be of such adequate quantity as to enable the IJMA mills to produce at a higher monthly rate.

The essential requisite to an expansion of overseas business is a sizable reduction in the price that is now being paid by mills. This can be achieved only by stepping up the yield per acre and improving the quality of jute. In this respect, the decision made by the Government to revise the target of production and the announcement that futures trading will be allowed in both jute and jute goods, may pave the way to bringing about stable conditions in the industry.

The following table shows the price trends of both raw jute and jute goods during the year:—

	1956				1955				1954			
	High		Low		High		Low		High		Low	
	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
Hessian:												
40" x 10	Ozs.	...	48 8	37 5	48 12	38 0	48 4	41 14				
40" x 8	Ozs.	...	38 12	31 0	39 4	31 4	41 0	35 0				
40" x 7½	Ozs.	...	35 8	29 0	36 8	28 14	37 8	32 6				
Heavy Goods:												
B. Twills	...	...	124 14	102 4	133 12	101 8	129 4	101 14				
Hy. Cees (Green)	...	...	124 4	101 4	131 0	104 0	134 0	103 0				
Corn sacks	...	...	126 12	103 0	137 0	104 0	132 8	102 0				
Cubans	...	...	149 8	126 0	157 0	129 8	157 0	127 0				
A. Twills	...	...	148 0	124 0	163 8	128 0	163 0	127 0				
L. Twills	...	...	139 0	114 12	151 0	116 8	150 0	119 0				
D. W. Flours	...	...	144 4	117 0	151 0	121 0	148 8	128 8				
Sugar Bags	...	...	141 8	115 8	148 8	115 0	140 0	114 8				
Raw Jute: Bottoms Basis:												
Assam	...	...	33 8	25 12	40 0	22 8	...	...				
Indian Northerns	...	...	33 8	25 12	41 0	23 0	...	...				
Bimli FAQ	...	...	30 0	24 8	34 8	21 0	...	...				
Raw Jute: Middles Basis:												
Assam	...	...	36 0	29 4	43 0	26 8	...	...				
Indian Northerns	...	...	36 0	27 0	42 0	26 0	...	...				



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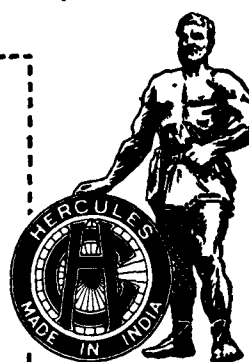
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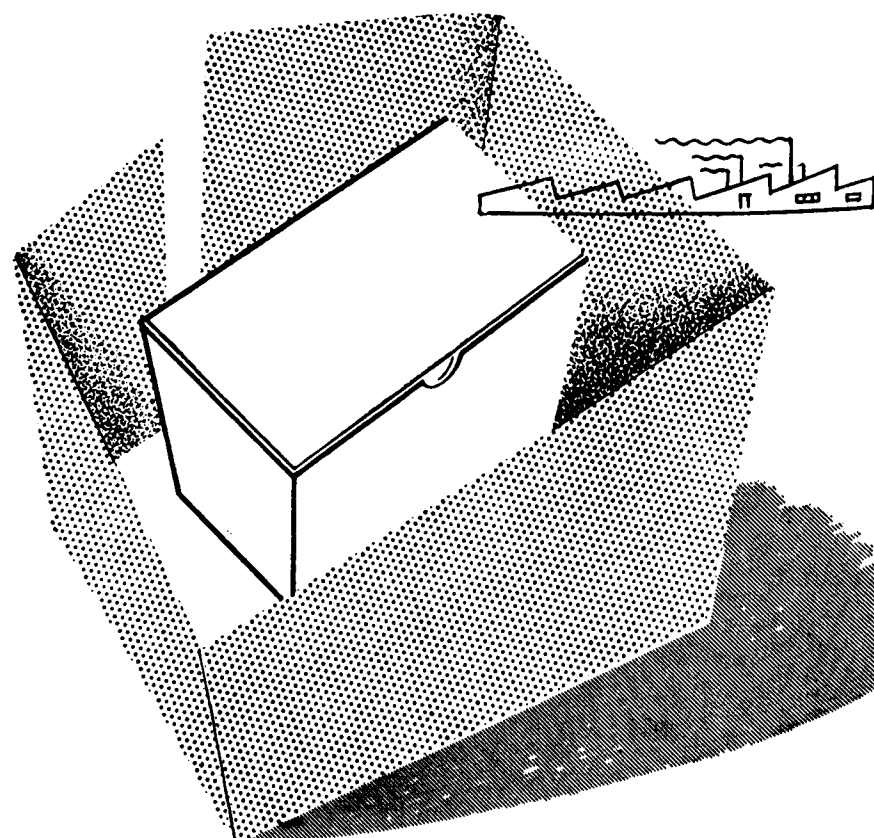
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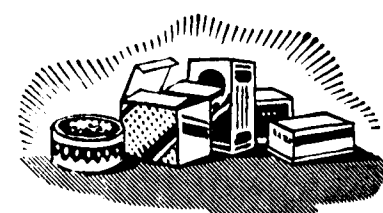
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Today, the total area under tea in India is roughly 789,000 acres, and the annual production is about 650 million pounds on an average. Of this, roughly one-third is consumed in the country and two-thirds exported.

Tea employs the largest labour force in any one organised industry in the country—over a million. It earns considerable revenues to the Central and State Governments by way of various taxes and is also a great foreign exchange-earner.

The role that tea has to play in the Second Five-Year Plan is, therefore, by no means small. The targets laid down in the Plan for production and export of tea are 700 million pounds and 500 million pounds respectively. Production in India was 652 million pounds in 1954 and about 664 million pounds in 1955. It, therefore, appears that the target for additional production, during the period of the Second Plan, namely, about 36 million pounds, is rather too modest.

Meanwhile, tea prices have maintained a fairly high level after the temporary slump of 1952. In 1954, however, prices reached a very high level, never before reached in the history of the Indian tea industry. Prices remained very firm during the whole of 1954; but, in February 1955, there was a setback and prices came down to a low level. By September, prices recovered and maintained a fairly stable position during the remaining period. In 1956, however, sentiment in the tea market remained depressed till the second half of the year although conditions turned better toward the close. The highest levels in the prices of most descriptions were touched during the third quarter of the year.

At the beginning of the year, the tea industry faced a crisis, the extent and severity of which exceeded those of the depression in 1952. Encouraged by the high prices of tea, all the countries increased their production and/or export in 1955. With the result, the world market faced with an excess production of something like 142 million lbs or 11 per cent more than the world needed. Information went to show that there was bigger accumulation of tea in India as compared with other producing countries proportionate to the production. Such a development was attributed to a number of reasons, the most important of them being:—

1. High level of export duty in India;
2. Variation of the duty month to month which caused uncertainty in the minds of overseas buyers;

INDIAN TEA

3. The much lower ceiling fixed for shipment of tea to London for direct auctions in 1955-56 and;

4. Sudden over-production toward the end of the year 1955 in North India.

It was felt that, if the situation left as it was, it would bring in a worse slump in 1956 than that of 1952. Again, the trend of prices impressed the fact that, if the industry was to be stabilised, it was necessary to regulate output and exports at the international level. Even the Calcutta Tea Regulation Committee, representing the main tea producing associations of North-East India, decided to introduce a scheme for regulation of the crop. The Committee also agreed to ask its constituent associations to recommend to their members that all tea waste should be destroyed to prevent such grades of tea having further depressing effect upon prices. Also, many in the trade believed that, if residue teas were not offered at the auctions, the marketing of the rest 1955 crop would not be very difficult.

As a matter of fact, during January, large stocks of poor quality teas were accumulating due to restrictions imposed by the Government on teas to be sent to London and due to less buying. Even the announcement in February with regard to the export quota of 480 million lbs. for the 1955 crop had no effect on the market as trade circles felt doubtful whether all the additional quota would be used considering the none-too-encouraging foreign demand. The Government, therefore, decided to remove restrictions on direct shipments to London; but producers were not able to take advantage of the slightly higher prices ruled then in London. For, by the time the announcement was made, the differentials between Calcutta and London rates gradually narrowed. British blenders, preoccupied with the stricter credit squeeze, were cutting their purchases still further. But the Government's aim of gradually increasing sales of tea for export at the Calcutta auctions met with some success. Thus, a generally better feeling pervaded the market toward the close of March, and this was reflected at the auctions.

A variety of new factors emerged, which improved the tone of the market during the second quarter. Thanks to the removal of restrictions on shipments, the pressure of stocks was gradually easing as large quantities were shipped for London auctions. There were also strong rumours that Russia would soon enter the market for making her purchases. Also, the considerable increase in the domestic consumption imparted fresh confidence in the market and it was expected that the closing sales of the 1955-56 season would witness considerable competition. It was also expected that, instead of a heavy surplus, the reports of smaller crops, both in South India and Ceylon, would strengthen the position of the market. The

demand, especially for quality teas, became stronger with prices quoting several annas per pound dearer. Thus, the Export Sale for 1955 teas ended on a satisfactory note.

The auction of the New Season's teas started in the second week of June. The results of the export auctions were encouraging except that there was hardly any improvement in the demand for Low Medium and Common qualities, as buying was concentrated on the better varieties on the view that their supply might not be large. And, the wide gap between the prices of good and inferior qualities also induced producers to concentrate on quality rather than quantity. Producers fortunate enough to be situated in the quality districts of Darjeeling and Assam experienced a period of high prices unlike producers in non-quality districts. In general, buyers appeared to have no price limit for the best quality teas and the rates they were prepared to pay for common descriptions could scarcely be considered by sellers as remunerative. As a consequence, the difference between the quotations for

Plain Broken Pekoe and the Best CTC Assam BP became as much as Rs 3, which was greater than on any previous season.

Quite in contrast, prices obtained in August were lower and withdrawals were heavy, reflecting a cautious attitude adopted by buyers in the absence of any definite ideas about the possible course of the Suez Canal controversy. Some in the trade claimed that the statistical position of the industry was fairly healthy, while others pointed out that the statistical position was immaterial in asseing the short-term outlook as developments in the Suez Canal situation would have a decisive influence on the tea market.

Meanwhile, there was a strong feeling that tea propaganda should be intensified, both in the producing and consuming countries in view of the increasing competition from other beverages and the steady rise in production. Apart from the unforeseeable factors, such as the Suez dispute, it looked as though the market trend for the rest of the season would depend heavily on the size of the North-Indian crop. Also, the opinion was growing that an over-supply of tea seemed likely as production in the major exporting countries had been running ahead of last year. Anxiety was the more, as

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Barclays Bank Ltd., Chief Foreign Branch, 168, Fenchurch St., London, E.C. 3; The First National City Bank of New York, 117, Old Broad Street, London, E.C. 2.

OTHER BRANCHES AND SUB-OFFICES:

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Agents and Correspondents All Over India

ALL KINDS OF BANKING BUSINESS INCLUDING FOREIGN EXCHANGE TRANSACTED

E. RAMACHENDRAMURTI, M.A., C.A.I.B.,
General Manager.

TEA IN INDIA'S ECONOMY

HOME CONSUMPTION

The people of India consume about 200 million pounds of tea yearly or at the rate of a little over 1/2 lb. per head per annum.

ALLIED INDUSTRIES

The Indian Tea Industry assists other industries like plywood, ceramics, coal, cement, fertiliser, tea machinery and transport.

FOREIGN EXCHANGE

Indian Tea earned over Rs. 109 crores in terms of foreign exchange during 1955-56.

EMPLOYMENT

The tea gardens of India alone employ well over one million workers—thus our Tea Industry is the largest single employer of labour in India. Besides, with the tea trade, it provides additional employment for a very large number of persons.

REVENUE

The Indian Tea Industry contributed to the National Exchequer about Rs. 17 crores as export duty, and about Rs. 3½ crores as central excise duty during 1955-56. Besides, it contributed large sums by way of State income tax, agricultural tax, road tax and certain imposts.

ACREAGE & PRODUCTION

There are more than 6,600 tea gardens in India covering nearly 7,91,640 acres. Their total yearly production is over 664 million pounds of tea.

WORLD CONSUMPTION

India meets over 50% of the world demand for tea which is estimated at over 1,300 million pounds a year, excluding China, Japan, Formosa and the U.S.S.R.

INVESTMENT

Capital invested in the Indian Tea Industry is estimated at nearly Rs. 113 crores.

EXPORT

During 1955-56 India exported over 403 million pounds of tea. This is nearly 2/3 of her total production. Exports were directed to Great Britain, United States, Eire, Canada, Egypt, Continental Ports, Turkey, Sudan, Australia, New Zealand, Iran and other countries.



UNION BANK OF INDIA LIMITED

ESTABLISHED 1919.

Head Office:

APOLLO STREET, FORT, BOMBAY.—1

Calcutta Branch:

43, EZRA STREET

Authorised Capital ... Rs. 1,00,00,000
Capital Paid Up ... Rs. 40,00,000
Reserve & Other Funds ... Rs. 37,50,000

LOCAL BRANCHES:

ABDUL REHMAN STREET — BHAT BAZAAR — KALBADEVI
MANDVI — PRINCESS STREET — ZAVERI BAZAAR

OTHER BRANCHES:

IN SAURASHTRA, GUJERAT, ANDHRA, CALCUTTA,
MADRAS AND COCHIN

LONDON AGENTS:

WESTERN BANK LTD.

FIRST NATIONAL CITY BANK OF NEW YORK
CHASE MANHATTAN BANK

NEW YORK AGENTS:

FIRST NATIONAL CITY BANK OF NEW YORK
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**All kinds of Banking Business Transacted
including Foreign Exchange.**

S. E. H. RIZVI—Agent.

F. K. F. NARIMAN—General Manager.

THE BANK OF BARODA, LIMITED

(Established 1908)

Head Office:—BARODA

Capital Authorised ... Rs. 2,40,00,000
Capital Issued and Subscribed ... Rs. 2,00,00,000
Capital Called up ... Rs. 1,00,00,000
Capital Paid up ... Rs. 1,00,00,000
Reserve Funds ... Rs. 1,28,00,000

DIRECTORS:

Tulsidas Kilachand, Esqr., (Chairman)

Durgaprasad S. Laskari, Esqr., R. D. Birla, Esqr.,
Kantilal Nahalchand, Esqr., Naval H. Tata, Esqr.,
Anandlal H. Sheth, Esqr., Chinubhai Chimanbhai, Esqr.,
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H. H. Maharaja Fatehsinh Gaekwar.

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New York Agents: Chase National Bank of the City of
New York.

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Safe Deposit Lockers available at our various branches.

N. M. CHOKSHI,
General Manager.

price trends at the auctions were irregular.

In fact, the possibility of tea gardens being asked to stop production from the end of November and destroy two per cent of the output was freely mentioned in tea circles. But the attitude of the planters in South India to such a voluntary regulation of crop as a method to adjust production to demands continued to be unfavourable; but they decided upon finer plucking instead of restricting the production. Meanwhile, trade interests, having got the scent about the crop regulation, lent full support to the auctions held in the last two weeks of September. With the result, there was an impressive recovery in prices. The demand from internal operators was more pronounced and a part of this demand emanated out of the feeling that they should stock for the Pujah holidays when sales would not be held for two weeks consecutively.

One of the major factors responsible for the recovery in prices was the demand from foreign buyers who entertained fears that the export duty might rise at the end of September under the slab system. Buyers were naturally keen to have their teas moved soon, as the Suez situation exerted a considerable influence on sentiment. In the result, even Common teas which were very much neglected for long, fetched prices allowing a premium over those prevailing in Calcutta. Despite the increase in the North-Indian production in October, trade circles did not expect the market to suffer much as they believed that the Calcutta Tea Regulation Committee's decision to stop plucking would have a generally healthy effect.

As anticipated, October experienced a good market, mainly due to the small quantity of tea on offer. The announcement by the Government, that the rate of export duty would remain unchanged for November, came as an anti-climax after the hectic buying in the last two sales of October. All sections of the trade were greatly heartened that the Government of India were willing, in the long-term interest of the industry, to forego a small return to the Treasury, thereby providing the much-needed relief to the Common tea producer. It was felt that the lower duty should prove valuable in the stabilisation of prices for Common and Low Medium teas, while, from a long-term point of view, it should lend considerable strength to the competitive position of Indian tea.

The disruption in normal tea flow to Britain, as a result of re-routing many ships round the Cape of Good Hope, remained a market factor throughout November when a very strong and excited general demand at dearer rates continued to exist for all except a few descriptions. Thanks to the strong statistical position. With a view to take advantage of the high prices prevailing in overseas markets, shippers, exporters and even gardens were anxious to ship as much as possible before the end of November as fears were en-

tertained that the Government would raise the export duty from December in view of the rising prices. Also, the tension in the Middle East showed little signs of easing; and it had become an established fact that the task of clearing the Canal would take several months.

The United Kingdom, faced with the prospect of much longer time-lag in receiving her supplies, purchased substantially in anticipation of a temporary shortage. There was also strong buying from the Irish Republic and the USSR, while there were prospects of an acute shortage of freight with the possibility of certain Shipping Lines forsaking India in search of more lucrative cargo elsewhere. All these factors combined with the threatened Dock Workers' strike in the Calcutta Port provided the necessary stimulus to the market in November when Common teas received the main benefit of the rise and were valued at the highest level for the season.

While tea interests were eager to ship early, there was an acute shortage of tea export quota, which developed a steady upward trend and touched a high of 102 pies per pound in the first week of December as against 36 pies quoted at the beginning of the 1956-57 season. As the quota available was very inadequate to meet the demand and quota-holders were reluctant to sell in view of the uncertain international situation, it was felt that, unless a further release of quota was announced, quota prices would rise further. It was also felt that the 1956 crop was much bigger and that, even with the crop regulation scheme in force, the total production would remain adequate for demand. Thanks to the announcement of the increase in export duty from As 6 to As 8 per pound for December and the export quota allotment for 1956-57 at 443.3 million pounds, the Export Quota price declined steadily, to quote 62 pies per pound at the end of the year.

But the improvement in auction prices, toward the end of the year, was probably in response to the substantial decline in the lead of the North-East Indian crop. The crop figures of the major producing countries, which were available, showed that the world output was 11 million pounds behind the 1955 production. There was a general belief that, although the price increase might be mainly due to the pressure of demand, it would prove short-lived as the incentive to the present high prices was likely to result in an appreciably larger crop from North-East India next season and would probably also lead to an increase in the supply to the UK of other grades such as occurred at the end of 1954.

Fears are now entertained in some quarters that the restriction on direct shipments to London and the large increase in the estimated crop of Assam and the Dooars, will have a considerable effect on the attitude of overseas buyers. As a matter of fact, trade circles in London do not expect the present high prices to

extend into the New Year. It is felt that shipments, diverted via the Cape route, would be arriving in Britain. This, coupled with the fact that there is plenty of tea to come forward, will doubtless exert a depressing effect on the market.

It is, however, encouraging to note that internal consumption has been showing a rising trend. While, in 1954-55, the consumption of tea in India was of the order of 171.6 million lbs., it is now stated to have

gone up to 211.5 million pounds, which represents an increase of about 40 million pounds. If consumption keeps on rising at this rate, there is every possibility of 50 per cent of the total output of tea in India being consumed within the country. There is also ample scope for renewed publicity, both by the Government and by the trade to that end.

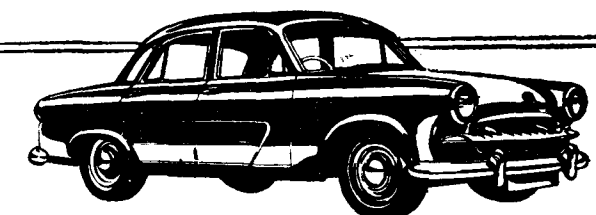
The following table shows the highest and the lowest rates touched during the last three years:—

	1956				1955				1954			
	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.	Rs. a.p.
Export Sale:												
Clean Black Pekoe ...	2 7 6	1 11 0	3 13 6	2 1 0	3 12 6	2 8 6						
Plain Broken Pekoe ...	2 6 0	1 4 0	2 8 6	1 7 0								
Medium Assam BP ...	2 8 0	1 7 0	3 14 0	1 9 0	3 11 6	2 3 0						
Best CTC Assam BP ...	5 0 0	2 1 0	4 4 0	2 5 0	3 15 6	2 7 0						
Dust Sale:												
Medium Dooars ...	2 5 0	1 4 0	2 10 6	1 6 6	2 10 0	1 12 6						
Medium Assam Grainy ...	2 6 0	1 6 0	2 12 0	1 7 6	2 11 0	1 13 0						
Medium CTC Assam ...	2 14 0	2 6 0										
Best CTC Assam ...	3 14 0	2 2 0	3 5 0	2 2 0	2 13 0	2 0 0						

* Started quoting from August 1956.

* Started quoting from June 1955.

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Standard designers and engineers have worked together to provide the driver and passengers of the Vanguard III with every possible up-to-date refinement to ensure comfortable and safe motoring.

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Motors Private Ltd., Ahmedabad, Metro Motors, Bombay, The
Union Co. (Motors) Private Ltd., Madras, Auto Chenoy,
Secunderabad (Dn.).

THE BANK OF INDIA LIMITED

(Established 7th September, 1906).

1906-1957

FIFTY ONE YEARS OF SERVICE

Capital-Authorised, Issued & Subscribed	Rs. 5,50,00,000
Capital Paid-up	Rs. 3,00,00,000
Reserve Fund	Rs. 3,10,00,000

HEAD OFFICE: Mahatma Gandhi Road, Fort, Bombay.

BRANCHES IN INDIA:

AMHEDABAD	Bandra	Bara Bazar	MADRAS
Bhadra	Bullion	Chowringhee	NAGPUR
(Main Office)	Exchange	Square	Kingsway
Ellis Bridge	Colaba	COIMBATORE	Itwari Bazar
Gandhi Road	K. J. B. devi	DELHI	NEW DELHI
Manek Chowk	Malabar Hill	GANDHIDHAM	PALANPUR
Station Branch	BHUJ (Kutch)	(Kutch)	POONA
AMRITSAR	CALCUTTA	HYDERABAD	POONA CITY
BANGALORE	23B, Netaji	JAMSHEDPUR	RAJKOT
BOMBAY	Subhas Road	JUNAGADH	SHOLAPUR
Andheri	(Main Office)	KOZHIKODE	SURAT
		VERAVAL	

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LONDON-17, Moorgate London, E.C.2

ADEN, DAR-ES-SALAAM, JINJA, KAMPALA, KARACHI, MOMBASA, NAIROBI, OSAKA, SINGAPORE, TOKYO.

CURRENT DEPOSIT ACCOUNTS:—Except at certain places interest is allowed on daily balances from Rs. 500 to Rs. 1,00,000 at 4 per cent per annum. No credit will be given for interest amounting to less than Rs. 5 per half-year.

FIXED & SHORT DEPOSITS:—Received on favourable terms. Rates on application.

SAVINGS BANK DEPOSITS:—Interest is allowed on Saving Bank Deposits at the rate of 2 per cent per annum at Head Office and Branches in India and will be credited to the accounts half-yearly on 30th June and 31st December. Interest amounting to less than annas eight per half-year will not be allowed.

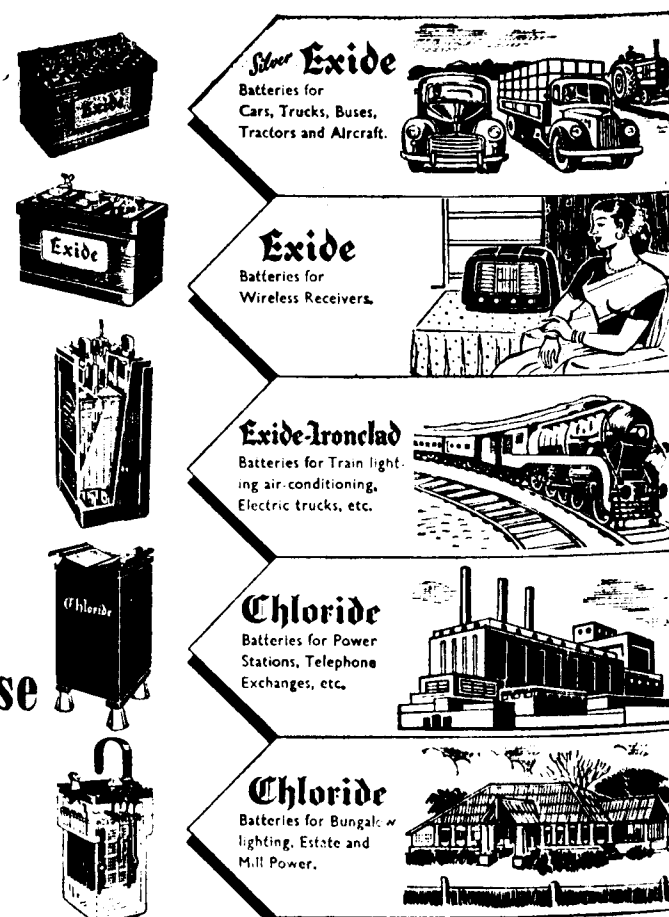
Maximum amount up to which interest in any one account will be allowed is Rs. 50,000.

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a
type
for
every
purpose



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(INCORPORATED IN ENGLAND BY ROYAL CHARTER, 1853)

(LIABILITY OF STOCKHOLDERS LIMITED)

With which is Affiliated: THE ALLAHABAD BANK, LIMITED

Capital (Paid-up) £3,500,000

Reserve Fund £5,000,000

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West End Branch: 28, CHARLES II STREET, HAYMARKET, S.W.1. Manchester Branch: 52, MOSLEY STREET, MANCHESTER 2

Liverpool Branch: 28, DERBY HOUSE, EXCHANGE BUILDINGS, LIVERPOOL 2

New York Agency: 65, BROADWAY, NEW YORK CITY

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EASTERN BRANCHES:

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India: CALCUTTA 4, Netaji Subhas Road 31, Chowringhee AMRITSAR BOMBAY COCHIN DELHI KANPUR KOZHIKODE MADRAS NEW DELHI	Burma: RANGOON	Colony of Sarawak: KUCHING MIRI SIBU	Philippine Republic: CEBU ILOILO MANILA
Pakistan: KARACHI (2 offices) LAHORE, LYALLPUR CHITTAGONG	Singapore Colony: SINGAPORE CITY (2 offices) CHANGI SELETAR SINGAPORE AIRPORT	Indonesia: DJAKARTA MEDAN SURABAYA	Hongkong Colony: HONGKONG
	Malayan Federation: ALORE STAR BUTTERWORTH IPOH KLANG KUALA LUMPUR Kuantan (2 offices) PENANG PORT SWETENHAM SEREMBAN SITIAWAN TAIPING TELUK ANSON PETALING JAYA	Vietnam: SAIGON (2 offices)	China: SHANGHAI Japan: Kobe OSAKA Tokyo YOKOHAMA Cambodia: Phnom Penh

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G. K. MACFARLANE, Manager, Calcutta Branch.

THE TEA INDUSTRY

THE progress of the Tea industry in the country during the last hundred years has been unique. Since its inception, production has steadily gone up with the gradual increase in demand. In 1925-26, India produced only 37 million pounds of tea; but, in 1955, about 650 million pounds were produced. One can, therefore, reasonably expect that, in the near future, the production will exceed 700 million pounds if the present trend of demand continues.

But, problems of equation between production and demand, maintenance of quality of production, balance between producers' cost and consumers' capacity and replacement of aged bushes, seem intermittently to confuse the path of stable progress of the industry.

The war-time monopoly of India and Ceylon in the export market encouraged the Governments of these countries to follow a policy of stiffening export duty. The resulting high price of tea, in turn, stimulated increasing tea production in Iran, East Africa, West Africa and South Africa. Although Indonesia and Formosa went out of the picture of production during the war, they are now steadily regaining their pre-war importance. China remains an unknown quantity.

In the midst of the above factors, increasing consciousness of workers' rights and of the Welfare State's obligations in enforcing these rights have led to a rise in the cost of production accompanied with a fall in quality. New demands for remunerations and amenities make for rising cost and a newly-awakened labour force, not easily amenable to discipline, accounts for indifferent tending and careless plucking. A section of the trade also practised the process of adulteration while adding to the embarrassingly large stock of tea available for sale.

Since the beginning of the tea industry in this country, it has mainly catered to the needs of export markets, while the internal market received scant attention. It was only during the depression of thirties when international demand suddenly shrunk that more attention was paid to the home market. Internal tea consumption has also increased; and the rise has been very appreciable during recent years. Yet, the industry is primarily dependent on export markets.

But, India no longer enjoys the monopoly position she used to do in early days. The competition has become very acute in recent times. The two main rivals of India at present are Ceylon and Indonesia. Production in South Africa is also being steadily stepped up. It is, therefore, certain that Indian tea will come in for a good deal of competition in the international markets.

The average level of exports, during recent years, has been about

450 million pounds barring, of course, 1955/56 in which the quantity exported was considerably smaller due to certain extraneous circumstances causing dislocation in the free flow of tea from India to her main customer, the UK. The target for exports laid down in the Second Plan is 500 million pounds and it is this part of the Plan concerning the tea industry that calls for serious efforts on the part of the industry.

Both the Government of India and the Tea Board are fully alive to the need for making all possible efforts to increase the exports of tea as well as the need to maintain propaganda in foreign countries to increase the intake of tea in those countries from India. Toward this end, organisations like Tea Councils have already been set up in the USA, Canada, Ireland, West Germany and the Netherlands with the Government of India as one of the participants along with the tea trade and/or the Governments of the countries concerned.

In order to be able to assess the relative sufficiency or excess of production to the world's offtake, it is essential to have dependable figures of world production, world exports and world consumption of tea. The figures available so far are still provisional as returns from certain countries are either incomplete or are not available at all. All the same, they are good enough for a broad assessment of the situation.

World production of tea, excluding the production of China, Russia and some minor producers, has been rising progressively in the last three years. It was roughly 1,265 million pounds in 1953, but rose to 1,413 million pounds in 1954. If we assume that Japan, Formosa and certain minor producing areas should have turned out the same quantity of tea in 1955 as they did in the previous year, the output of all these countries together, for the last calendar year, could be placed at 1,439 million pounds.

Meanwhile, exports have shown an inconstant trend—total exports from these countries being placed at 880 million pounds for 1952; 1,000 million pounds for 1953 and 1,038 million pounds for 1954. Figures for 1955 are placed at 1,070 million pounds and for 1956 at 1,057 million pounds.

To arrive at an estimate of the total world consumption, barring the consumption of China and Russia, it will be necessary to add to these figures of export, the quantities retained by the producing countries themselves. This has, in recent years, been around 380 million pounds of which India's consumption alone is put at 200 million pounds. On this basis, the total world consumption for 1954 is assessed at 1,418 million pounds and for 1955 at 1,391 million pounds. From these figures, it is

very clear as to why prices were booming in 1954, but underwent a downward trend in 1955. Again, the crop figures of major producing countries, which are now available, show that world output in 1956 will be 11 million pounds behind the previous year's production.

That the price of tea fluctuates widely during short periods is a well-known fact. During 1954/55, the average value of tea export was about Rs 3.2 per pound, while in 1955-56, it was about Rs 2.7 per pound. During 1955/56, however, the price of tea was particularly low during a major portion of the year, and large quantities had to be sold below cost of production. No appreciable increase in demand can, therefore, be expected in the near future unless tea is available at a reasonable price. The only

scope for such reduction appears to be, to reduce the cost of production by improved technique.

There is, however, one reason for the industry to be optimistic about its future. It has been observed that tea is a very popular form of drink with industrial workers and also in urban areas. In fact, per capita consumption of tea is the highest in West Bengal, which is industrially the most advanced State in India. Industrialisation will proceed at an accelerated rate in the near future under the impetus of the Second Five-Year Plan. Such rapid expansion will lead to the development of many new urban areas with large concentration of labour force. It may, therefore, be confidently hoped that, in future, the volume of internal consumption will rise quite significantly.

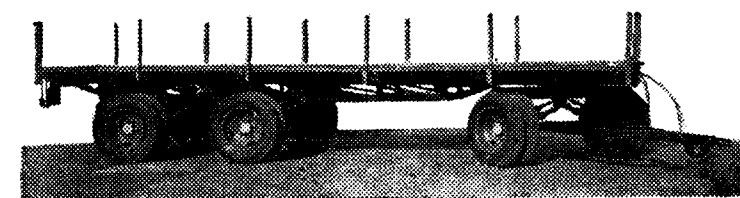
NORTHERN INDIA GARDENS

Companies:	1955		1954		1953	
	Output	Average	Output	Average	Output	Average
	(Mds.)	Price	(Mds.)	Price	(Mds.)	Price
Basmatia	7,782	2 2 8	6,617	3 3 2	6,232	2 1 7
Bishnauth	47,073	2 7 2	46,985	2 15 5	41,805	2 5 1
Bhatkawa	17,728	1 13 8	17,698	2 9 10	17,649	1 14 9
Bormah Jan	7,703	2 3 8	7,632	3 2 2	7,305	2 0 2
Chamonz	1,809	2 14 9	1,764	3 14 0	1,335	2 10 9
Dimakusi	8,688	2 11 11	8,114	2 14 1	8,061	2 5 3
East India	14,428	2 3 5	13,666	2 13 8	12,945	2 3 10
Ethelbari	5,817	1 14 3	5,948	2 7 9	5,743	1 12 9
Gohpur	7,669	2 6 6	6,955	2 13 10	6,609	2 4 7
Grob	24,559	2 0 0	16,574	2 15 7	14,618	1 15 8
Hasimara	75,919	2 4 2	79,641	2 9 11	76,191	2 0 6
Jutibari	8,952	2 3 1	8,174	3 9 4	8,159	2 3 4
Killoot	12,835	1 14 10	14,335	2 7 4	11,739	2 3 3
Margaret Hope	4,419	2 4 7	4,238	3 9 11	3,869	2 10 3
Methoni	11,215	2 5 5	9,553	3 4 5	10,037	2 0 9
Nagalsuree	12,237	1 12 1	14,619	2 12 5	13,169	2 1 10
Tellapara	11,016	2 3 8	13,334	3 8 6	14,803	2 5 5
Tengpani	7,446	2 6 10	6,625	3 10 9	6,231	2 4 9
Tezpur	32,034	1 13 3	29,539	2 6 8	22,889	1 15 10

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ALL WELDED TRAILER,

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The scientist in India today is doing a vital job to promote the physical and social health of the Nation. He opens the door to a wider knowledge of the world we live in. Though many victories have been won in the scientific field, there is yet much to learn and much to achieve.

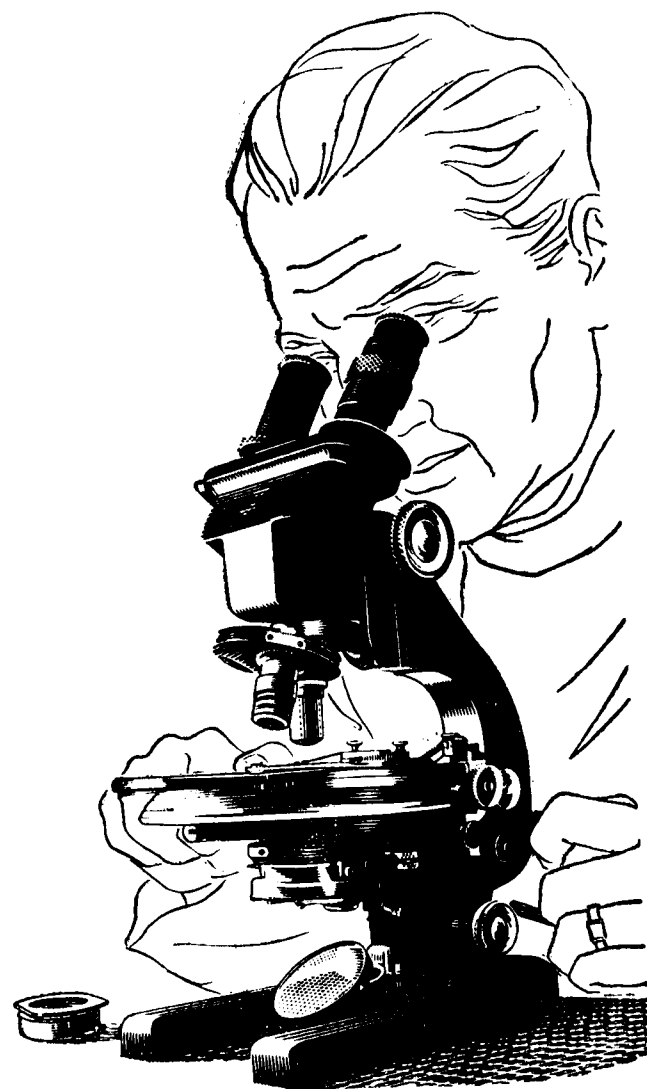
The Indian Institute of Science at Bangalore stands out as a monument to the founder of the House of Tata, symbolising his ideal of philanthropy. The National Metallurgical Laboratories at Jamshedpur, the Cancer Hospital, the Institute of Fundamental Research in Bombay, and the National Chemical Laboratory at Poona, demonstrate that the tradition established by the Founder still prevails.

Research as the handmaid of industry is the concept which pervades all Tata enterprises.

TATA CONTRIBUTIONS TO OUR NATIONAL LIFE INCLUDE:

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TATA INDUSTRIES PRIVATE LIMITED



There is not another material used by the engineer which has equally wide utility and range of physical properties as Rubber. Demand for this commodity is bound to increase at an unprecedented rate during the Second Plan period, as the success of the Plan depends over the various sections of the rubber manufacturing industry. Also, there are hopes that the target, set in the Plan to meet this demand, will be achieved.

An idea of the additional requirements of the rubber goods manufacturing industry, during the Second Plan period, can be had from the targets fixed for the production of automobiles and bicycles. The output of automobiles is proposed to be raised from 23,000 units in 1955-56 to 57,000, an increase of 147 per cent. The production of bicycles is to be doubled from 500,000 to 1,000,000. It is needless to add that the success of the whole Second Five-Year Plan depends on the provision of adequate facilities for the movement of goods.

It is public knowledge now that railways alone will not be able to meet the growing transport requirements. The automobile industry will, therefore, be called upon to share the responsibility of providing transport facilities. The establishment of industries and improvement of economic condition in semi-urban as well as rural areas will stimulate the demand for bicycles — the common man's

RUBBER INDUSTRY

popular vehicle. In addition to the automobile and cycle industries which will call for more rubber tyres, tubes and other accessories, there are other fields which will make an increased use of rubber. The vast industrial expansion, for instance, will increase the demand for conveyor and transmission belting, industrial belts, hoses, rubber insulated cables, etc., Under the Plan, the output of electric cables, for instance, is proposed to be raised from 9,000 to 15,000 tons. The anticipated increase in the national income will raise the general standard of life for the people and there will, therefore, be greater demand for rubber footwear.

With the aforesaid possibilities for expansion of rubber goods production, the problem of raw materials supplies, particularly rubber, has assumed great urgency and is naturally engaging the attention of the manufacturers and the Government alike. Indigenous production of natural rubber in

1955 amounted to 22,481 tons, while consumption aggregated 27,543 tons,—the highest ever recorded and 2,000 tons more than in 1954. The total deficit was 4,948 tons, which was made good to a large extent by the import of 3,839 tons. Production for the eleven months ended November, 1956 was higher than the corresponding period of 1955; but the short fall continues to be heavy. Although the newly-constituted Rubber Board had drawn up plans to replant 70,000 acres of rubber in South India, the increased production cannot become available until 1963. The general picture, therefore, is one of increasing gap between production and consumption.

The estimated deficit for 1956 will be more than 8,000 tons. The Planning Commission has estimated the raw rubber requirements of the country to reach 40,000 tons by 1960. The problem is, therefore, one of finding a solution during the intervening period, as the deficit is likely to increase pro-

gressively for some years to come. At present, the onus of importing the deficit is on all manufacturers (big or small) individual import quotas being fixed on the basis of actual previous consumption. For indigenous rubber, there is no restriction on the quantity that any manufacturer can buy. Permits are freely issued by the Rubber Board for any quantity supplied for, even if sufficient indigenous rubber is not available.

Unless there is price advantage by importing rubber, most manufacturers prefer to buy local rubber because they thus escape the cumbersome procedure involved in importing. It is also a fact that many manufacturers get their local supplies of rubber on credit over periods ranging between two and three months or more. Such manufacturers, therefore, cover their entire requirements from indigenous stocks and forego their import quotas. To be able to cover their full requirements from local supplies, they often have to be lax about grading. In these circumstances, the remaining manufacturers find it impossible to buy their full share of indigenous rubber nor can they make this up by imports since imports are restricted to a fixed quota. The result is, they face perpetual shortage and there is non-stop scramble for indigenous rubber. With ready buyers for their rubber, the estates and dealers are inclined to pay less attention to quality and packing.



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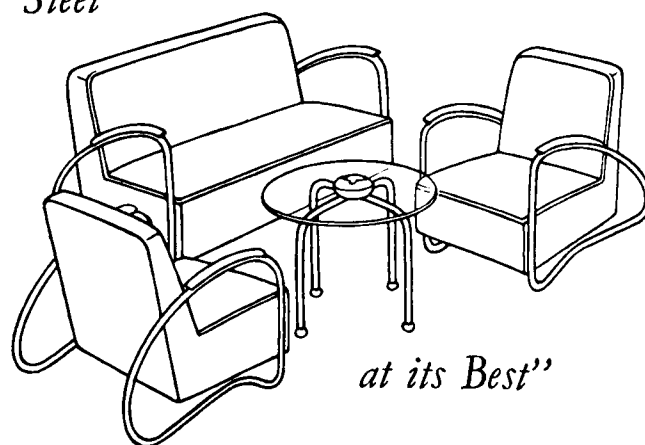
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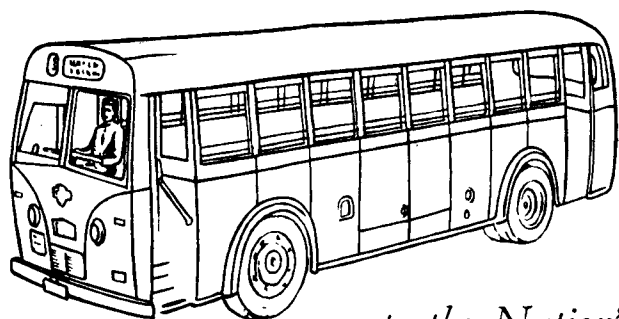
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The government's new policy (whereby the difference in price of imported rubber and Indian controlled price, whenever the former is lower, is to be paid to the Rubber Board), has left no incentive whatsoever for any manufacturer to import rubber. Under such conditions, it will help the situation considerably if the Rubber Board fixes the purchase quotas for indigenous rubber also on the same basis as they do for imports. This will ensure all manufacturers getting their proper share off indigenous as well as imported rubber. As for the very small manufacturers, who cannot handle imports, either the Rubber Board should import rubber on their behalf or allow them to buy their full requirements locally and release their import quota in favour of other manufacturers.

Meanwhile, the Government of India are exploring the possibility of setting up a synthetic rubber plant. The manufacture of synthetic rubber will, no doubt, be welcomed by the rubber goods manufacturers, as synthetic is found essential in the manufacture of an increasing number of products as it possesses certain valuable properties which make its use in place of natural rubber advantageous. Rubber growers in India are however, opposed to the scheme on the ground that it will affect their interests. They feel that a better, cheaper and more practical method will be, to get all the requirements from the plantation industry itself by giving all possible facilities for stepping up production. It may, however, be noted that, in a growing economy, the country will find considerable use for natural rubber and there need be no fear that the synthetic rubber production will replace the natural rubber. Even in America, where the synthetic rubber production has made vast strides, immense use is being found for both synthetic and natural rubber.

The American plans for the production of synthetic rubber seem to be set at a target of very nearly the world output of natural rubber by 1958. One of the reasons adduced for the marked increase in the consumption of synthetic rubber is the steadiness of its price which has been ruling at \$22.50 per 100 lbs for over four years, without being changed even after the factories were taken by the private owners. It was believed at one time that the commercial operation of these synthetic factories by private owners would raise the cost of the product. In fact, there has been an increase in output, making available the synthetic product at the same price.

In India, trade circles have pointed out that the synthetic scheme will involve an investment of Rs 12 crores being spent on foreign exchange. They feel that the scheme will only keep the oil refineries, while the clamour goes on for aiding small and decentralised industries. Furthermore, the

implementation of the scheme will only mean a production of 10,000 tons and provide work for 8,000 men. The production of natural rubber, on the other hand, will go up by 20,000 tons if 80,000 acres are planted with rubber. This will provide employment to 2,00,000 workers.

In this connection, the Chairman of the Rubber Board has recently stated that he is strongly in favour of replanting for the reason that replanting will help growers to provide natural rubber at prices competitive with synthetic rubber and plastic alternatives the competition from which has become a serious threat. He prefers the replanting to new planting as, in his opinion, the increasing pressure on land, suitable for rubber growing, is a great impediment in the way of new planting. He, therefore, thinks that there is scope for a large-scale impediment to the new planting scheme.

One serious objection to replanting is that there will be a loss of production during the period of replanting. In this connection, the Chairman has pointed out that, under the replanting scheme, recommended by the Board and sanctioned by the Government, subsidy will be given only for replanting 7,000 acres of old rubber area every year and, if the selected area for replanting within a period of 10 years is divided into plots and subjected to yield stimulation treatment and intensive slaughter-tapping in planned stages, the total production is not going to be reduced to any considerable extent. Further, the present immature trees will come into bearing year by year and will bring additional rubber supplies.

The Chairman holds that new planting should be taken in hand only as a complementary scheme to the replanting programme. On this point, many have disagreed; because, to meet the ever-growing demand for rubber, new planting also will have to be given equal importance. The Chairman's strong views in favour of replanting did not seem to have greatly influenced the Board's decision; because the Board finally recommended the inclusion of a new planting scheme along with the replanting programme in the plan.

The following table shows the production and consumption figures (in tons) for the past two years:

	Production.		Consumption.	
	1956.	1955.	1956.	1955.
January	2,083	1,700	2,459	2,256
February	976	434	2,458	2,074
March	1,279	1,329	2,341	2,443
April	1,826	2,277	2,402	2,140
May	1,983	2,085	2,168	2,175
June	1,484	1,037	2,401	2,564
July	1,730	1,636	2,648	2,388
August	1,750	1,756	2,307	2,209
Sept.	2,293	2,310	2,545	2,545
October	2,326	2,450	2,103	2,214
Nov.	2,800	2,680	2,547	1,837
December	...	2,787	...	2,727
Total	*20,530	22,471	*26,349	27,543

*For 11 months ended November, 1956.

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Paint Industry

THE importance of Paint Industry in the economy of a country with an industrial set up of a sizeable scale is too patent to deserve emphasis. Being the chief protective agent for durable articles of industrial use, the functions the paint industry discharges, are similar to those of packing, and storage in the marketing of goods, and enhances in no little measure the time utility of goods. Though, apart from its aesthetic value of adding to the lustre and look of things, the use, to which paints are generally put, is only one—that of serving as an external protective cover, the number of articles that have to be protected against the ravages of climate, and against deterioration due to constant handling is legion, that the demand for it is universal and ubiquitous. But the important sources of demand for the industry are railways, automobiles, ships and aeroplanes, building operations and electrical equipments, and thus it is seen the paint industry is mainly a subsidiary to these industries.

It was but natural, therefore, that the paint industry in India made its appearance out of the demand of the shipping companies. This made it possible for the Shalimar Company to set up an establishment in the country with the ostensible purpose of meeting the internal demand for paints and this partially filled up a vital gap in the country's industrial resources and production. But with the low level of industrialisation and because of the well-known attitude of the foreign Government then in power, to the industrial problems of the country, which was anything but sympathetic and encouraging, the industry could not make much headway. The Government awoke to the needs of the industry only in 1945 when a panel was appointed. In its report the panel recommended a programme for the industry so as to reach an annual output of 10,000 tons of paints and varnishes, out of which a quantity of 2,000 tons was earmarked for purposes of exports. In 1946, production of paints and varnishes stood at 38,400 tons. In the course of the next three years production of paints and varnishes stood still further down so that in 1950, it stood at 27,948 tons. The number of units in existence in the country in 1951 and their distribution, according to capacity, were as follows:—

	Statewise distribution of units and capacity.	
	No. of Units.	Capacity Tons.
West Bengal	18	37,260
Bombay	16	18,360
Uttar Pradesh	5	3,900
Madras	3	840
Gujarat	2	1,740
Others	6	2,700
Total	50	64,800

Not only is the industry thus localised in West Bengal and Bombay, which together account for about two-thirds of the total

units in the industry, but also the units differ widely in size. Thus, it will be seen that, while the average size of the unit in West Bengal is a little over 2,000 tons, the average size of the units in Bombay is about 1,150 tons and far lower than the latter figure in other parts of the country. This wide disparity in the size of units in the country, with the larger units predominating in Bombay and West Bengal only accumulates the localisation of the industry in these two regions. The location of the paint industry thus follows closely the general locational pattern of industries in the country. Besides, these 50 units of major size, there were in the country, on the eve of the First Plan, 150 to 200 small units engaged in the production of paints and varnishes.

The other important branches of the industry are production of nitrocellulose lacquers, zinc oxide, alloyed rosins, white lead, red lead, and lithrage. The production capacity of these different lines in 1951 was 3,49,500 gallons for nitrocellulose lacquers and 8,400 tons, 2,360 tons, 5,080 tons respectively for zinc oxide, white lead and red lead respectively.

The Planning Commission, in view of the disparity in the capacity and production of paints and varnishes, laid stress on the fuller realisation of the existing capacity and, therefore, envisaged only an increase in capacity of 5,000 tons, in regard to ready-mixed paints, while in the case of nitrocellulose lacquers, the increase in capacity envisaged was to the tune of 35,000 gallons. The

total capacity and production envisaged at the end of 1955-56 were 70,000 tons and 60,000 tons for paints, varnishes and enamels and 3,50,000 gallons and 3,00,000 gallons for nitrocellulose lacquers.

While in regard to capacity, the programmes of these two went according to schedules, in regard to actual production, the expectations of the Planning Commission were belied and production of paints and varnishes as well as that of nitrocellulose lacquers in 1955-56 was far below the targeted level as evident in the statement given below:

	Paints and Varnishes. Tons.	Nitrocellulose Lacquers. Gallons.
1950	27,950	32,570
1951	33,480	92,100
1952	32,170	1,44,560
1953	32,060	2,04,110
1954	38,540	2,65,000
1955	39,030	2,98,300

While the production of paints and varnishes went at a snail's

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pace, the production of nitrocellulose lacquers made fast strides and had increased by as much as 9 times in 1955 against 1950. This difference in the behaviour of production trends in these two lines is traceable to the lack of adequate internal demand for paints and varnishes, on the one hand, and to the policy of diversification in production adopted by many of the firms, which involved taking up the production of nitrocellulose lacquers, on the other.

A redeeming feature of this poor performance put up by these two sectors of the industry, in not having pushed up production to the extent of the targets fixed for them, were the new and significant developments made in other lines. For example, production of anatase variety of titanium dioxide pigments was started in 1951 by the Travancore Titanium Products, who have a capacity of 1,800 tons per annum, while production of aluminium paste and powder was started by the Indian Aluminium Company towards the end of 1951. Further, in 1952, a factory for the manufacture of titanium dioxide equipped so far for the production of anatase pigments only has been equipped for the production of rutile pigment, which is mainly in demand in India. These new offshoots of the industry are finding it hard to plant their feet firm on the ground, because of insufficient demand for titanium dioxide, on the one hand, and foreign competition in the case of aluminium paste and powder, on the other. It is grati-

fying that the Government have given the titanium dioxide industry protection in 1954. The case for some positive measure, so as to add the production of aluminium paste and powder, is as great in view of their overwhelming importance, as the pigment par excellence. Aluminium paint protects the surface as no granular pigment can, and moreover it weighs less than half that of lead-base paints.

The industry made notable advances in increasing the capacity as well as production of other important items, such as, zinc oxide, white lead, red lead, litharge. Alloyed rosins as will be seen from the two statements given below of the capacity as well as production of these items.

	Capacity	
	1951 Tons.	1956 Tons.
Zinc Oxide	8,400	12,360
White Lead	2,360	3,720
Red Lead	5,080	5,100

Actual Production (In Tons).			
	Zinc Oxide.	White Lead.	Red Lead.
1950	4,450	1,220	3,025
1951	4,840	820	2,830
1952	2,400	300	1,575
1953	3,890	660	2,340
1954	6,150	900	3,410
1955	6,370	730	3,950

What is strikingly revealed by the above figures of production of these various items is the almost uniform decline in production in all the items above enumerated in 1953. This was caused by a shortage of non-ferrous alloys. But since 1953 production began to back up and, consequently, the level of produc-

tion for all the items with the single exception of white lead, in 1955, was far above that of 1950. Despite this enhanced production, the gap between production and installed capacity is still great and points to the leeway that the industry has to make in order to reduce cost of production.

Turning to the figures for trade in paints, both imports as well as exports, it will be seen that the figures do little credit to the industry.

	Imports and Exports of Paints and Materials. (Rupees Lakhs).	
	Imports.	Exports.
1948-49	225	...
1949-50	177	...
1950-51	108.8	24.5
1951-52	261.9	75.9
1952-53	135.1	56.2
1953-54	177.0	24.7
1954-55	188.0	23.9
1955-56 (10 months)	214.5	21.3

The total value of imports far outstripped the total value of exports for all the years, and is thus on the debit side of the balance sheet of the industry. But the relevant point is that the major part of the imports consists of raw materials processed in the industry. The industry is heavily dependent on imports for essential items as pigments, both lead and zinc, and turpentine and varnishes. This situation of dependence on foreign imports of raw materials is not a healthy symptom and, therefore, underlines the necessity for bridging the internal gap between capa-

INDIAN FINANCE

city and production in regard to these items.

The Second Five Year Plan envisages no increase in the capacity of either ready mixed paints and varnishes or of nitrocellulose lacquers. The existing capacity of 65,000 tons and 8,00,000 gallons for ready mixed paints and nitrocellulose lacquers is considered sufficient. The emphasis is laid on fuller utilisation of existing capacity so that production of each could be increased from 39,000 tons in the case of ready mixed paints and varnishes in 1955-56 to 60,000 tons in 1960-61 and from 3,00,000 gallons in the case of nitrocellulose lacquers in 1955-56 to 5,00,000 gallons in 1960-61.

The paint industry is thus groping towards a stability, which it will be possible to impart to it only with a guarantee of adequate demand and cheap raw materials. The Planning Commission have made an important plea in favour of granting a refund of import duty on the raw materials used in the production of the goods meant for export, and, if this is acted upon by the Government, this will take the industry a long way towards a settled state. The industry at present employs nearly 5,000 persons and has a total invested capital of nearly Rs 4.18 crores. The demand for the products of the industry being a derivative one, and dependent upon the extent to which industrialisation, especially urbanization and transportation makes headway, it is to be expected that the industry will be called to play a greater role than what it presently fulfils.

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Bullion Developments in 1956

AMONG the most notable events affecting the bullion trade in 1956 may be mentioned the Union Government's announcement, on May 3, to license freely imports of silver coins from Tibet along with the raising up of the import duty, the revaluation of gold stocks by the Reserve Bank and the examination by the Forward Markets Commission about the utility of forward trading in bullion.

Apart from the unsettling influence following the imports of silver coins from Tibet, comparatively stable conditions have been witnessed on the bullion market during the year under review in contrast to the hectic movements during the few preceding years. On balance, over the year, gold has gained Rs 9, while Silver was lower by a rupee. The price range in gold was confined to Rs 13 per tola and silver continued to be prohibited; but, as observed earlier, the Government of India announced, on May 3, 1956, its decision to license freely imports of silver coins from Tibet with a view to facilitating the Indo-Tibetan trade. Simultaneously, Government also raised the import duty on silver bullion and coin from As 4.15 per oz. to As 8. 25 per oz (i.e. Rs 9-13-6 to Rs 19-11 per 100 tolas).

The bullion market started the year on a steadier note and steadily moved ahead on considerations of expanding seasonal offtake. Gold touched the highest level of Rs 107-1 during the third week of March. The market thereafter ruled quietly firm during April, operators deriving strength mainly from the substantial broadening in spot demand and the resultant scarcity of floating stocks. This trend was reversed and gave place to a distinctly weak tone in early May, sentiment having been affected mainly by developments in regard to imports of Tibetan silver coins. Following the Union Government's decision of May 3, referred to above, there were persistent reports regarding the issue of licences for large amounts and of substantial influx of these coins. This led to considerable bull liquidation and bear hammering which brought about a precipitate fall in the price of silver. Gold also declined, the special factors affecting this section being rumours of arrivals of smuggled gold and of likely imports of gold from Russia. Later, however, the downward trend was halted and a steadier tone emerged in silver in the latter half of June, the main stimulating factor being provided by rumours of restrictions on licences for imports of Tibetan silver coins. Gold, in contrast, continued to rule generally quiet.

A noteworthy feature of trading was the emergence in silver, in May, for the first time since the resumption of forward trading in October 1955, of backward charges,

i.e. budla against the bears. Such budla was as high as Rs 6-8 in May; but, in June, it narrowed down considerably and ranged only up to As 14. In gold, the backwardation charges ranged up to Rs 2-5.

During the third quarter, both gold and silver registered moderate net increases. The range of variation, during this quarter, was relatively small, being around Rs 6 in gold and Rs 5 in silver as against Rs 7 and Rs 15 respectively in the second quarter and Rs 12-11 in gold and Rs 11-4 in ready silver in the first quarter of 1956. While sentiment in gold was mainly influenced by the Suez Canal situation following the nationalisation on 26th July by Egypt, trends in silver were dominated by the developments regarding imports of Tibetan silver coins. Silver evinced a spurt in the first fortnight of July and August; but, in the second fortnight of both the months, prices tended to ease.

During September, quotations were generally firm, except for a temporary decline in the second week. While the rise was the result of increased offtake in the spot section and rumours of possible restrictions by the Tibetan authorities on export of Chinese silver dollars to India, the occasional recessions were attributed to fresh arrivals and apprehensions of further influx of Tibetan coins. In gold, an initial setback was followed by a distinct uptrend in the first half of the third quarter. Operators derived strength mainly from reports of increased offtake in the spot section and the tension in the international political situation arising from the Suez Canal crisis. Early in the second half of the quarter, prices tended to decline in view of reports from unauthorised arrivals of gold and improved prospects of a settlement of the Suez Canal dispute. The downward trend was, however, soon arrested and, in the closing month of the quarter, quotations were generally well maintained.

During the month of October, the market ruled distinctly firmer, being influenced by developments on the political front in West Asia and the upward revaluation of gold stocks held by the Reserve Bank in pursuance of the Reserve Bank of India Amendment Act, 1956. With the cease fire in Egypt early in November, the bullish fervour in both the metals, noticed toward the close of October, soon abated and a reactionary tendency set in, which lasted up to November 10. Subsequently, the market again steadied up. During the month of December, prices moved narrowly, winding up the year on a steadier note with spot silver at Rs 173-10 and gold at Rs 104-9.

It is reliably understood that the Forward Markets Commission has submitted its report to the

Union Government on the utility of forward trading in bullion in terms of its Press Note issued on February 16, 1956. At the same time, the Commission had also invited applications from Bullion Associations for the purpose of recognition, under Sections 5 and 6 of the Forward Contracts (Re-

gulation) Act 1952, without prejudice to any conclusion that the Commission might reach on the question of permitting forward trading in bullion. There are rumours that the Commission holds strong views on the issue and it may not favour forward business in the context of the present phase of Indian economy.

		Monthly price range for spot Gold and Silver during 1956 was as follows:			
		Gold—per Tola		Silver—per 100 Tolas	
		High Rs. a.	Low Rs. a.	High Rs. a.	Low Rs. a.
January	...	96 14	94 9	178 4	173 2
February	...	102 7	94 6	176 15	172 9
March	...	107 1	98 11	183 13	172 12
April	...	107 0	103 2	183 9	177 9
May	...	106 13	99 15	183 12	170 14
June	...	104 3	100 14	173 11	168 11
July	...	103 8	98 15	174 5	170 5
August	...	105 5	102 6	173 10	170 5
September	...	103 14	102 6	174 15	171 14
October	...	105 13	102 11	174 3	170 7
November	...	106 9	103 11	175 15	171 13
December	...	105 11	103 7	174 13	172 14



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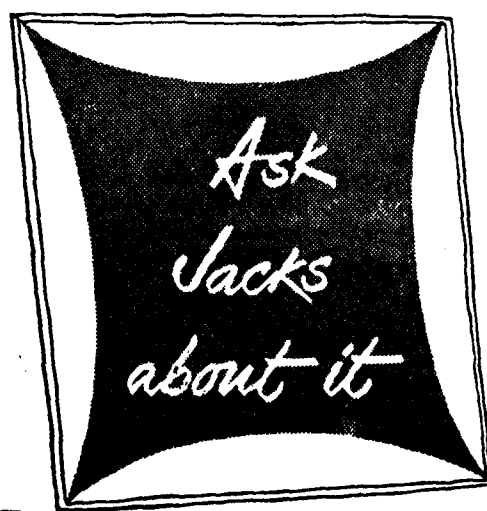
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Need for Stepping up Oilseeds Production

JUDGED by the domestic requirements as well as for maintaining the traditional export markets, India appears to be deficient in the supplies of edible oilseeds despite somewhat increased production in recent years. As the country's population is growing year after year, the needs have been increasing at a greater pace as the per capita consumption of edible oils is at a very low rate. The Indian Central Oilseeds Committee is making efforts to step up production in different States in order to achieve target of production fixed at 76 lakh tons of oilseeds at the end of the Second Five Year Plan. With this end in view, extension schemes are being launched while research work will be taken up at five stations and four sub-stations.

The acreage and production of oilseeds in India during the past two years were as follows:

	Area—Acres	
	1955-56	1954-55
Groundnut	12,585,000	13,548,000
Sesamum	5,738,000	6,501,000
Rape and Mustard	6,262,000	6,025,000
Linseed	3,424,000	3,354,000
Castorseed	1,482,000	1,394,000
	Production—Tons	
	1955-56	1954-55
Groundnut	3,804,000	4,128,000
Sesamum	458,000	589,000
Rape and Mustard	832,000	1,019,000
Linseed	375,000	382,000
Castorseed	126,000	124,000

The acreage of the five major oilseed crops in India during 1955-56 came to 29.5 million acres

as against 26.5 million acres in 1950-51, while the aggregate production in 1955-56 amounted to 5,596,000 tons as against 5,076,000 tons in 1950-51. The target for the Second Plan as referred to above has been fixed at 7.6 million tons, an increase of 38 per cent over the First Plan. About 9 per cent of the total area now under agriculture in the country is occupied by oilseeds at present. The value of the produce from the five oilseeds crop during 1955-56 was estimated at about Rs 343 crores. Although India accounted for a quarter of the world production of oilseeds and ranked as the largest producer of groundnut, the yield per acre is too low. As against 1519 lb. per acre in China and 887 lbs. in U.S.A., India's per acre production of groundnuts remained at 639 lbs. The yield of sesamum per acre was 186 lbs. in India as against 735 lbs. in Burma and 507 lbs. in China.

As no expansion of area under oilseeds was possible in India, increased production has been aimed by recourse to intensive cultivation. Any way the yield must be increased to meet the rising demand, while possibilities of increasing the production and utilization of non-edible oilseeds for industrial purposes with a view to reserving edible oils for human consumption are to be explored profitably. Out of the total pro-

duction of 1.39 million tons of oils in the country, 1.02 million tons are used for edible purposes. This includes 245,000 tons in hydrogenation for the manufacture of vanaspati. A total of 106,033 tons of oil is now being consumed in industry for manufacture of paints, varnishes, soaps and lubricants. It has been rightly suggested that with a view to encourage increasing use of non-edible oils in industries, the Government of India should exempt soaps and paints manufactured from excise duty on inedible oils. It is, however, a matter of gratification that the cotton seeds crushing industry is making steady headway though the progress may be still accelerated.

In view of the tight supply conditions, it is no wonder that the oilseeds market evinced generally firm conditions during 1956. The year commenced on a firm note following encouraging export outlook, better domestic demand, expectation of smaller crops of major oilseeds and receding fears regarding Government's intervention in the market. By the end of January, castor seeds May rose to Rs 126 from the low level of Rs 104 recorded in early December 1955, groundnuts February-March to Rs 31-8 from Rs 25-2, linseed February-March to Rs 31-8 from Rs 26-6. Prices, however, during the month of February worked lower due largely on the announcement of export restrictions on certain foodgrains, which gave rise to fears of similar action in respect of vegetable oils. Moreover, apprehensions of increased tax burdens in the form of excise duty, cess or export duty on oils in the Union Budget were held. Better crop prospects and lower trend of prices in foreign markets in the case of linseed and castorseed also contributed to the easy tendency. Castor May dropped to Rs 115-6, Groundnuts April-May Rs 29-11 and Linseed April-May to Rs 29-9. This decline, however, proved to be temporary. Despite the imposition of an excise duty of 6 pies per lb. on all vegetable non-essential oils prices of all important oilseeds recorded substantial gains during the month of March. Castor May moved up to Rs 139-8, groundnuts April-May to Rs 35-12 and linseed April-May to Rs 34-6. During the month of April groundnuts and linseed turned somewhat lower, while castor was marked up to Rs 145 for May position.

On April 11, 1956, the Government of India announced their decision to levy a fresh export

duty of Rs 250 per ton on linseed oil which has been removed during the last quarter of 1956. The increase of Rs 50 per ton in the export duty on castor oil seemed to have had no adverse effect on castorseed prices in view of the excellent demand from U.S.A. and shortages of supplies.

The market ruled firm during the first half of May to turn quiet thereafter. The ban imposed by Government on exports of mustard and rapeseed oil from May 16 also affected market sentiment bearishly. The market during the month of June made a mixed show on extension of free licensing period for different oils and fixation of specific quotas for certain oilseeds and oilcakes. It was decided to continue free licensing of kardiseed oil and nigerseed oil up to September 1956 and cottonseed oil with a ceiling up to the end of October 1956 and castor oil up to the end of December 1956. The market during the beginning of July was again somewhat lower but later on a steadier tone was in evidence. Prices again ruled firm in August on account of excessive rains in some of the producing areas. In September, the market was featured by renewed firmness in spot groundnuts due to dwindling bag-end supplies and sharp drop in new crop castor-seeds. During the month of October, prices showed a mixed trend with groundnut showing a net decline and castorseed a net rise over the month. Linseed, however, showed no change over the month despite Government's announcement on 21st October extending the validity period of free licensing of linseed oil exports up to the end of December 1956. During the month of December prices moved irregularly. During the latter half of the month, groundnuts recovered moderately following rumours that the Government might announce export quotas for groundnut oil and H.P.S. nuts. The expectation was belied by the Government's announcement on November 21, which indicated that there would be no change in the export policy regarding groundnut and groundnut oil. As a result prices of groundnuts recorded decline but recovered on second thoughts of supply position. Castorseed, however, showed a marked firmness throughout the month of December owing to keen demand for castor oil from overseas, particularly from the U.S. and the U.K., shortage of stocks locally and continued tension in Suez. Linseed also recorded a sharp rise due to revival of demand. The upward trend in castor was accelerated following free licensing export policy for the first half of 1957.

Exports of vegetable non-essential oils from India during 1955-56 and 1954-55 were as follows:				
Oils	Quantity in Cwts		Value in lakhs of Rs	
	1954-55	1955-56	1954-55	1955-56
Castor Oil	603,416	778,716	3,51.13	4,09.36
Groundnuts Oil	2,009,304	2,496,825	12,82.74	15,69.05
Linseed Oil	1,06,526	1,619,343	1.12.56	9,43.36
Mustard or Rape Oil	9,451	16,557	8.93	13.09
Salad Oil	18,639	89,264	13.53	65.65
Sesamum Oil	3	84,582	..	58.33

1956—A YEAR OF UPS AND DOWNS

1956 was a year of mixed showing with heavy ups and downs in prices on the local Stock Exchange. Peak levels were touched by most of the scrips during the second half of the year. Activity was, however, mostly confined to Tea, Engineering and Miscellaneous sections. The market finished at only slightly above the lowest levels for the year.

The market, which started the year on a subdued note, was confronted with heavy selling pressure due to various adverse factors. Mainly amongst these were, the Planning Commission's suggestions for an annual tax on total wealth as a complement to Income-Tax and Death Duties, fears of additional taxation in the 1956-57 Budget, the clearing difficulties experienced due to bank strike, the promulgation of the Ordinance taking over the management of all the Insurance business and the disturbances over the States Reorganisation plans. Thus, near-panic conditions prevailed throughout January when all efforts, taken by the Stock Exchange Committee to solve the settlement, were of no avail. In February, sentiment deteriorated further and it looked as though the market would not regain its vigour until the Budget was out of the way.

When the Budget proposals were actually announced, the first reaction was a sharp marking down of prices as operators were inclined to attach a bearish import, mainly to the two proposals—the tax on bonus shares and the imposition of super tax on dividends above 6 per cent. But second thoughts appeared to be more reassuring and there was a feeling that the new tax proposals were less hurtful than had been expected. On balance, the market entered the Budget week with a technical position that was sounder than that of any Budget-eve before. An important news to cause a change in sentiment was the Stock Exchange Committee's decision to allow free trading in all the clearing shares from the pre-Budget session.

From March, a recovery movement started, operators being encouraged by good corporate news, a substantial expansion in currency, the prospects of bonus issues by some companies, a constructive interpretation of the revised Industrial Policy of the Government and the postponement of the additional excise duty on cloth. In brief, the market was in good form throughout the second quarter when all equities, with only a few exceptions, touched the highest levels for the year.

The market, however, lacked drive and energy from the beginning of the third quarter and price movements were generally irregular due to alternate bouts of buying and selling. Operators were not enthused over the size of the increase in the coal price sanctioned by the Government. Also, there was a feeling that, apart from loans to be issued by the State Governments, the new Central Loan would siphon off a large sum of as much as Rs 150 crores from the investment market and

that speculative interest would substantially be limited in future due to paucity of funds. Despite the fact that prices were carried down to attractive low levels, there was poor response from professional operators as well as investors who were unwilling to accumulate lines.

The developments relating to the nationalisation of the Suez Canal Company, the news of the happy ending to the controversy over the various proposals under the States Reorganisation scheme and the successful floatation of the State Loans caused a return of confidence in the market in August when a whole-some process of recovery was set in motion. This was, however, proved shortlived and prices again developed a reactionary trend in September when no fresh incentive came to the forefront to keep market's activity well-maintained.

Apart from the anxiety to await further developments over the Suez Canal dispute and fears with regard to the possible effects on exports from this country, certain other adverse factors such as, the recommendations made by the Plantation Inquiry Committee, the decision made by the Pakistan Government to enhance the export duties on certain varieties of jute, the Finance Minister's warning about imposing price control on cloth, the Government decision to take adequate measures to check inflation, apprehensions entertained with regard to the rise in industrial costs in view of the rise in the prices of essential commodities, depressed sentiment in the market at the end of September when operators were generally inclined to book profits at higher levels.

To make matters worse, came the announcement, at the beginning of October, of the Government's refusal to permit an increase in the Indian Iron dividend and the news of the cut in the ex-factory prices of cement in respect of several companies. Above all, operators were worried over the growing stringency in the money market, continued adverse balance of trade and the need for financing the accelerated activities in business and industry. With the result, they were reluctant to adopt an aggressive stand, while investors seemed to be earmarking their funds for the new capital issues. Thus, the market was in a moribund state during the last two months of the year. Although steps were taken by the Reserve Bank to revise the Bill Market scheme for meeting the increased credit requirements, there were still apprehensions with regard to the Government's fiscal and monetary policy. Working under these various qualms and doubts, operators were unable to formulate any constructive idea about the future.

On the whole, the market indulged in stone-walling tactics toward the closing stages of the year, because it did not know which way it should take the plunge. Although bulls tried their best to push up prices, there was lack of follow-up. In the midst of these factors, the announcement

of the new tax proposals, the Finance Minister's proposal to assume arbitrary powers to enhance excise and import levies, the news of the Reserve Bank having obtained extensive powers of control over banks and the announcement of the Government's decision not to permit any more issue of bonus shares by companies, created a state of nervousness in the market.

Thus, sentiment was disrupted, resulting in the prices tumbling down precipitously on a broad front due to non-stop selling orders and touching the lowest levels during the last week of December. But for bear-covering and selective buying based on consideration of yield, the decline in prices would not have been halted toward the end of the year. Sentiment was also helped by two important factors—the reports of the World Bank making a further loan of 20 million dollars to the Indian Iron & Steel Company and the feeling that the shortage of foreign exchange could be relieved by the possibility of India receiving increasing economic aid following Mr Nehru's visit to the USA.

On the whole, in contrast to 1955, the market in 1956 was thoroughly in a despondent mood with confidence generally lacking in the outlook, mainly due to the radical changes in the Government's fiscal and monetary policy. Anxiety is now felt as to what will be the actual state of

affairs in the New Year. A section of the operators feels that, from the speeches and indications given by the authorities, it is difficult to anticipate any news of beneficial effect to the market. Others, however, seem to be convinced that, in the field allotted to the private sector, there is no cause for alarm in investment outlook and, once the Government's fiscal policy is crystallised in the light of working for a couple of years of the Second Five-Year Plan, the movement of shares will take a healthier trend, paving the way to a better market. It remains to be seen whether there will be at all a turn in the tide or whether conditions will continue worsening.

In the year's dealings, Engineering shares were generally active. Although price movements were mostly influenced by the speculative activity in Indian Irons, operators were trying to push up prices at every setback on the impression that the large measure of industrial expansion and the spurt in engineering and construction activity, envisaged in the Second Five-Year Plan, would keep the companies in this field busy for many years to come. But, prices, after recording the highest levels in June, suffered a gradual setback toward the close of the year. Apart from other factors, the Government decision to limit

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the Indian Iron dividend to Re 1 per share despite the excellent working results for 1955-56, caused renewed selling pressure. Shareholders felt that, limiting the dividend and at the same time imposing a premium of Rs 3-8 on the right issue was a double blow. Also, they felt that they had to wait for long before they could get something out of expansion plans and the rate of dividend would not be increased irrespective of the profit-earning capacity.

Next to engineering, Tea shares ruled generally steady during most part of the year. From the beginning, investor's confidence was assisted by the hardening auction prices in both Calcutta and London. Scrips of those companies producing quality teas and those gardens situated in Pakistan enjoyed good support with prices recording the highest levels at the end of the second quarter. Price movements from mid-July were, however irregular due to alternate bouts of buying and selling. Apart from the disappointing dividend announcements made by some companies, fears were entertained with regard to the prospects for exports in the event of any complications over the Suez Canal. Operators were also trying to assess the implications of the Plantation Inquiry Commission's recommendations before extending their commitments. Again, apprehensions were entertained that the recommendations, espe-

cially with regard to a ceiling on dividends and a more rigid control on the issue of bonus shares, would have far-reaching repercussions on the capital invested in tea companies. Also, the Government decision to reimpose a ceiling on direct shipments to London and a feeling that even better quality teas might not be sold at the same premium as during the earlier months of the season, caused nervous liquidation in view of the uncertain outlook, especially for Common teas produced by most of the tea companies.

A sudden change in sentiment was, however, noticed toward the close of September due to certain favourable developments on the tea front. It was felt that the decision of the Calcutta Tea Regulation Committee to curtail output from the 20th November would improve the quality of the crop during the current season and would bring about a better balance between demand and supply.

As a matter of fact, Tea shares took the pride of place in trading during the last quarter when values improved on a wide front on renewed demand. Sentiment was also helped by the impressive recovery in the prices obtained at both the export and internal auctions, firmer advices from London following the increased buying in view of the uncertainties over the Suez Canal situation and the news of the Supreme Court having

granted an ex-parte stay of the Madras Plantation Award.

Thus, conditions ruled generally steady during the closing stages of the year although there was no further improvement in prices in view of the fears with regard to the working results of companies following the announcement of super-tax on dividends. It was also felt that the pressure of demand for tea would prove to be short-lived and prices might develop an easier trend in the New Year when once the large shipments, diverted via the Cape of Good Hope, would arrive in Britain.

In the year's trading, the only section, that appeared to be attracting very little interest, was Jute. In brief, this section was practically neglected due to two main factors—the growing disparity between raw jute and manufactured goods prices and the flow of disappointing dividend announcements. With the result, prices showed a gradual downward trend till the end of July when the market took a slight turn for the better. Thanks to a feeling that enquiry for jute goods might broaden for stock-piling purposes in the event of the Suez situation, prices staged a sizeable recovery during the August-October period. Also, the IJMA's decision to re-seal looms encouraged operators to push up prices on the feeling that the move might improve the financial condition of the industry.

Enthusiasm was, however, short-lived and prices again developed a sagging tendency toward the closing stages of the year on reports of the threatened strike at some of the mills and the uncertainty about an improvement in the working results of mills.

Coal shares, after ruling generally firm till the middle of the year, developed an easier trend toward the close. The initial firmness was mainly due to the result of a sudden change in the attitude of the Planning Commission toward the private sector of the industry. Although the recommendations made by the Industrial Tribunal caused a setback in prices at the end of May, the news of the allocation of an additional 10 million tons to the private sector under the Second Plan contributed to the sustained support. Conditions, however, turned dull from July when operators were generally inclined to await the full effects of the Award on the working results of various collieries. The news of the continued strike and the disturbed situation in the Raneeunge coalfields also adversely affected sentiment, resulting in a steady marking down of prices toward the close of the year. The only exception to the general trend was Burrakur, which received consistent support from interested quarters.

Except for a subdued trading during the last quarter in the absence of any encouraging news

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from the cloth market, Textile scrips ruled generally firm. With keen internal demand for cloth, prospects of a more realistic policy being pursued in regard to expansion and modernisation and the permission sanctioned by the Government for the installation of new automatic looms, prices forged ahead to record the highest levels in June. These could not be sustained till the close of the year, as the market lacked drive in view of the uncertainties hanging round the outlook for the industry. It was felt that the additional increase in the excise duty would make inroads into the handsome profits which were being made by the industry. The depressing factor on the export front was also a contributory factor to the restricted activity in the section.

There was little activity in the Sugar section where almost all scrips were neglected throughout the year. This was mainly due to renewed quieter advices from

the commodity market, thanks to increased production and the easy supply position.

Although prices moved in sympathy with the general trend of the market, the Miscellaneous section provided many bright spots on increased investment and speculative support, being influenced by encouraging dividend announcements and the issue of bonus shares by some companies.

Bank shares remained, on the whole, steady with prices touching the lowest levels at the end of the first quarter and the highest levels during the third quarter of the year.

Activity in the Giltedged section was generally restricted. Prices, after ruling firm during the first two months of the year, developed a sagging tendency toward the close due to a predominance of sellers, mainly due to the prevalence of tight money conditions.

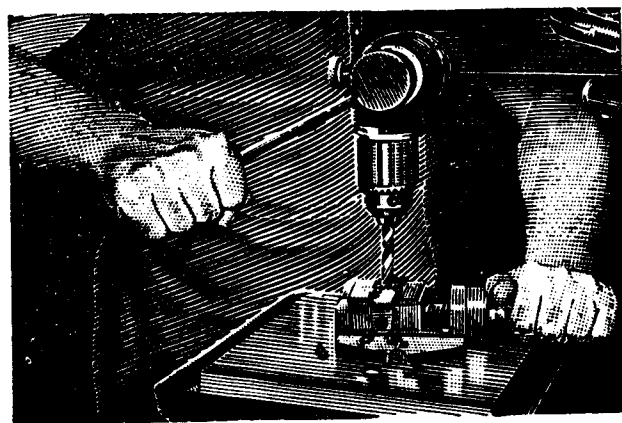
The following table shows the price trends of a few selected scrips during the year:

	3% 1986 Conversion		United Coml. Bank		Elgin Mills		Bengal Coal		Burrakur Coal	
	High	Low	High	Low	High	Low	High	Low	High	Low
Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1952	85	0	79	12	49	8	37	1	21	1
1953	83	7	81	8	47	12	31	4	18	1
1954	83	9	80	3	47	8	38	12	19	6
1955	81	8	80	3	58	1	42	8	28	13
1956	80	13	72	10	61	1	45	0	29	12
Jan.	80	10	80	3	53	0	48	8	27	8
Feb.	80	13	77	8	49	8	48	3	27	8
Mar.	77	12	76	8	49	8	45	0	27	12
April	77	12	76	8	50	12	49	8	27	6
May	78	0	77	0	52	4	50	0	27	10
June	78	0	77	0	51	8	50	8	29	2
July	77	12	76	2	61	4	57	0	28	10
Aug.	76	5	74	15	59	4	57	8	28	10
Sept.	75	12	74	12	58	4	56	8	27	14
Oct.	75	4	74	2	56	12	56	0	29	12
Nov.	74	7	72	10	56	4	55	6	29	10
Dec.	73	7	72	10	53	0	53	0	27	4

	Anglo-India		Barnagore		Howrah		Cawnpore		Eishnauth	
	High	Low	High	Low	High	Low	High	Low	High	Low
Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1952	322	0	232	0	210	0	151	0	32	7
1953	239	0	194	0	175	8	136	0	26	0
1954	274	0	187	0	193	0	139	0	35	0
1955	258	0	208	0	218	0	169	0	34	10
1956	216	0	135	0	164	8	95	0	27	10
Jan.	216	0	207	0	164	8	163	0	27	10
Feb.	N.T.	N.T.	N.T.	N.T.	163	0	163	0	25	7
Mar.	189	0	183	0	146	0	140	0	24	1
Apr.	183	0	169	0	143	0	132	0	23	4
May	186	0	168	0	151	0	133	0	24	1
June	173	0	167	8	150	0	136	0	24	3
July	169	0	156	0	134	0	128	0	22	4
Aug.	188	0	165	0	148	8	131	0	24	5
Sept.	193	0	182	0	142	0	140	0	25	0
Oct.	185	0	168	0	140	0	134	0	23	12
Nov.	165	0	154	0	119	12	112	9	22	4
Dec.	145	0	134	0	97	0	95	0	20	0

N.T.—No transaction took place.

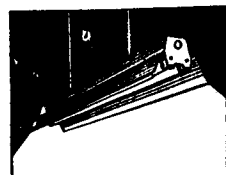
	Indian Iron		TEXMACO		Orient Paper		Titagur Paper		India Steamship	
	High	Low	High	Low	High	Low	High	Low	High	Low
Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.	Rs. a.
1952	29	6	20	8	...	...	39	4	21	14
1953	27	2	21	11	...	...	37	6	33	8
1954	36	4	25	0	15	8	9	0	15	11
1955	43	2	32	2	27	8	11	7	35	15
1956	39	2	28	6	25	12	19	0	41	2
Jan.	38	7	34	6	22	3	19	0	35	0
Feb.	33	4	31	2	21	7	19	14	35	12
Mar.	35	13	31	10	23	10	20	5	36	3
Apr.	36	1	34	2	24	8	23	8	40	4
May	38	1	34	8	25	12	23	8	39	12
June	39	2	35	5	25	5	22	0	39	11
July	36	9	34	15	24	0	22	8	41	2
Aug.	37	13	36	6	24	6	22	8	40	10
Sept.	36	13	35	2	24	4	23	12	37	8
Oct.	36	0	33	12	23	12	23	1	37	7
Nov.	34	3	32	12	22	12	21	12	37	7
Dec.	31	3	28	6	21	4	19	5	34	9



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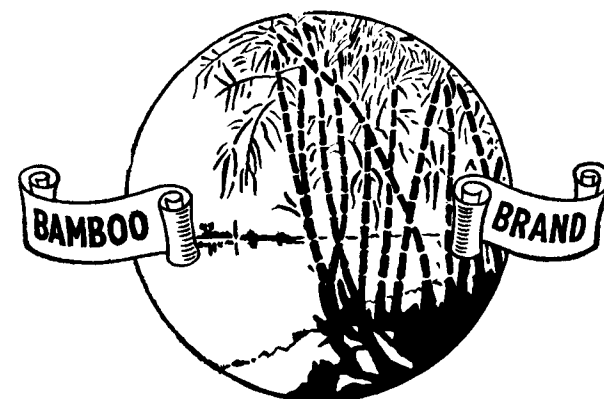
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Bombay Stock Exchange in 1956

INVESTORS RECEIVE A JOLT

THE year 1956 has proved somewhat disastrous for the investors on the Bombay Stock Exchange and the values in the ultimate analysis finished around lower. The year under review has been characterised by three distinct phases. During January and February, the downward trend, which was discernible toward the end of 1955, was further accelerated on apprehensions of heavier doses of taxation in the context of the needs of the Second Five-Year Plan.

The second phase was marked by a resumption of the upward trend from early March in view of the fact that the increase in taxation had already been discounted. This upward trend continued for about six months till the end of August, reflecting the buoyance of Indian economy and other favourable factors. But the tables were again turned with the entry of the new Finance Minister, Mr. T. T. Krishnamachari, whose first act was to increase the excise duty on cloth to a very great extent. The downward trend, which started following this measure developed in a bearish tendency with another jolt having been administered by way of supplementary taxation measures on 30th November. The market, which was trying to stabilise during the month of November at lower levels, turned nervous following this bolt from the blue and there came about a veritable crash in values following the recurrent provocative statements from the Finance Minister. The movements of indices of Variable Dividends Industrial securities go to indicate the impact of the fall.

	Dec. 24	March 3	Aug. 25	Dec. 22
Regional	1955	1956	1956	1956
Bombay	136.9	122.7	141.1	123.8
Calcutta	119.8	111.9	110.0	101.8
Madras	125.2	121.3	141.6	127.2
Delhi	142.6	125.1	144.5	123.0
All-India	130.2	120.1	128.5	115.2

The landmarks in the movements reflect the Government policies which have been in the making from time to time in the context of the Second Five-Year Plan. Despite the steep fall, the market, during the year-end, did not depict signs of stability. Confidence was impaired and investors as well as professional traders wondered as to when the market would return to its normalcy.

The fundamental outlook for the market in terms of the implication of the Second Five-Year Plan is, no doubt, healthy even in the face of increased taxation; but there has been a complete reversal of sentiment on account of apprehensions of further heavier taxation by way of annual wealth tax, expenditure tax and measures for

plugging all loopholes for evasion of tax following the Minister's pronouncements from time to time in the wake of exorbitant increase in excise duty on cloth and other taxation measures as well as for compulsory deposits. The fear, that extra profits will be mopped up and that the return to investors in view of the penal dividend tax and stringent monetary conditions would not in any way be allowed to be increased, has, no doubt, acted as a greater damper.

So far as the outlook for the stock market is concerned, one might very well say that it mainly depends on Government's monetary and fiscal policies. Suffice it to say that depressed conditions on the stock market are not conducive for encouraging progress in the private sector. Healthy conditions in investment market can assure free flow of capital. Once confidence is impaired, it is difficult to restore it even with the best of intentions. This is what has happened even in the New Year. Hence, stock markets circles feel that Government would do well to pursue a steadfast policy which would yield results in the larger interests of the country. So long as the private sector exists, conditions on the stock market will have much say in making or marring the prospects of development in this sector.

The year 1956 commenced on an easy note with talks of big premium for Tata Steel new issue and conjectures regarding heavier taxation such as wealth tax, capital gains tax, broke the back of the market. Nationalisation of Life Insurance on the 19th January gave a severe blow. The decline during the month of February proceeded further with the proximity of the Budget. With the release of Budget proposals, the decline was accentuated; but, second thoughts on Budget induced a better feeling and despite graded tax on dividend disbursement over 6 per cent and bonus tax at 2 annas in a rupee, increased excise duty on cloth and sugar, the market resumed the upward trend from the beginning of March. With small setbacks, the main trend remained upward and this continued well up to the end of August barring certain exceptions. Indian Iron remained subdued since the announcement of the right issue in the proportion of one share for every share during the month of June, while, with Tata Steel Ordinary being listed ex right with issue of new shares in the proportion of one share for every share at a premium of Rs 30, the market gained further strength. By the third or fourth

week of August, prices of industrial counters reached new high levels. The trend, however, was reversed from the end of August with the imposition of additional heavier excise duty on cloth.

The main trend remained downward and, with the interim taxation proposals on 30th November, the bottom was knocked off and sharp losses were recorded on bearish sentiment having been generated on increases in import and excise duties on certain items and the introduction of compulsory deposits. The recurrent pronouncements by the Finance Minister, during the year-end, on heavier taxation measures and that he might come to Lok Sabha not once or twice but even four or five times in a year according to needs for raising resources unnerved the market and, with heavy losses suffered by bulls, despondency descended. The market is now awaiting the next move from the Government and especially the framing of rules for company rules.

In the face of emergence of monetary stringency, the Gilt-edged market commenced the year on a steady note with values gaining some round till mid-February. In the latter half of the month, the market became somewhat easy following the increase of 1 per cent in the British Bank rate effective from February 16 1956. But, with the Reserve Bank rate remaining unchanged, the uncertainty hanging round the market subsided later. The decline in the irredeemable 3 per cent Conversion Loan of 1946 was more pronounced and this dropped to Rs 80 on 21st February 1956 from Rs 80.7 on February 15. It was at this level that official support had been extended to this loan in December 1951. But, as the expected support did not materialise, the loan suffered the most, closing at Rs 77.8 by the end of February. However, the dated-Loans fared better from the second week of March and this continued up to mid-June following persistent investment demand and scarcity of floating stock in some



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of the scrips. Even the 3 per cent Conversion Loan, which had gone down to Rs 76-10 by 11th April, rallied up to Rs 77-10 on June 8. However, with the floatation of the Central Government's Loans for an aggregate amount of Rs 150 crores and 15 State Governments' Loans for a total of Rs 64 crores (total collections Rs 74 crores), the market once again depicted an easier tendency with 3 per cent Conversion touching a new low rate of Rs 73 by the close of the year. Large-scale offerings in some of the dated Loans and State Loans remained at times unabsorbed.

Debentures and Preference shares bearing fixed interest rates lost ground moderately during the year in view of the revision of yield ideas following acute stringency in money market during the second half of the year.

The most important event during the year was the nationalisation of Life Insurance business in the country as from January 19, 1956. As a result, this group of shares suffered in view of the belated compensation that will be paid to the holders.

Bank shares, which had turned easier on fears about nationalisation in the wake of Life Insurance business, steadied up on better working results. Bank of India gave one bonus share of Rs 50 fully paid-up for every five shares in celebration of the Golden Jubilee.

Electric shares suffered the worst with alround decline; but, with the passing of the Electricity Act Amendments, the shares steadied up at lower levels.

The transport situation made a mixed show. Shippings were slightly better due to satisfactory results following increase in coastal and overseas freights.

Among Automobiles, Hindustan was a weak spot after the issue of convertible Preference shares. Premier Automobiles, after faring well, receded on heavier tax on big cars levied as from 1st December.

Cotton Textiles fared well during the major part of the year on encouraging results; but the enormous increase in the excise duty levied from 1st September and additional taxation measures

from 1st December broke the backbone with extra profits being mopped up. As against talks of scarcity, the market is meeting with plethora of goods which are difficult to move due to slow off-take. In such a state of affairs, the efficient units in 1956 will have reasonable profits, while the marginal units, which were first looking up, are finding difficulties. The rayon industry had a fairly good year; but, in view of the decline in prices during the latter part of the year, the benefit of increased production will be offset.

Though the working of the Steel companies had been fairly encouraging during the year 1955-56 with further increase in retention prices up to 1960, Government's refusal to allow these companies any increase in the dividend even to a modest extent adversely affected sentiment, especially in Indian Iron due to very low yield. For further expansion, TISCO was successful in getting loan of about Rs 32 crores from the World Bank, while the company raised new equity capital at a premium of Rs 30. Indian Iron & Steel Co., also successfully negotiated for a

second loan from the World Bank and the company, as announced in last June, is increasing its capital.

Engineerings were steady with Tata Locomotive in the forefront on maiden dividend. Cement concerns are steadily increasing their production. A.C.C. has increased its capital by the issue of one ordinary share at a premium of Rs 20 for every two shares for expansion and engineering project. Digvijay also received permission to issue equity capital in the ratio of one share at a premium of Rs 17-8 for every two Ordinary shares and Preference capital in the ratio of one share for every such share. Cement prices in the case of several new units were reduced to bring in line with those of the old units. The State Trading Corporation is now handling the sales business in view of the imports which have been arranged to meet the country's needs.

Sugar shares fared better following increased production. Belapur issued one bonus share for two shares during the year.

Chemical shares received some fillip; and Tata Chemicals announced a maiden dividend of annas 12.

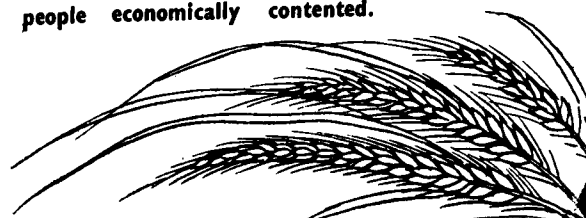
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PROSPERITY PLANS OF KASHMIR

IN the course of last few years of planned development, firm foundations of prosperity and stability have been laid in the Jammu and Kashmir State. The State's Five-Year Plan has been completed and work on the Second Plan is in full

swing. The First Plan, though started late, was a great success and the allocations made for different sectors in it, were nearly fully utilized as is indicated by the following figures.

Total outlay: Rs. 1274.15 lakhs

Actual expenditure for the year.	(Rupees in lakhs).	
	Central Sector	State Sector
1951-52 and 1952-53	117.17	92.28
1953-54	112.05	45.13
1954-55	251.20	54.74
Accounts (March Preliminary) for 1955-56	357.03	94.56
	837.45	286.71
		1,124.16

While the objectives of Planning have been the exploitation of material resources of the State, social and economic up-lift of the people, and increasing per capita income with consequential improvement in their standard of living, the foremost aim of the First Plan was the attainment of self-sufficiency in food. Accordingly high precedence was given to the development of irrigation facilities and agriculture in the Plan. Production of electric power, development of communications and expansion of educational facilities were also accorded a prominent place in it. An abstract statement indicating the distribution of the Plan Provision among various heads is given below:

Head of Work.	Plan Provision 1951-55 (Rs. in lakhs)
1. Power	295.08
2. Irrigation	268.68
3. Road Development	254.97
4. Rural and Urban Water Supply	99.76
5. Tourism	50.86
6. Cottage and small-scale industries	83.12
7. Agriculture	20.34
8. Animal Husbandry	24.38
9. Drug Farming	8.48
10. Soil Conservation	9.92
11. Forest Works	6.85
12. Housing	13.32
13. Health Services	44.83
14. Education	66.06
15. Miscellaneous	27.50
Total	1,274.15

The physical targets set in the plan were generally realized in full and progress made in different sectors was harmonious.

With the execution of various projects fresh opportunities of employment arose and thousands of workers were employed even during the slack months of rigorous winter in Kashmir. Also, money incomes of the people increased—roughly to 5 per cent per capita—and different trades received a fillip during the Plan-period.

Having made this advancement in both economic and social fronts, the State proceeded resolutely with the execution of the Second Five-year Plan this year. The over-all structure of the Plan embraces the broad patterns of development in various fields of human endeavour. The plan-frame has been prepared

on the basis of suggestions made both by the people and economic experts and it has received the approval of the State legislature also. It is an ambitious and large-sized plan and the following statement indicates the provisions made for different sectors in it:

Head of Development	(Rs. in lakhs) Provision for 1956-61
1. Agriculture and Community Development	734.17
2. Irrigation and Power	656.57
3. Roads & Road Transport	600.00
4. Village & small Indus.	302.00
6. Education	300.00
6. Health	300.00
7. Housing	100.00
8. Other Social Services	57.00
9. Miscellaneous (including Development of backward areas)	450.06
Total	3500.00

In addition to the above following items have also been included with financial Provisions shown against each:

Head of Development	Total cost (Rs. in Crores)
Boarder Canal	12.00
Flood protection works	3.00
Large and Medium-scale Industries	1.27
Total	16.27

Total outlay: Rs. 51.27 crores.

While the importance of agriculture and community development continues to be acknowledged, high priority has been assigned to large irrigation and power projects and industrial development in the Second Plan. Main targets expected to be achieved are as under:

I. AGRICULTURE AND COMMUNITY DEVELOPMENT

- 13.68 lakh maunds of Paddy
- 9.57 " " " Maize
- 1.65 " " " Wheat
- 2.58 " lbs of increased production of fish.

II. IRRIGATION AND POWER

- Total additional acreage to be brought under irrigation is estimated at about 1.44 lakhs. This includes such areas also in which irrigation will be stabilised. Additional food to the tune of about 15 lakh maunds will be produced by the end of the Plan period.
- 17,800 additional Kwts. of energy

III. ROADS AND TRANSPORT:

- Construction and development of roads including those in progress at present: 820 miles.
- Upgrading of roads: 740 miles.
- Major bridges: 19 miles.

IV. SMALL-SCALE INDUSTRIES AND HANDICRAFTS:

- Cocoon production per oz. of seed to increase from 24 seers to 40 seers.
- Raw-silk production to increase from 1.80 lakh lbs. to 3.00 lakh
- Number of Emporia to increase from 13 to 21.

V. EDUCATION:

- 1,500 Basic Schools.
- 6 Post-matric Training Schools.
- 50 Primary Schools to be converted into Basic Activity Schools.
- 40 Existing Middle Schools to be converted into High Schools.
- 20 High Schools to be turned into Multilateral Higher Secondary Schools.
- 10 Existing Secondary Schools to be turned into Higher Secondary Schools.
- 2 Post graduate Training Colleges for Women, one college for Physical Education and raising status of 4 Inter-college to Degree standard.
- I.M.E.D. class to be started.

VI. HEALTH:

- Increase in bed-strength in Provisional Hospitals by 300.
- Opening 16 dispensaries in mofussils.
- Increase in the bed-strength of Chest Diseases Hospitals by 300.
- Organisation of District Public Health Services.
- Establishment of a Medical College.

Opportunities of employment estimated to arise during the Plan period are:
Skilled labour 0.70 lakh man months
Unskilled labour 4.88 lakh man months

It is also estimated that as a result of successful completion of the Second Five Year Plan, per capital income in state will rise by 20%.

FINANCIAL POSITION:

The economic progress made by the State is represented by the Budget figures of the current year also. The Revenue receipts for the current Budget year have been estimated at Rs 673.67 lakhs. It is the record figure in the history of the State never attained before. The Expenditure estimates for 1956-57 stand at Rs 706.17 which also is a record figure so far as Revenue Expenditure is concerned. On the basis of these estimates a Revenue deficit of Rs 32.50 lakhs has been anticipated for the budget year.

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POSITION	CAR	TON MILES PER GALLON	ACTUAL MILES PER GALLON
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2	NASH AMBASSADOR 6	58.14	25.19
3	OLDSMOBILE 88 V-8	56.87	22.55
4	STUDEBAKER PRESIDENT V-8	55.30	25.39
5	BUICK ROADMASTER V-8	53.74	19.78
6	DODGE CUSTOM ROYAL V-8	52.23	22.33
7	PONTIAC CHIEFTAIN V-8	51.93	21.61
8	MERCURY MONTEREY V-8	51.92	21.59
9	PACKARD PATRICIAN V-8	51.43	18.75
10	RAMBLER SUPER 6	51.26	27.47
11	LINCOLN CAPRI V-8	50.37	18.98
12	CHRYSLER NEW YORKER V-8	50.11	19.02
13	HUDSON WASP 6	50.06	22.12
14	HUDSON HORNET 6	48.79	20.65
15	FORD FAIRLANE 6	48.72	22.82
16	CHEVROLET BEL AIR 6	47.33	21.54
17	CHRYSLER WINDSOR V-8	47.07	18.23
18	FORD FAIRLANE V-8	45.79	20.40
19	DE SOTO FIRE DOME V-8	43.84	17.39
20	PLYMOUTH BELVEDERE V-8	42.77	19.37
21	CHEVROLET BEL AIR V-8	42.39	19.44

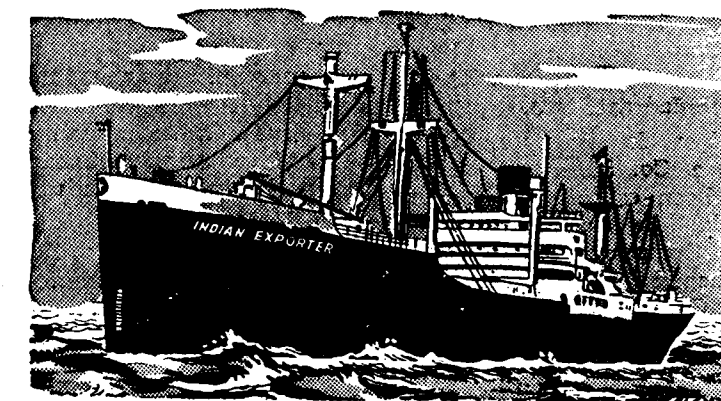
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Before the Coal Industry Nationalisation Act came into force in Great Britain, Powell Duffryn Ltd. were one of the largest Colliery Owners in Europe. At their collieries in South Wales they installed many coal washeries, batteries of coke ovens and associated by-products plants. They maintained close association with world developments in coal carbonisation, and obtained considerable knowledge and experience of the many processes and equipments used in this industry.

After the nationalisation of their collieries, Powell Duffryn Ltd. formed a number of industrial and commercial undertakings. One of these subsidiary companies, Powell Duffryn Technical Services Ltd. provides technical consultancy services in all aspects of mining, and has carried out large scale investigations into mining problems throughout the world. This Company is well known for its work in connection with the development of the lignite deposits at Neyveli in Madras State.

The other founder Company, The Coppee Co. (Great Britain) Ltd., has been established in the United Kingdom for over a century, the Company having been founded there by its parent Evence Coppee & Co. Ltd. of Brussels.

The Coppee Organisation are leading designers and builders of coal washing and coal carbonisation plants and have built many such installations in the United Kingdom and elsewhere.

They have now widened the scope of their activities, both on their own account and by association with other Concerns, with processes for the recovery of valuable chemical compounds such as cyanogen and pyridines, the recovery of hydrogen sulphide by wet process, the purification of coal gas under high pressure, and with plants for the manufacture of nitrogenous and phosphatic fertilizers.

The have also entered the field of gas production, and are able to offer the latest types of gas generators, for the gasification of a wide range of fuels.

A Syndicate has been formed by Evence Coppee and its associated companies, seven firms in all, to carry out full scale research work in connection with chemical and chemical engineering problems. The firms in this Syndicate comprise iron and steel producers, colliery owners, coke oven operators and electrical power producers.

Powell Duffryn Coppee Ltd. is thus able to offer services covering a wide range of the projects envisaged in India's industrial expansion, with the backing of the experience and resources of large organisations.

To represent their interests in India they have appointed Andrew Yule & Co. Ltd. a company of the highest reputation and one of the largest business organisations in the country.

Having now briefly illustrated the organisation within whose frame work Powell Duffryn



Conversion Plant for Synthesis Gases.

Coppee operates, an outline of the main activities of this Company, with respect to India can be given.

COAL WASHING:

The expansion of the Iron and Steel Industry and the consequent development of the coalfields in India, occupy a prominent position in the second Five Year Plan. The building of three new steel plants, together with the expansion schemes of the Tata Iron and Steel Co. Ltd., and the Indian Iron and Steel Co. Ltd. will call for greatly increased supplies of coking coal. Steel making requires good metallurgical coke and this in turn means that coking coals will require beneficiation to ensure that coking coal of the correct ash value is available for the coke ovens.

Furthermore, increased use of mechanical methods of mining, together with the growing complexity of coal seam characteristics, will demand coal cleaning systems which are highly flexible and which are able to give the greatest accuracy in coal preparation. The development of Industry in India with its many and diverse fuel applications will require a more stringent and regular quality in the coal which it uses. The efficient treatment of coal is thus an important factor in the industrial development plans.

Powell Duffryn Coppee Ltd. are able to draw upon many years of experience in this class of work, and are organised and equipped to design and erect complete coal handling and preparation plants from the pit head to the loading of the final washed products and the disposal of rejects.

It is beyond the scope of this article to enter into detailed discussion on the technicalities of coal beneficiation, but it can be said that Powell Duffryn-Coppee can supply plant of the most modern design including the following processes, covering the most divergent ranks and grades of coal.

- (1) Washing by dense media
 - (a) D. S. M. Shallow Bath System
 - (b) Barvoys Deep Bath System

- (2) Jig washing using the Coppee Automatic Baum System.
- (3) The D.S.M. Cyclone Separation Process

- (4) Vacuum Flotation and Froth Flotation Processes for the treatment of Coal Slurries.

(1) Heavy Media System: The D.S.M. Shallow Bath washer provides a very accurate method of gravity separation, for the full recovery of coal products, and is particularly efficient in the treatment of coals with a high percentage of near gravity material such as are found in the coalfields of India.

The system is flexible and gives efficient two product separation at any desired specific gravity according to the varying nature of the coal treated. Slimes tailings, crushed shale or magnetite are all suitable as media and a wide range of specific gravities is possible dependent upon the medium used. With Indian coal magnetite will probably be found to be the most satisfactory medium.

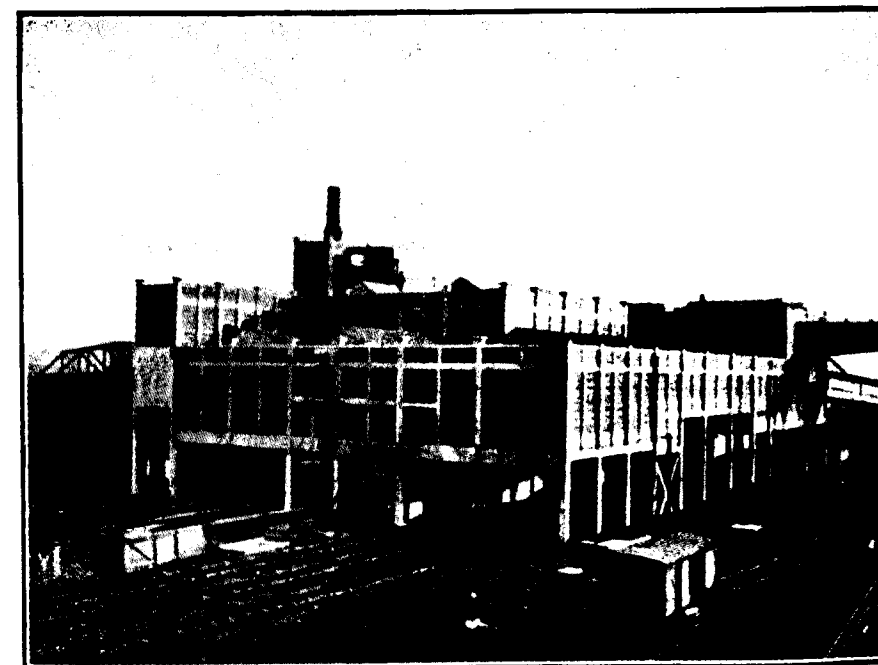
The recovery of the dense medium is simply and continuously maintained by means of cyclone thickeners, or by a combination of cyclones and magnetic separators when magnetite is used as a medium. The specific gravity of the medium is automatically controlled to within very fine limits.

The Barvoys Deep Bath system can be provided in cases where a three product separation in one bath is considered to be the correct answer to the particular washing problem.

(2) Jig Washing by Coppee Automatic Baum Separator: The Baum system of coal washing is well known and requires no detailed description. In the Coppee Baum Wash Box is incorporated many years of experience in jig washing and it is completely automatic in operation.

The wash boxes are fitted with rotary air valves of an improved type allowing a very flexible adjustment in the operation of the box together with a greater coal throughput.

(3) Coal Treatment by DSM Cyclone Separator: In the Cyclone



Coal preparation plant of capacity 300 tons per hour.

Separator, is utilised the principles of the hydro-cyclone in washeries, as thickeners, classifiers and as heavy medium washers.

Used as a washer, the Cyclone Separator provides an extremely accurate method of cleaning coal of a size range from 1½" downwards.

By using the centrifugal forces contained in the Cyclone it is possible to clean coal and to obtain the highest possible yield even when the coal treated has a high percentage of near gravity material. This is an important feature in the treatment of Indian coals which generally contain a high percentage of such material.

Magnetite is generally used as the heavy medium, but crushed shale or slimes tailings may be satisfactorily employed for this purpose if they are of the desired quality. Magnetite will, however, give a greater range of specific gravities of separation.

The Cyclone separator may also be used with water in lieu of a heavy medium in the treatment of very fine coal of below 16 mesh size.

Losses in the medium are kept to a minimum by the use of cyclone classifiers and magnetic separators, if magnetite is being used in the medium recovery system.

A number of Cyclone Washing Units have been built and successfully operated in Europe, and The Coppee Co. have recently put into operation a plant at Nine Mile Point Colliery in South Wales which is the first plant of its type to be built in the United Kingdom.

The results obtained from this plant have been remarkably good. The coal is being cleaned to the theoretical separation figure and the loss of coal in the rejects is averaging less than 0.1%. These results are being obtained with a coal size range of ¾" to 1mm and are remarkable when compared with results obtained in washing this coal by other methods. Even with this fine size coal the loss of magnetite is only amounting to 1 lb. per ton of coal washed.

(4) Slurry Treatment: It may be mentioned that Powell Duffryn

Coppee are able to supply plant for the treatment of coal slurries of size range minus ½ mm by Vacuum Flotation or Froth Flotation methods, but there appears to be little necessity at present for treatment of coal slurry from Indian Mines. Generally the recovery by flocculation, in which the ash content of the flocculated slurry is dependent upon the partial cleaning received in the washery, is sufficient.

COAL CARBONISATION & BY-PRODUCTS

The carbonisation of coal by means of by-product coke ovens continues to play an important part in industrial life, particularly in relation to the making of iron and steel.

The demand for high grade coke becomes more exacting as industry develops, and the availability of high grade coking coal presents an increasing problem.

Improvements in coke oven design are, therefore, of first consideration to the designer and here Powell Duffryn-Coppee have at their disposal the experience of the Coppee Organisation, who as the oldest firm of coke oven builders in existence, have always maintained a position at the forefront of modern developments and have pursued a policy of quality of construction before any other consideration.

The general construction of the Coppee underfired regenerative coke oven is well known and there is no need for elaborate details to be given here. Changes are, however, always taking place in the light of knowledge and experience, and a noteworthy achievement by the Coppee Organisation is their development of an integral underjet system of coke over firing by which is ensured the complete control of the air as well as the lean gas. A battery of 38 ovens of this type has been installed at Tertre in Belgium, with complete success.

In addition to their use as fuels the increasing demand for the manufacture of a very wide range of organic chemicals and dyestuffs, now becoming more evident

as industry develops, will greatly enhance the value of coal and coke as raw materials. Considerable progress has been made during the past 20 years in the development of methods for the efficient recovery of these coal by-products.

The efficiency of by-product recovery is very much dependent upon the design of the by-product coke oven and its heating system. This has not been overlooked in the Coppee oven and such points as the relative heights of coal charge and flue, the re-circulation of gases, efficient and flexible heating control, are all given the most careful attention to ensure that the recovery of by-products is kept at as high a level as possible.

By-products resulting from the carbonisation of coal are similar and are varied only by the type of coal used and the conditions under which the carbonisation is carried out. Four primary products are produced viz coke, gas, tar and ammonia liquor, and of these only the coke is marketable without further treatment.

In the efficient treatment of gas, tar and ammonia liquor, for the recovery of by-products, Powell Duffryn-Coppee are designers and builders of plant well in line with modern practice.

By-product recovery covers an extremely large field and the many processes involved are quite beyond the scope of the present article. It is of interest, however, to record a few details of some of the plants which Powell Duffryn-Coppee can place at the service of industry in India.

(1) Tar: Tar is now a by-product of increasing value and importance. In the continuous type of tar distillation plant incorporating the latest types of pipe still, Powell Duffryn-Coppee are able to offer plant which permits distillation with the minimum heat re-

quirements and provides at the same time high quality products of distillation. This is most important as some of these products are now of the utmost importance as raw materials for the production of dyestuffs.

(2) Ammonia: The uses of ammonia are extensive and ammonia compounds occupy a very important place in the chemical industry. Plants can be provided for the recovery of ammonia from coal gas either by the form ammonium sulphate by the absorption of ammonia in sulphuric acid, or as concentrated ammonia liquor, by the absorption of ammonia in water.

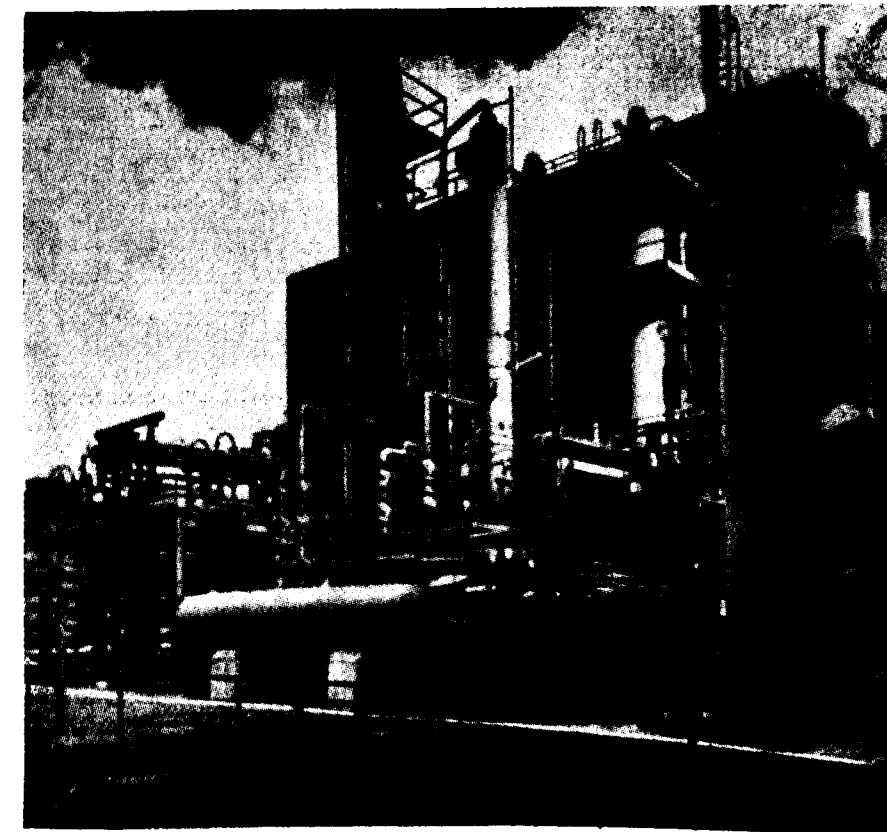
Powell Duffryn-Coppee are able to supply ammonia plants for the production of ammonia compounds and particularly for the manufacture of fertilizers.

(3) Benzol: Apart from the normal systems of recovery of crude benzol by oil scrubbing of coal gas, plants for the absorption of benzol by the activated carbon method, and later for its rectification to refined products, such as pure benzene, toluene and xylene, can be supplied. Equipment can also be offered for the recovery of carbon disulphide which is used in the chemical industry as a solvent, and for the Rayon industry. The recovery of lighter oils containing cyclo-pentadene, which is of great use in the paint industry, can also be undertaken.

(4) Removal of hydrogen sulphide from coal gas: Powell Duffryn-Coppee are in a position to design and construct gas purification plants for operation under normal or high pressures. The increasing demands for sulphuric acid and elemental sulphur have rendered important, the recovery of sulphur from coke oven gas. The sulphur from coal after carbonisation, is distributed in the proportion of 55% to 60% in the coke and 1% to 2% organic and



Plant for Production of 50% Nitric Acid.



Alkacid Plant for H₂S Recovery.

25% to 30% inorganic sulphur, in the coke oven gas. The remainder is found in the ammonia liquor.

Recovery from the gas offers the simplest means, and in any case its removal is necessary to enhance the quality of the gas. Hydrogen sulphide can be removed in tower purifiers with equipment for the revivification of the oxide.

Powell Duffryn-Coppee can, also, supply plant for the simple and economic removal of hydrogen sulphide from coke oven gas by a wet process. For this wet purification of gas they have systems available in which ammonia is used, and also system in which Alcacide is used. When ammonia is used 85% of the sulphur is taken up and this can be recovered either as sulphuric acid or as sulphur of purity 99% and over.

The sulphuric acid made is of the normal 78/79% strength and on a coke oven by-product plant, dependent upon the sulphur content of the coke oven gas, the amount of acid produced is usually sufficient for the needs of the whole plant and can be made at a very much lower price than the normal acid purchase price.

The sulphur produced can be burnt for the production of sulphuric acid, but its purity is such, as that it can be used for other

chemical purposes such as the manufacture of rubber and textile fibre production.

When sulphur is being made the hydrogen sulphide recovered from the gas is burnt in a Claus kiln which can also be supplied by Powell Duffryn-Coppee.

In circumstances where it is not convenient to use ammonia for the recovery of the hydrogen sulphide, Alcacide, a proprietary organic absorbent, can be used. Thus with the wet process, hydrogen sulphide can be recovered from any type of gas, whether ammonia is available or not.

(5) Gas Utilisation and distribution: Coke Oven gas after normal purification can be used for heating purposes either industrially or domestically. Powell Duffryn-Coppee are able to supply complete plant for gas compression and distribution including substations with pressure set-up boosters, or metering and pressure control systems. Gasholders of the normal type or of the modern high pressure spherical type can also be supplied.

High pressure purification plant, in which the gas is compressed to anything from 5 to 12 atmospheres and then cooled to very low temperatures by ammonia cooling, are within the scope of Powell Duffryn

Coppee. In this process benzol, naphthalene and water are automatically removed as liquids, thus obviating the normal washing and scrubbing processes. This process, however, is not economical unless the purified gas is required for distribution at high pressure into extensive gas grid distribution systems.

(6) Coke: Apart from its value as a domestic fuel and for metallurgical purposes, coke can be efficiently utilised by gasification in suitable generators for the production of various types of gases such as producer gas, water gas, carburetted water gas and gases required for synthesis of ammonia and synthetic petrol.

Powell Duffryn-Coppee have a wide range of gas generation plant to suit the above purposes.

GAS PRODUCERS:

A number of gas producers can be supplied by Powell Duffryn-Coppee using a very wide range of fuels including high and low ash coal and lignites. These include rotary grate producers of the Lambot type, and five of these producers are at present being installed for Messrs Sindri Fertilizers and Chemicals Private Ltd., which when put into operation will supply 20 million cu.ft. of gas per day for the underfiring of coke ovens.

Producers of the Winkler type are particularly useful for dealing with lignites and large batteries are now in operation in Germany, Spain and Japan. The Winkler Producer will make the normal producer gas from lignites and is also particularly useful for the manufacture of synthesis gas for the production of ammonia and ammonium fertilizers. This type of producer should have many applications in the development of the Niyeveli lignite deposits.

Flesch Winkler producers can also be supplied to deal with bituminous coal or mixtures of coal and coke. These producers have the great advantage of being able to gasify high ash fuels of very small size range, sizes from 0 to 5 m.m. being readily gasified. Both Winkler and Flesch Winkler producers have gasification rates up

to ten times that of normal producers and are, therefore, only suitable for large scale plants.

OTHER CHEMICAL PLANTS:

The range of chemical plants within the scope of Powell Duffryn-Coppee are very large and it is possible to enumerate only a few in this article.

Plant Fertilizer: Complete Plants, including the equipment for the production of synthesis gas, can be supplied for the manufacture of ammonia and nitrogenous fertilizers, including ammonium sulphate, ammonium nitrate, calcium nitrate and compound nitrate fertilizers.

In the production of nitrate fertilizers, one stage in the process involves the manufacture of nitric acid. In conjunction with their associates Powell Duffryn-Coppee are able to supply the most modern plant for nitric acid production from ammonia under high or normal pressures. Compound fertilizers can be produced in pelletised form.

Electrolizers: In conjunction with their associates Powell Duffryn-Coppee are able to supply electrolizers for the production of hydrogen and oxygen from water. These electrolizers are comparatively cheap to operate and are of great use where the economic production of oxygen or hydrogen is required.

Caustic Soda Plant: Electrolytic mercury cell plants for the production of caustic soda, with chlorine and hydrogen by-products, can be supplied and these are of great value particularly for India's expanding paper manufacturing industry.

The above paragraphs illustrate the range and versatility of the Powell Duffryn-Coppee Organisation for the supply of equipment required in the coal, gas and chemical industries. The Organisation is sound in construction and has behind it the many years of experience of its parent companies and their associates. It will be prepared to undertake and solve many of the problems arising within the relevant fields of India's great programme of industrial development.

avoid air and dust during the process as well as to ensure specified quantity of ink in the bottles.

As a safeguard against imitation, which is a common evil for any good product, the bottles are sealed with the help of a piller-proof metal-sealing machine.

The testing and analytical laboratories of the company are well-equipped and suitable for work of a very high standard. At every stage of manufacture the product undergoes thorough testing by experienced chemists in the laboratory equipped for the purpose, with analytical



balance, electric pH-meter, dovibond tintometer, viscometer, electric thermostat, autoclave, microscope etc.

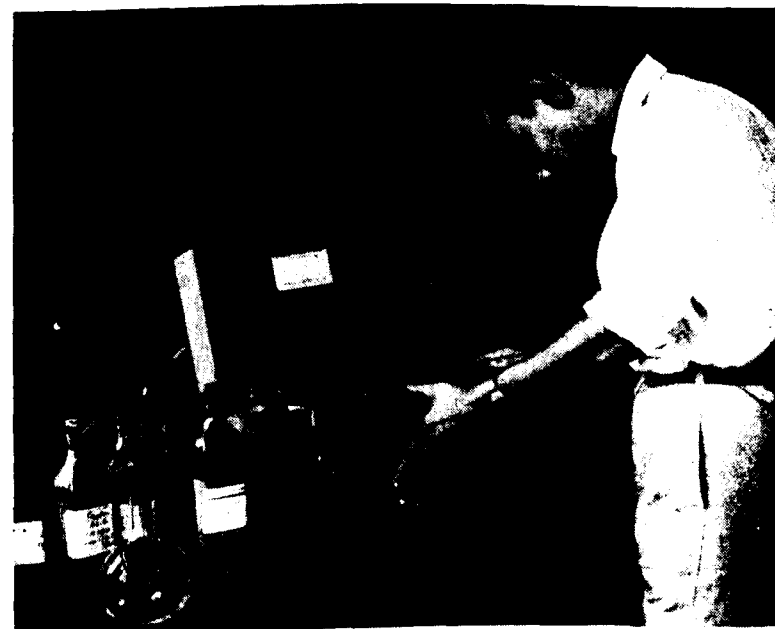
With the advancement of science in this particular line of industry,

Sulekha fountain pen ink has undergone much improvement. In its colour and brilliance. In its wonderful glow and smoothness of writing, Sulekha has no parallel. The in-



roduction of solvent "S-100" has really brought about a revolution in the fountain pen ink industry, by helping the ink to flow from the pen with equal freedom at all times and climates and at any place from cold Darjeeling to the hot region of Rajputana. The solvent, unique in its character, washes the pen thoroughly and perfectly clean,

protects the nib from any acid action and keeps it clean and bright, and removes all possibilities of sedimentation. Sulekha does not dry on nib even when it is kept open for a reasonably long time while it dries quickly on the paper. Thus all the requisites that an ideal fountain pen ink should have are present in Sulekha.



Established 1941.

Head Office: **KARACHI (Pakistan).**

Authorised Capital - Pak Rs. 3,00,00,000
 Issued & Subscribed Capital - Pak Rs. 1,50,00,000
 Paid-up Capital - Pak Rs. 1,50,00,000
 Reserve Funds - Pak Rs. 1,50,00,000
 Deposits as on 31-12-1955 - Pak Rs. 46,87,00,000

PAKISTAN BRANCHES:

KARACHI.

1. Bombay Bazar.
2. Bohra Bazar.
3. Bunder Road.
4. Burns Garden.
5. Central Office.
6. Cloth Market.
7. Foreign Exchange.
8. Iddgah.
9. Industrial Trading Estate.
10. Napier Road.
11. New Challi.
12. Saddar.
13. Safe Deposit Vault.
14. Shoe Market.

WEST PAKISTAN.

15. Dhoronaro.
16. Hyderabad (Market Road).
17. Hyderabad (Station Road).
18. Jacobabad.
19. Khairpur Mirs.
20. Larkana.
21. Mirpurkhas.
22. Nawabshah.
23. Shahdadpur.
24. Shahdadkot.
25. Shikarpur.
26. Sukkur.
27. Bhakkar.
28. Gujranwala.
29. Jauharabad.
30. Jhelum.
31. Kasur.
32. Khanewal.
33. Lahore (Cantt).

34. Lahore (Circular Rd).
35. Lahore (Punjab University).
36. Lahore (Shahalam Mkt).
37. Lahore (The Mall).
38. Liaquatabad.
39. Lyallpur (Circular Rd.)
40. Lyallpur (Kohinoor Nagar).
41. Montgomery.
42. Multan.
43. Okara.
44. Rahwali.
45. Rawalpindi (Cantt).
46. Rawalpindi (City).
47. Rawalpindi (Kohinoor Mills).
48. Sargodha.
49. Sialkot.
50. Bannu.
51. Charsadda.
52. Mardan.
53. Mingora.
54. Peshawar.
55. Warsak.
56. Harnai.
57. Quetta (Cantt).
58. Quetta (Jinnah Rd.)

EAST PAKISTAN.

59. Chittagong (K. C. Dey Rd.)
60. Chittagong (Khatunganj).
61. Dacca (Moulvi Bazar).
62. Dacca (Nawabpur Rd.)
63. Dacca (Ramna).
64. Dacca (Saddarghat).
65. Khulna.
66. Narayanganj.
67. Rangpur.
68. Sylhet.

Foreign Branch:

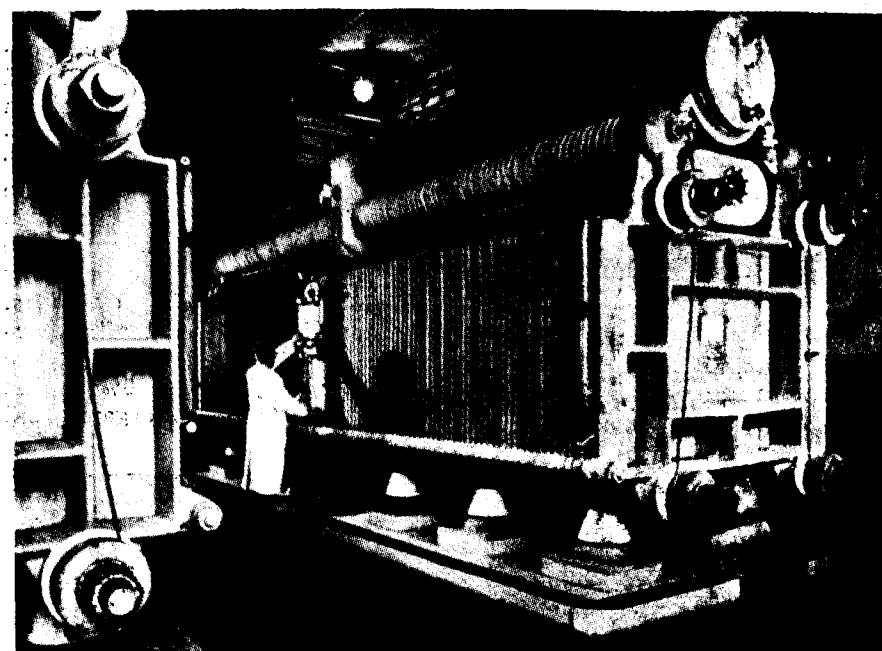
69. BOMBAY (India)

HABIB BANK (Overseas) LIMITED

Head Office: KARACHI (Pakistan)

Branches:—70. COLOMBO (Ceylon) 71. MOMBASA (B. E. Africa) & 72. RANGOON (Burma).

All kinds of Banking Business including Foreign Exchange Business, such as opening of Letters of Credit, Collection and Negotiation of Foreign Bills, Remittances to Foreign Countries and Issuance of Travellers Cheques, all over the World, undertaken.



1500 KW. Electrolyser for H₂, O₂ Production.

Sulekha Works Limited

Started more than twenty years ago during the swadeshi movement as a private concern with a very small beginning, Sulekha Works Limited have now grown up to be one of the biggest manufacturers of fountain pen ink in the world. Sulekha fountain pen ink, the chief product of the company, is at present claimed as the best fountain pen ink ever produced and commands the highest sale in India. The factory of the company at Sulekha Park in south Calcutta is the biggest of its kinds in the whole of Asia and equipped with modern plant and machinery. A stainless-steel automatic plant, run by a 10

HP vertical boiler has been installed for the production of Distilled water with which the ink is made to eliminate any possibility of the presence of unknown dissolved matters in the ink. The automatic washing machine cleanses the bottles by flushing distilled water and steam injected at a high pressure to remove the risk of careless washing by any individual worker. The ink is finally filtered with the help of electric-driven rubber-lined vacuum horizontal filter to remove the slightest sediments therefrom that may have been thrown during maturation. The filling of ink bottles is done by automatic vacuum filler in order to



Statistical Supplement

Economic Indicators

	Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Employment Exchanges													
Registrations (Nos. 000)	1954	116	105	107	111	112	143	160	128	122	94	132	135
	1955	117	100	120	125	125	145	157	141	145	122	129	148
	1956	142	128	121	134	141	171	171	145	143	121	124	...
Placings (Nos. 000)	1954	14	13	14	13	14	15	15	12	14	11	14	14
	1955	13	12	14	14	16	18	12	13	13	13	15	17
	1956	15	15	16	17	18	19	16	15	15	14	17	...
Production Consumption Stocks, Etc.:													
Index of Industrial Production 1951=100	1954	133	141	137	145	140	146	112	114	119	106	126	125
	1955	119	135	122	125	127	133	120	132	134	121	125	132
	1956	123	134	129	135	151	...	153	133	146	132	...	...
Coal:													
Raisings '000 Tons	1954	2903	3056	3071	3037	2977	2885	2766	2958	3178	2923	3322	3505
	1955	3155	3252	3306	3230	3175	3097	2959	3118	3380	3094	3097	3388
	1956	3207	3358	3363	3224	3316	3195	3165	3307	3123	3164	3325	...
Despatches '000 Tons	1954	2424	2244	2594	2599	2721	2576	2810	2923	2889	2787	2728	2749
	1955	2672	2503	2765	2693	2744	2659	2757	2880	2804	2879	2771	2732
	1956	2794	2697	2839	2876	2870	2878	3017	3172	2820	2931	3028	...
Stocks at Pithead '000 Tons	1954	3474	3902	4003	4080	4059	3950	3741	3380	3224	2924	3161	3592
	1955	3512	3879	3961	4066	4065	4129	3902	3696	3786	3516	3450	3617
	1956	3686	3814	3811	3814	3833	3712	3379	3023	2881	2664	2566	...
Stocks with Industry '000 Tons	1954	2490	2406	2078	2023	2054	1918	1803	1905	2243	2348	2394	2458
	1955	2219	2118	2021	1923	1866	1772	1789	1960	1886	2099	2208	1918
	1956	1796	1700	1675	1720	1889	1678	1708	1708	1862	1901	1850	...
Electricity:													
Units Generated, million K.W.H.	1954	590	551	594	613	640	629	633	635	648	627	654	683
	1955	668	629	699	691	706	716	725	706	719	721	726	786
	1956	757	759	800	781	826	797	798	794	813	824	810	...
Units sold million K.W.H.	1954	478	451	494	504	516	510	516	510	523	512	535	558
	1955	545	522	558	564	569	576	583	574	587	592	597	648
	1956	622	622	651	694	669	658	656	650	666	670	668	...
Units sold to Industry million K.W.H.	1954	307.8	289.1	305.7	318.9	325.7	325.9	338.6	338.8	344.6	336.6	351.2	370.8
	1955	362.5	346.0	375.5	368.9	377.1	379.7	370.2	380.4	390.8	394.4	397.0	428.0
	1956	406.9	415.4	433.9	428.4	436.3	430.1	439.5	438.3	448.9	451.1	452.5	...
Finished Steel:													
Production '000 Tons	1954	104	97	111	97	95	94	99	97	96	99	105	112
	1955	105	93	111	102	102	99	99	101	96	91	101	108
	1956	106	107	110	101	100	95	110	111	105	105	...	...
Consumption '000 Tons	1954	109	105	117	106	103	98	104	101	105	98	118	117
	1955	113	100	120	104	109	109	107	102	109	97	103	119
	1956	106	110	116	111	102	109	114	114	107	117	...	...
Stocks '000 Tons	1954	122	124	126	118	118	120	119	116	115	122	127	118
	1955	121	114	119	121	120	119	116	115	110	104	110	104
	1956	107	107	107	102	113	107	111	109	108	108	...	...
Pig Iron:													
Production '000 Tons	1954	163.2	144.0	156.1	138.6	143.8	138.5	146.0	153.4	140.6	151.7	155.1	161.9
	1955	155.6	137.9	150.2	152.3	150.8	144.5	148.2	139.3	128.2	138.8	162.1	...
	1956	163.3	152.3	158.3	145.7	142.4	133.7	149.5	147.0	147.5	156.6	...	...
Consumption '000 Tons	1954	155	141	153	131	137	139	147	149	136	143	156	161
	1955	165	148	167	153	156	147	153	148	150	132	143	163
	1956	165	154	163	148	146	135	154	155	151	152	...	...
Stocks '000 Tons	1954	111	115	118	125	132	136	134	138	143	151	152	152
	1955	143	129	120	114	106	100	95	87	77	73	69	66
	1956	60	59	50	49	46	44	39	30	26	31	...	...
Cement:													
Production '000 Tons	1954	362.8	351.9	389.0	359.8	373.1	352.5	367.1	342.5	361.5	372.3	368.5	395.1
	1955	376.8	363.7	380.3	365.8	375.9	342.1	345.2	373.7	339.9	391.5	397.3	425.4
	1956	401.1	394.3	430.5	395.0	418.0	414.8	395.5	397.6	399.5	410.8	408.6	...
Despatches '000 Tons	1954	370	348	392	323	361	354	381	350	337	264	383	395
	1955	370	358	394	365	371	352	344	369	354	370	395	436
	1956	392	398	436	360	414	395	380	389	410	422	399	...
Stocks Produces '000 Tons	1954	102	106	104	80	93	92	76	68	92	100	86	88
	1955	95	101	87	88	93	90	96	101	85	108	111	97
	1956	106	102	96	96	99	102	115	113	102	92	105	...
Jute Manufacturers ('000 Tons)													
	1954	87	68	76	75	71	75	81	78	79	75	89	94
	1955	84	82	89	86	82	86	84	81	87	79	91	97
	1956	89	93	99	94	102	99	94	90	86	80	84	85
Exports—Bags (In million)	1954	26	22	59	34	34	56	42	40	36	22	54	37
	1955	39	40	32	34	35	34	40	43	47	32	40	43
	1956	30	32	38	38	43	28	37	48	28	44	46	...
Export—Cloth (Yds. million)	1954	119	109	90	94	94	106	119	148	142	98	135	125
	1955	111	99	108	102	119	73	103	160	162	97	117	141
	1956	80	101	101	110	93	122	123	150	115	123	167	...
Stocks—Hessian and Sacking cloth and bags (mills) (in '000 tons)	1954	74	34	91	90	85	82	81	69	67	69	68	68
	1955	76	82	93	102	94	85	79	76	66	59	59	56
	1956	71	81	85	99	113	121	131	117	118	108	92	...

†Figures for January—June, 54 are on the old base (1946=100).

Economic Indicators—Contd.

		Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	
Cotton Yarn:															
Production (Million lbs.)	..	...	1954	132	122	124	129	128	124	137	132	130	124	138	145
			1955	135	127	135	133	129	132	143	137	143	145	133	151
			1956	133	134	133	131	135	137	145	140	146	143	140	...
Consumption by composite Mills (Million lbs.)			1954	99	91	91	95	95	94	101	96	96	89	97	103
			1955	96	89	94	93	91	92	103	96	101	102	93	105
			1956	93	95	93	93	99	100	106	100	105	101	97	...
Stocks (mills) (million lbs.)	..	...	1954	45	43	43	43	44	46	44	48	50	48	51	
			1955	50	54	51	59	30	30	24	24	18	18	14	8
			1956	8	9	13	12	7	9	7	4	7	9	10	...
Industrial Disputes:															
Man Days Lost (000)	..	...	1954	326	344	331	107	216	205	277	323	364	276	240	263
			1955	316	170	367	333	962	1144	660	534	580	214	178	240
			1956	350	779	678	566	554	476	536	496	984	823	432	...
Civil Aviation:															
Passengers—Miles (10000)	...	...	1954	211	212	221	227	230	209	206	235	242	251	231	259
			1955	246	239	264	254	260	249	244	242	281	294	300	326
			1956	320	320	344	328	339	325	326	330	355	...	...	...
Freight—Miles (1000)	..	...	1954	991	910	942	880	964	872	846	946	1076	1189	1358	1089
			1955	1040	1047	1087	1080	1165	958	1089	1372	1648	1545	1533	1533
			1956	1466	1496	1616	1325	1500	1378	1620	1474	1616	1492	...	...
Railways Class I:															
Wagons loaded (in '000)	...	...	1954	618	578	623	579	567	553	568	566	556	573	605	656
			1955	671	632	676	633	606	576	609	614	611	631	648	718
			1956	729	710	756	703	674	635	636	664	626	656	691	...
Passenger Miles (millions)	...	...	1954	2781	3157	3325	3198	3437	3446	3051	2657	2630	2881	2861	2894
			1955	2977	3232	3373	3221	3674	3520	3150	2662	2795	2788	2920	3161
			1956	2891	3065	3373	3345	3984	3654	3353	...	...	...	...	...
Freight Ton Miles	...	...	1954	2531	3157	3308	2275	2341	2238	2325	2449	2394	2458	2523	2734
			1955	2762	2693	3330	2468	2649	2528	2809	2655	2603	2703	2752	3091
			1956	2964	3094	3402	2730	2765	2935	3182	...	...	...	...	...
Gross earnings (Rs. lakhs)	..	...	1954	2339	2372	2635	2483	2444	2289	2300	2098	1990	2308	2424	2486
			1955	2428	2567	3039	2498	2691	2541	2384	2460	2449	2391	2537	2817
			1956	2551	2903	3343	2753	2954	2854	2762	...	...	...	...	...
Foreign Trade:															
Total Merchandise Trade by Sea, Air and Land Imports (Rs. Lakhs)	..	...	1954	4122	4121	5051	4819	5219	5163	5570	5038	5342	5741	6395	5261
			1955	5491	5754	5850	5136	5124	5134	5162	4642	5121	5203	6280	5945
			1956	5894	6848	7652	5958	6773	6424	5939	6655	7695	7095	6997	...
Exports including Re-exports (Rs. Lakhs)	...	...	1954	4462	4075	4657	3157	3967	4327	4736	4560	5052	4761	6556	6090
			1955	5459	5057	5775	3993	4445	4819	5112	5212	5860	4948	6004	5316
			1956	4692	5210	5972	4005	4538	4681	4220	4991	4962	5315	5592	...
Balance	...	...	1954	+340	-46	-404	-1662	-1352	-836	-834	-478	-290	-630	+161	+828
			1955	-32	-697	-77	-1143	-679	-315	-50	-516	+725	-354	-1296	-629
			1956	-1202	-1638	-1671	-1953	-2235	-1743	-1719	-1664	-2733	-1780	-1405	...
Unit Value Index of Trade by Sea and Air:															
Imports 48-49=100	..	...	1954	111	116	117	115	114	115	117	111	112	118	112	115
			1955	119	116	118	81†	91	83	87	88	91	89	86	88
			1956	85	86	89	88	89	90	87	89	89	89	...	...
Exports	...	...	1954	110	111	105	106	109	111	114	113	114	114	125	127
			1955	124	121	106	88†	86	93	94	97	91	92	91	90
			1956	95	93	90	88	88	91	90	93	97	102	...	...
Quantum Index 48-49=100:															
Imports	...	...	1954	73	72	90	87	94	83	96	85	89	94	111	875
			1955	91	104	96	103†	97	111	106	94	101	104	131	121
			1956	124	142	150	121	139	129	122	134	154	143	...	...
Exports	...	...	1954	111	101	121	81	97	107	113	110	122	115	145	131
			1955	122	115	123	94†	107	106	115	122	131	107	112	120
			1956	102	114	132	93	106	106	96	112	106	108	...	...
MERCHANT SHIPPING:															
Foreign Trade:															
Tonnage entered (000 Tons)	...	...	1954	796	995	799	546	746	776	779	689	762	846	881	726
			1955	842	742	933	737	767	806	869	787	763	816	791	821
			1956	807	942	875	768	773	801	870	718	874	825	850	...
Tonnage cleared (000 Tons)	..	...	1954	855	707	821	791	778	744	755	657	743	875	1072	805
			1955	855	707	821	620	731	715	741	742	667	633	626	673
			1956	687	974	903	732	745	690	700	604	725	696	662	...
BANKING:															
Reserve Bank:															
Foreign Balances (Rs. Crores)	...	...	1954	734	745	753	752	751	744	732	729	731	725	731	731
			1955	730	729	730	715	710	716	717	718	719	712	720	73
			1956	734	735	746	726	712	682	659	632	615	582	537	530
Rupee Balances (Rs. Crores)	...	...	1954	125	115	128	115	122	137	151	155	156	126	96	72
			1955	75	74	119	86	69	69	100	141	69	79	67	65
			1956	72	83	129	86	66	70	83	68	90	82	66	65
Scheduled Banks:															
Demand Liabilities in India (Rs. Crores)	...	...	1954	521	521	529	537	543	546	550	562	557	562	572	573
			1955	580	588	524	590	592	602	601	608	664	616	620	614
			1956	648	631	636	646	645	637	639	654	637	646	650	653
Time Liabilities in India	...	...	1954	328	331	327	328	329	334	346	351	352	356	367	369
			1955	370	371	377	383	388	397	409	409	418	424	424	420
			1956	410	418	415	427	435	453	457	461	457	458	459	460
Advance and bills including foreign bills purchased and discounted in India.†	..	...	1954	506	521	538	563	573	549	534	520	525	526	519	538
			1955	560	589	623	624	620	610	601	606	593	592	594	631
			1956	677	697	761	757	769	757	740	735	754	760	766	789
Cheque clearance (Rs. Crores)	...	...	Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
			1954	5.6	576	650	626	561	517	559	545	603	537	651	664
			1955	624	621	743	645	629	598	626	640	611	616	674	724
			1956	608	752	765	741	711	680	670	646	711	700	725	764

Economic Indicators—Contd.

	Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Currency:													
Notes in Circulation (Rs. Crores)	1954	1156	1171	1193	1217	1204	1174	1143	1137	1147	1162	1162	1200
	1955	1218	1242	1277	1311	1316	1311	1291	1285	1280	1306	1324	1362
	1956	1379	1403	1467	1505	1506	1475	1444	1425	1409	1419	1439	1466
Joint Stock Companies Incorporated and Registered:													
Number of Companies	1954	79	103	103	105	89	82	101	96	105	71	99	129
	1955	111	88	127	122	117	127	98	114	102	110	102	101
	1956	97	123	235	42	61	64	70	84	84	...	...	...
Paid-up Capital (Rs. Lakhs)	1954	...	1.0	3.0	502.7	...	0.5	...	0.1	0.5	...	0.7	0.4
	1955	...	...	1.7	2.2	7.8	20.5	6.1	1.0	6.2	19.1	2.6	0.1
	1956	1.5	2.1	...	0.1	1.3	1.0	1.7	1.8	5.7	...	...	...
Ceased to work number of Companies No.	1954	57	41	42	120	93	100	76	80	67	64	85	85
	1955	67	84	95	95	58	59	62	78	97	93	75	53
	1956	83	80	157	43	53	77	94	118	12	...	...	...
Paid-up Capital	1954	25.1	9.0	14.0	80.8	74.0	36.7	82.6	69.9	69.9	59.8	45.8	214.5
	1955	48.1	39.6	53.9	59.9	51.0	130.0	102.6	168.0	74.3	53.3	126.2	49.8
	1956	73.8	104.1	242.0	54.5	46.7	41.7	104.2	25.9	9.4	...	...	...

FINANCE:

Central Government:													
Receipts (Lakhs of Rs.)	1954	3062	26712	4163	2439	2568	3490	3108	4401	4237	1925	3667	5239
	1955	4665	4219	5001	2537	2929	3958	3177	5207	5384	2479	3563	6369
	1956	4532	3890	6746	2801	3365	4711	3326	6067	6077	1300	...	...
Expenditure (Lakhs of Rs.)	1954	2112	2195	5884	1511	895	1461	1635	1463	1336	2388	1879	1459
	1955	2000	1726	6090	1644	1440	1585	1567	1760	2000	2431	1537	1843
	1956	2128	2899	5323	1812	1131	1750	2216	1860	1564	2384	...	...
Public Debt:													
Debt Incurred	1954	3062	26712	4163	5627	26702	3599	5127	26430	3563	5784	26574	3646
	1955	400	452	1692	406	404	389	497	400	579	658	132894	8887
	1956	15300	27723	16999	20421	27788	16137	20874	24239	13581	48363	...	...
Debt Discharged (Lakhs of Rs.)	1954	3711	27693	3661	3067	26364	4129	5632	26605	4267	5200	26587	8391
	1955	42	620	491	403	405	404	409	404	607	926	132688	11111
	1956	11857	26962	7834	15461	28154	15940	24429	26297	13683	90697	...	...
Yield from Customs and Central Excise Duties:													
Customs (Lakhs of Rs.)	1954	1346	1233	1692	1058	1217	1164	1394	1204	1316	1319	1924	1587
	1955	2177	2275	1832	1174	1196	1240	1329	1239	1427	1371	1398	1559
	1956	1507	1423	1740	1167	1352	1322	1179	1342	1512	1404	...	...
Central Excise (Lakhs of Rs.)	1954	824	800	1060	920	839	754	562	696	837	843	614	1148
	1955	987	968	1401	1109	1109	1220	1202	1270	1195	1024	1108	1311
	1956	1231	1374	1287	1180	1347	1521	1371	1435	1523	1550	...	...

SMALL SAVINGS:

National Savings Certificates:													
Receipts (Lakhs of Rs.)	1954	221	214	351	224	215	198	315	232	263	201	237	245
	1955	262	239	366	246	237	222	239	221	267	220	208	277
	1956	216	249	315	243	270	298	321	282	282	254	243	...
Outstandings (Rs. crore)	1954	110	112	114	116	117	200	121	122	123	125	126	128
	1955	130	131	134	136	138	139	141	142	144	146	147	149
	1956	150	151	154	155	157	158	161	162	164	165	166	...
Savings Bank Deposits:													
Receipts (Rs. Crores)	1954	8.9	9.5	15.2	10.7	10.0	10.5	11.4	10.2	10.2	8.9	10.2	11.4
	1955	10.5	11.1	15.0	12.4	11.9	12.3	12.9	12.2	12.4	11.3	11.3	12.9
	1956	12.2	12.9	23.6	14.5	14.8	15.2	14.6	14.1	13.2	13.0	12.7	...
Outstandings (Rs. crores)	1954	99	101	107	107	107	108	111	113	114	115	116	118
	1955	120	122	127	133	134	136	140	143	147	149	150	152
	1956	154	156	168	171	173	176	180	183	185	186	187	...
Postal Traffic:													
Postal Orders sold (No. in '000)	1954	300	324	347	264	280	279	373	360	275	366	291	302
	1955	300	254	317	276	250	306	388	314	311	333	240	317
	1956	270	251	234	209	230	292	350	205	255	294	...	...
Value (Rs. lakhs)	1954	14	12	15	11	12	12	19	20	13	17	14	16
	1955	16	13	17	14	12	14	18	16	15	18	13	14
	1956	16	14	13	12	12	16	19	14	13	17	...	...

SPOT PRICES OF GOLD:

Silver—Average:													
Gold—Bombay (Per tola Rs.)	1954	83-7-2	87-0-0	89-1-7	93-2-0	91-6-9	83-4-9	85-0-4	87-15-6	87-7-8	87-12-2	88-4-10	87-10-8
	1955	90-3-10	93-1-1	93-5-11	95-15-1	93-8-1	93-10-10	94-5-2	95-2-2	94-14-6	94-12-9	96-6-8	94-2-2
	1956	95-9-0	97-13-4	103-8-1	105-7-4	104-3-4	102-8-6	101-3-1	103-11-6	103-2-8	103-11-6	105-3-10	104-15-6
Silver—Bombay (Per 100 tolas Rs.)	1954	156-11-0	162-12-6	165-5-0	170-4-0	165-1-7	153-12-5	153-13-11	154-1-9	155-14-6	158-9-11	157-14-0	154-0-10
	1955	158-0-3	163-7-5	164-12-3	167-2-3	164-3-2	158-5-4	160-8-4	163-1-8	165-13-11	168-5-6	171-8-8	172-7-9
	1956	176-1-9	174-10-9	178-10-9	180-6-9	177-3-11	170-8-1	172-1-11	172-0-7	172-2-6	172-8-6	173-12-2	173-11-9

SECURITY INDEX:

49-50=100:													
Govt and Semi-Govt.	1954	90.3	90.3	90.4	90.6	90.2	90.3	90.8	90.7	90.4	90.2	90.3	...
	1955	90.6	90.6	90.6	90.5	90.7	90.8	90.9	90.9	91.0	91.0	91.3	...
	1956	91.1	91.3	90.9	90.9	91.1	91.2	91.2	90.9	90.7	90.4	90.1	85.7
Preference Shares	1954	87.7	88.0	88.0	88.3	88.1	88.5	89.0	89.4	88.5	87.4	87.3	88.5
	1955	88.4	88.2	87.3	87.5	87.7	87.6	87.8	87.8	87.2	87.2	87.7	87.8
	1956	87.3	86.7	85.8	85.6	85.1	85.2	85.3	85.2	83.8	81.7	81.9	80.7
Variable Industrial	1954	98.2	102.0	102.6	103.8	104.0	103.9	110.6	117.4	120.9	118.2	116.0	113.7
	1955	114.9	114.2	115.4	115.4	112.9	113.1	117.9	122.7	122.7	124.5	129.9	130.6
	1956	125.7	121.0	122.4	123.1	123.8	125.1	125.1	127.4	126.9	124.9	122.9	117.4

PERCENT COMMODITY WHOLESALE:

(Year ended August 1939=100).													
Prices Commodity Wholesale 52-53=100	1954	103	99	99	103	100	97	99	99	100	99	92	88
	1955	98	96	93	81	82	84	88	83	85	85	87	87
	1956	89	89	93	96	97	99	101	105	104	104	107	105

Economic Indicators—Contd.

1956															
		Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	
Food Articles:															
Industrial Raw Materials	...	...	1954	111	108	106	108	108	103	101	99	100	100	101	101
			1955	102	102	97	94	94	93	98	97	94	95	98	102
			1956	106	107	109	111	114	113	112	116	117	116	118	119
Intermediate Products	...	...	1954	98	99	98	100	100	98	97	96	97	97	96	97
			1955	97	98	97	96	97	97	97	96	96	97	99	102
			1956	105	106	110	110	111	109	108	112	111	110	112	114
Finished Products	...	...	1954	98	100	101	102	102	101	101	101	101	101	101	100
			1955	100	101	102	100	100	98	99	99	99	99	100	100
			1956	100	100	102	102	102	102	103	104	108	108	108	108
General Index	...	...	1954	103	101	100	103	102	99	99	99	100	99	95	93
			1955	94	93	91	89	89	90	93	92	91	91	92	94
			1956	95	95	98	100	101	102	103	106	107	107	109	108
CONSUMER PRICES INDEX NUMBERS:															
(Working Class August 1939=100):															
Kanpur	...	...	1954	442	432	416	426	415	396	400	408	406	404	386	369
			1955	372	384	377	352	335	347	371	371	373	385	392	393
			1956	404	394	398	399	408	419	436	445	445	448	446	436
Delhi	...	...	1954	363	363	360	368	370	352	349	352	357	368	363	352
			1955	344	334	331	329	318	318	336	398	347	347	354	365
			1956	363	358	362	375	365	368	375	382	386	399	403	396
Madras	...	...	1954	330	360	352	348	348	349	346	343	342	345	344	344
			1955	340	333	328	320	313	317	322	325	337	330	334	341
			1956	341	340	347	361	363	372	377	379	375	369	376	376
Calcutta	...	...	1954	325	316	319	321	339	332	331	330	332	336	325	321
			1955	310	310	310	311	315	317	325	329	327	334	339	329
			1956	319	315	325	338	342	350	365	368	366	364	361	356
Bombay	...	...	1954	346	331	332	338	342	350	365	345	347	346	344	341
			1955	335	329	328	324	320	317	324	325	317	315	314	316
			1956	318	321	333	341	340	341	337	343	335	340	338	338
All-India Average 1949=100	...	...	1954	104	102	101	112	102	101	101	101	100	101	98	97
			1955	97	95	94	93	92	94	96	97	96	97	98	98
			1956	97	97	100	103	104	106	107	109	108	108	110	109

Monthly Averages

Prices and Yields of Selected Central Government Securities

Note:—Average of closing quotations for working days. Income-tax is neglected in calculating yield. Yield to earliest redemption date. †Running yield.

ISSUE DEPARTMENT.
(Amount in lakhs of Rupees)

Scheduled Banks—Business in India

(Amount in Lakhs of Rupees).

4. Called for from May 14, 1954.

Clearing House Returns

Clearing house returns																										
(Number in Thousands, Amount in Lakhs of Rupees).																										
	Bombay.			Calcutta.			Delhi.	Kanpur.	Madras.	Bangalore.			Total.	Amritsar.	Colm- batore.	Hydgra- bad.	Kozh- kodi.	Lucknow.	Madhurai.	Nagpur.	New Dehli.	Poona.	Rajkot.	Other Centres.	Total.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1952-53	...	Number 907	592	62	298	63	2051	104	32	19	12	8	26	13	22	70	33	13	42	2474	...	33	13	42	2474	
...	...	Amount 21783	20799	1153	3475	651	49186	2211	285	285	437	127	195	138	264	546	200	156	397	54753	...	264	156	397	54753	
1954-55	...	Number 1050	649	72	336	73	2361	127	39	23	15	10	29	15	27	91	36	16	47	2885	...	36	16	47	2885	
...	...	Amount 23430	23784	1194	3066	828	54034	2632	336	357	351	114	208	164	319	695	238	207	426	60412	...	238	207	426	60412	
1955-56	...	Number 1123	688	194	76	550	78	2509	144	37	24	17	11	32	30	105	39	18	65	3100	...	39	18	65	3100	
...	...	Amount 25594	25117	2129	1244	3555	882	56521	2732	360	393	124	254	175	405	1093	266	270	603	68302	...	266	270	603	68302	
March 1955	...	Number 1212	732	109	898	84	2890	147	38	25	18	12	35	183	373	845	254	228	526	74259	...	373	228	526	74259	
...	...	Amount 29005	29384	1808	4000	1026	66642	2743	345	448	361	135	314	183	373	845	254	228	526	74259	...	373	228	526	74259	
April	...	Number 1133	677	190	80	3448	78	2506	152	35	23	16	11	34	32	104	39	17	51	3092	...	39	17	51	3092	
...	...	Amount 24815	24597	1979	1380	3433	817	56997	2813	344	586	111	280	176	416	890	269	238	502	64454	...	269	238	502	64454	
May	...	Number 1101	680	210	81	349	74	2495	145	29	24	16	11	32	30	105	39	18	63	3064	...	39	18	63	3064	
...	...	Amount 25092	23093	1951	1273	3100	770	55410	2804	307	340	133	240	173	380	893	245	229	525	62859	...	380	229	525	62859	
June	...	Number 1050	629	186	68	334	72	2339	126	38	23	15	10	29	27	92	38	16	56	2972	...	38	16	56	2972	
...	...	Amount 23184	23078	1871	991	3299	711	53124	2288	363	351	112	260	180	400	773	243	219	516	53907	...	243	219	516	53907	
July	...	Number 1086	677	190	78	351	74	2457	140	41	24	17	10	32	34	106	44	18	63	3076	...	34	18	63	3076	
...	...	Amount 22888	24871	1746	1092	3134	803	54584	2464	232	339	322	90	260	156	331	919	272	270	492	61632	...	272	270	492	61632
August	...	Number 1042	671	177	71	349	77	2346	138	34	24	16	11	32	32	102	40	17	53	3245	...	40	17	53	3245	
...	...	Amount 24712	24662	1843	3784	896	56402	2407	307	393	290	121	241	178	360	957	254	297	571	64027	...	254	297	571	64027	
Sept.	...	Number 1087	748	178	69	351	77	2511	119	35	24	16	10	33	37	107	58	24	67	3076	...	58	24	67	3076	
...	...	Amount 25720	28048	1812	1056	3430	810	60876	2420	24	23	17	9	27	15	28	97	59	17	60	2889	...	59	17	60	2889
October	...	Number 1087	635	158	64	310	73	2346	137	24	23	17	9	27	15	28	97	59	17	60	2889	...	59	17	60	2889
...	...	Amount 22888	24871	1746	1092	3134	803	54584	2464	232	339	322	90	260	156	331	919	272	270	492	61632	...	272	270	492	61632
November	...	Number 1149	655	2028	1455	3632	873	59701	2528	431	427	309	124	253	212	453	1097	266	274	610	37396	...	266	274	610	37396
...	...	Amount 25114	26239	2328	1455	3632	873	59701	2528	431	427	309	124	253	212	453	1097	266	274	610	37396	...	266	274	610	37396
December	...	Number 1244	652	219	83	351	81	2620	160	44	24	19	11	31	31	115	41	18	74	3287	...	41	18	74	3287	
...	...	Amount 28214	26938	2466	1397	3644	923	63583	3144	470	510	351	135	224	168	343	273	277	1345	72553	...	273	277	1345	72553	
January 1956	...	Number 1087	747	216	84	358	81	2573	157	40	25	19	12	33	32	117	41	19	74	3210	...	41	19	74	3210	
...	...	Amount 25009	18190	2430	1415	3686	982	51720	2982	394	385	356	160	241	164	433	1000	271	273	684	60768	...	271	273	684	60768
February	...	Number 1199	743	2670	1374	366	83	2669	163	36	24	8	12	33	15	33	113	41	19	72	3302	...	41	19	72	3302
...	...	Amount 29899	27752	2070	1377	3877	1070	66650	3177	395	379	223	139	259	163	455	1145	293	311	723	75185	...	293	311	723	75185
March	...	Number 1202	736	209	78	377	88	2689	160	36	26	19	13	34	16	33	117	39	20	77	3335	...	39	20	77	3335
...	...	Amount 29110	29021	2554	1327	4177	1053	3153	368	440	333	155	282	186	460	1496	296	348	821	76487	...	348	821	76487	76487	
April	...	Number 1254	700	122	75	363	86	2650	175	37	25	20	12	34	16	35	230	40	20	74	3434	...	40	20	74	3434
...	...	Amount 28064	27251	1376	1433	4205	956	63608	3287	384	415	381	146	274	183	557	2465	320	343	780	74055	...	343	780	74055	74055
May	...	Number 1320	725	117	87	370	83	27015	170	45	26	18	12	32	32	116	31	245	40	73	71051	...	40	73	71051	71051
...	...	Amount 27183	25574	1230	1689	4100	924	60715	3547	436	385	320	140	268	181	425	2644	260	345	703	71051	...	260	345	703	71051
June	...	Number 1169	701	105	74	353	81	2482	148	42	25	19	11	29	16	30	219	42	19	68	65959	...	42	19	68	65959
...	...	Amount 25033	24401	1150	1211	4170	932	56896	2730	406	363	333	124	238	169	410	2230	288	375	656	65959	...	288	375	656	65959
July	...	Number 1162	680	114	70	377	87	2489	143	42	24	19	12	30	16	32	207	42	18	73	3203	...	42	18	73	3203
...	...	Amount 25786	24312	1286	1210	4263	955	57812	2526	411	406	300	139	269	198	427	2327	346	335	663	66866	...	346	335	663	66866
August	...	Number 1109	679	117	67	350	82	2603	108	39	24	19	11	32	16	31	185	41	18	75	3057	...	41	18	75	3057
...	...	Amount 23964	23513	1356	1291	4135	936	55194	2131	399	455	321	140	258	193	400	2094	293	313	677	64568	...	293	313	677	64568
Sept.	...	Number 1146	676	138	65	346	85	2455	131	39	25	18	11	30	16	32	199	37	18	71	3137	...	37	18	71	3137
...	...	Amount 26919	25519	2186	1155	4474	1090	61242	2663	387	451	351	153	269	187	472	1970	270	339	681	70129	...	270	339	681	70129
October	...	Number 1311	697	133	68	345	89	2642	171	44	26	21	12	29	17	37	206	45	21	72	3398	...	45	21	72	3398
...	...	Amount 26769	25342	2028	1222	4180	1031	60572	3042	407	433	351	140	249	185	575	1920	312	397	641	69892	...	312	397	641	69892
November	...	Number 1203	734	136	72	318	99	2562	130	48	25	19	12	30	15	34	222	40	20	74	3294	...	40	20	74	3294
...	...	Amount 26788	27358	2312	1309	4242	1150	63159	2501	496	414	308	179	254	194	595	2224	296	380	694	72506	...	296	380	694	72506
December	...	Number 1261	722	139	84	330	85	2621	156	50	22	20	12	33	15	53	223	40	19	75	3373	...	40	19	75	3373
...	...	Amount 28788	28766	2326	1548	4115	933	66475	2896	512	406	303	156	286	167	590	2443	297	390	736	76419	...	297	390	736	76419
January 1957	...	Number 1387	798	151	85	374	95	2889	185	46	23	23	13	35	14	37	235	41	22	82	3707	...	41	22	82	3707
...	...	Amount 32864	29524	3467	1583	4429	1204	73070	3480	460	467	373	167	294	190	577	2578	292	529	804	84132	...	292	529	804	84132
*From April 1956 figures in column 8 refer to New Delhi, and figures in column 16 relate to Delhi.																										

From April 1958 figures in column 8 refer to New Delhi, and figures in column 16 relate to Delhi..

Index Number of Security Price—All India

Govt. and Semi-Govt.							1949-50=100.		Preference Shares.						
Average of Weeks.		Total.	Govt. of India.	Indian States.	Municipal Port Trust etc.	Total.	Electricity.	Cotton.	Jute.	Coal.	Iron.	Preference Shares.	Sugar.	Paper.	Plantations.
1954-55	..	90.5	90.4	95.9	89.3	88.4	96.3	82.7	88.2	90.3	91.2	79.6	87.1	87.1	94.0
1955-56	...	90.9	90.8	96.4	89.4	87.3	95.8	79.5	86.2	91.8	89.6	84.8	87.4	87.4	99.9
March 1955	...	90.6	90.4	96.1	89.4	87.3	97.3	78.5	85.7	92.3	89.8	83.0	89.7	89.0	98.0
April	..	90.5	90.4	96.1	89.3	87.5	97.7	78.4	86.1	91.8	90.2	84.1	88.5	87.9	97.9
May	..	90.7	90.6	96.2	89.4	87.7	97.0	78.6	86.7	92.1	90.4	83.3	89.1	88.1	98.1
June	..	90.8	90.7	96.3	89.4	87.6	96.2	78.8	87.0	92.2	90.0	83.7	88.9	88.6	98.6
July	..	90.9	90.8	96.4	89.5	87.8	96.3	79.8	86.7	92.4	89.9	84.2	88.8	88.1	98.1
August	..	90.9	90.7	96.4	89.5	87.8	95.9	79.9	85.7	92.8	91.3	84.6	88.3	88.6	98.6
Sept.	..	90.9	90.7	96.4	89.4	87.2	95.0	79.7	86.1	92.7	88.9	84.9	86.3	88.9	98.9
Oct.	..	91.0	90.8	96.4	89.4	87.2	96.4	79.0	86.8	92.6	89.7	84.7	87.1	88.0	100.0
Nov.	..	91.0	90.9	96.5	89.4	87.7	96.2	79.8	86.8	92.4	89.7	85.6	87.2	87.2	101.4
Dec.	..	91.0	90.9	96.5	89.4	87.8	95.4	80.2	86.7	91.4	89.7	85.8	86.8	86.8	102.3
Jany. 1956	..	91.1	91.0	96.5	89.4	87.3	94.6	79.8	86.7	90.6	88.9	85.5	86.5	86.5	101.5
Febr.	..	91.3	91.1	96.7	89.4	86.7	94.6	79.8	86.0	90.3	87.5	85.5	86.5	86.5	101.2
March	..	90.9	90.7	96.7	89.4	85.8	93.8	80.0	83.3	90.2	87.8	85.6	85.4	85.4	101.5
April	..	90.9	90.7	96.7	89.4	85.6	93.8	81.6	83.3	89.9	88.2	85.0	82.6	82.6	101.4
May	..	91.1	91.0	96.7	89.4	85.1	93.1	81.3	81.9	88.3	87.6	84.5	82.1	82.1	101.9
June	..	91.2	91.1	96.7	89.9	85.2	90.7	81.8	81.9	85.6	87.8	84.6	82.1	82.1	102.4
July	..	91.2	91.0	96.8	91.0	85.3	90.4	83.2	81.7	84.7	88.3	84.4	82.1	82.1	100.3
Aug.	..	90.9	90.6	96.8	91.0	85.2	91.0	84.6	80.5	84.3	88.6	84.3	81.9	81.9	101.4
Sept.	..	90.7	90.4	96.8	91.0	83.8	91.0	84.4	77.3	83.3	85.7	82.5	81.9	81.9	102.1
Oct.	..	90.4	90.2	96.8	91.0	82.7	90.9	83.9	75.5	82.0	84.8	82.6	81.7	81.7	102.2
Nov.	..	90.1	89.8	96.7	91.0	81.9	88.6	82.8	75.6	82.1	84.2	82.7	80.7	80.7	102.0
Dec.	..	89.7	89.5	96.7	90.9	80.7	87.4	80.9	75.7	83.0	83.1	82.3	79.7	79.7	101.3
Jany. 1957	..	89.7	89.4	96.6	90.8	80.4	87.5	80.1	75.5	83.0	83.9	81.6	79.7	79.7	99.9

Variable Dividend Industrial Securities

Average of Weeks.		Average of Weeks.																	
		1 Total.	2 Banks.	3 Insurance.	4 Investment Trusts.	5 Electricity & Tramways.	6 Shipping and other Transport.	7 Railways.	8 Plantations.	9 Cotton, Woolen & Silk Mills.	10 Jute Mills.	11 Coal.	12 Mining and Oil.	13 Iron and Steel.	14 General Engineering.	15 Sugar and Breweries.	16 Chemicals.	17 Paper.	18 Cement.
1954-55	...	89.3	86.5	107.6	90.3	123.4	107.6	98.2	155.7	107.3	93.4	81.9	185.5	139.6	156.0	100.8	131.7	211.4	140.8
1955-56	...	90.3	88.2	103.1	93.4	122.5	106.4	89.2	184.6	117.6	95.3	81.3	235.0	154.1	188.9	104.7	144.1	255.7	164.4
March 1955	...	88.6	85.3	109.2	92.9	124.3	98.8	88.2	193.3	103.5	97.9	78.8	196.5	148.3	168.0	102.6	136.0	218.7	147.8
April	...	88.1	84.9	107.3	94.0	124.1	98.6	89.4	200.3	103.6	99.1	77.4	183.4	145.7	169.6	98.7	133.5	225.1	148.0
May	...	88.1	85.1	107.3	89.2	122.4	98.1	89.3	171.9	103.8	96.1	77.4	182.9	141.4	167.9	97.0	130.1	224.2	147.2
June	...	87.5	84.8	106.2	86.5	122.3	96.1	87.3	182.2	105.2	95.3	77.9	192.8	139.7	167.9	96.6	130.0	223.5	146.2
July	...	88.0	85.0	106.4	87.2	122.3	97.9	87.1	191.3	101.2	97.3	80.0	231.7	151.6	180.3	99.6	137.6	231.7	154.5
August	...	90.5	88.1	106.4	94.1	122.3	98.8	88.8	191.9	114.1	106.8	83.1	238.1	162.7	183.5	104.3	141.1	242.1	162.0
Sept.	...	90.0	87.2	107.1	94.0	123.5	103.6	89.9	198.7	114.6	101.7	83.1	246.6	160.2	183.8	104.8	141.8	237.2	161.6
October	...	91.0	88.4	106.4	95.5	126.5	114.7	87.4	190.2	120.5	96.1	80.1	248.7	160.9	191.3	108.2	145.2	244.2	170.3
Nov.	...	93.5	91.1	108.1	98.4	125.8	117.1	89.4	189.1	129.1	94.6	79.8	271.7	174.1	204.5	111.3	158.0	279.5	179.5
Dec.	...	94.9	93.5	103.0	99.5	122.5	116.2	91.2	180.8	131.4	94.2	84.0	270.9	170.0	210.6	112.2	159.6	300.2	185.4
Jan. 1956	...	93.5	92.5	98.5	96.5	120.8	113.5	92.2	170.4	126.5	91.2	86.0	258.9	156.0	203.3	109.7	153.3	289.4	175.5
Feb.	...	89.6	89.2	90.7	94.7	118.7	107.0	90.5	177.2	122.8	89.6	84.3	245.6	141.8	196.8	106.1	148.0	281.2	166.9
March	...	89.3	89.1	88.2	94.6	117.5	110.6	88.9	171.9	128.5	82.9	82.4	255.8	144.9	194.3	107.6	149.7	238.0	172.7
April	...	88.1	88.3	94.3	96.3	116.3	111.9	88.5	182.9	130.9	76.6	81.7	270.4	149.3	194.2	104.8	146.0	290.5	175.2
May	...	89.4	89.8	85.4	92.6	113.9	113.5	87.3	183.5	132.3	75.1	80.9	262.7	154.8	193.4	104.6	143.6	285.9	178.5
June	...	90.5	90.8	87.9	92.5	112.7	119.2	85.7	180.8	133.7	77.0	79.4	262.7	160.9	195.1	105.3	144.9	287.8	

Index Number of Wholesale Price (Certain Important Items)

Year ended August 1939=100.																		
CEREALS.				FOOD ARTICLES						INDUSTRIAL RAW MATERIALS.					MANUFACTURES.			
										Fibres		Oilseeds						
	Rice.	Wheat.	Jowar.	Bajra.	Gram.	Tea.	Coffee.	Sugar.	Gur.	Cotton Raw.	Jute Raw.	Ground-nuts.	Linseed.	Coal.	Jute.	Cotton.	Iron and Steel.	Agricultural and Commo-
March 1955 ...	416	458	102	219	198	591	567	283	140	394	510	355	319	357	468	411	274	380
April " ...	412	402	100	208	181	508	574	268	134	376	502	350	315	357	452	411	274	363
May " ...	403	352	97	194	176	550	591	266	130	383	456	354	320	357	429	406	274	357
June " ...	411	366	108	194	182	464	592	266	137	376	423	367	334	357	415	404	274	360
July " ...	455	416	121	206	216	531	615	263	155	393	418	405	379	357	417	402	283	392
August " ...	489	420	128	208	220	451	641	257	158	400	405	405	360	357	423	402	284	398
Sept. " ...	500	409	114	207	207	410	658	262	153	402	378	394	349	361	399	402	284	391
October " ...	486	430	137	224	214	369	680	261	157	398	398	389	364	361	397	401	312	396
Nov. " ...	474	469	147	242	227	358	659	254	192	..	408	399	395	361	422	399	319	405
Dec. " ...	463	506	133	241	242	346	674	256	178	449	407	431	422	362	415	399	319	411
Jan. 1956 ...	449	529	181	240	265	349	678	263	181	455	433	485	451	362	420	403	319	426
Feb. " ...	471	526	193	224	277	325	669	266	170	467	457	521	460	362	417	403	319	433
March " ...	504	545	215	233	297	335	645	265	173	478	445	570	492	362	410	403	319	452
April " ...	547	501	235	248	293	343	629	261	181	471	427	590	455	362	398	408	319	459
May " ...	539	475	230	239	287	295	624	261	173	482	409	624	471	362	390	414	319	453
June " ...	552	506	258	253	285	338	631	269	177	486	412	594	435	362	387	418	325	467
July " ...	568	528	266	255	303	389	644	269	187	493	435	579	428	427	387	430	329	484
August " ...	593	533	266	319	320	445	626	271	194	492	437	616	454	430	395	431	329	502
Sept. " ...	600	534	266	324	312	407	626	266	188	492	450	622	459	430	427	430	329	504
October " ...	593	535	287	357	308	445	621	262	177	481	459	589	469	430	426	426	333	506
Nov. " ...	609	555	307	366	329	467	619	260	208	482	499	586	482	430	446	421	333	524
Dec. " ...	596	578	328	370	342	507	615	262	185	463	529	567	518	430	459	415	333	529
Jan. 1957 ...	562	584	229	376	347	500	603	282	169	469	542	601	501	430	450	414	333	

Direction of India's Sea-borne Trade

	(In lakhs of Rupees).											
	CEYLON.			UNITED KINGDOM.			CANADA.			AUSTRALIA.		
	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance
1952-53	429	2008	+1578	14099	12329	-1770	2958	1283	-1675	1238	1698	+460
1953-54	509	1851	+1342	14498	15135	+637	1414	1313	-101	2583	1747	+484
1954-55	746	1719	+973	14688	18608	+3920	1013	1741	+727	1955	2446	+491
January 1955	48	137	+90	1175	1566	+762	71	170	+99	208	224	+16
February	46	159	+113	1301	1563	+262	28	151	+122	302	183	+119
March	42	144	+101	1333	1024	-308	22	232	+210	256	274	+18
April	52	92	+40	1404	820	-584	32	110	+78	231	173	+58
May	39	124	+85	1273	872	-401	13	97	+84	209	284	+75
June	59	202	+143	1205	1355	+150	14	89	+75	211	303	+92
July	115	174	+59	1086	1322	+237	33	128	+95	170	269	+99
August	105	132	+27	903	1475	+572	33	135	+102	35	120	+85
September	76	210	+134	1627	1510	-117	33	180	+147	67	255	+188
October	111	196	+85	1460	1472	+12	32	57	+25	59	128	+69
November	114	117	-4	1534	1542	+8	132	96	-36	56	199	+144
December	73	169	+96	1463	1410	-54	90	107	+17	44	184	+140
January 1956	65	209	+144	1744	1550	-194	75	103	+34	103	155	+52
February	56	200	+144	1637	1568	-69	11	135	+124	68	186	+117
March	76	233	+157	1904	1664	-241	27	161	+133	93	226	+133
April	62	70	+8	1579	1005	-574	29	127	+97	82	133	+51
May	44	75	+31	1903	1458	-444	83	104	+21	93	150	+57
June	42	168	+126	1741	1231	-510	61	102	+41	153	237	+81
July	76	141	+65	1730	1165	-565	71	120	+49	85	151	+66
August	89	151	+62	1858	1695	-163	33	155	+122	78	247	+169
September	96	209	+113	1887	1784	-103	50	199	+149	109	168	+60
October	95	168	+73	1681	1759	+78	76	100	+24	62	217	+155
November	70	179	+109	1770	1864	+94	94	143	+49	62	195	+132

(In lakhs of Rupees).

	(In lakhs of Rupees).											
	U.S.A.			EGYPT.			IRAN.			JAPAN.		
	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance	Im- ports (-)	Ex- ports (+)	Balance
1952-53	18307	11259	-7048	1512	569	-943	250	207	-43	1599	3198	+1599
1953-54	8005	9072	+1067	2770	358	-2418	204	153	-51	1322	2358	+1036
1954-55	8161	8858	+697	1968	828	-1140	120	555	+435	1891	1584	-308
January 1955	687	806	+119	131	82	-49	37	60	+23	217	148	-69
February	694	718	+24	346	117	-229	62	96	+34	324	164	-160
March	947	855	-93	117	61	-56	91	75	-16	139	157	+17
April	707	835	+127	106	31	-74	82	59	-24	198	145	-53
May	687	794	+107	132	57	-75	152	37	-115	332	193	-39
June	638	677	+39	116	84	-33	79	12	-68	143	155	+12
July	877	693	-184	144	100	-44	158	35	-123	215	100	-25
August	700	629	-71	131	90	-40	119	26	-93	209	276	+68
September	571	758	+187	98	123	+25	124	54	+70	233	253	+20
October	638	589	-49	51	78	-13	74	67	-7	433	325	-108
November	1088	730	-358	160	71	-89	170	64	-105	353	294	-60
December	656	814	+158	271	81	-190	169	32	-137	285	246	-139
January 1956	566	646	+80	324	72	-251	63	54	-28	301	191	-111
February	1091	741	-349	513	55	-458	59	30	-29	411	381	-130
March	709	784	+75	223	120	-104	165	21	-144	224	471	+247
April	704	806	+102	113	60	-53	114	21	-93	243	141	-101
May	732	716	-16	96	98	+2	120	42	+78	444	239	-205
June	750	763	+13	69	110	+41	80	23	-68	388	322	-66
July	642	715	+73	41	59	+58	134	21	-113	279	235	-44
August	826	770	-56	11	95	+84	145	21	-124	358	213	-145
September	856	598	-258	15	159	+139	146	23	-523	399	193	-206
October	808	713	-95	36	142	+105	225	25	-200	353	184	-169
November	1037	744	-293	39	9	-20	148	20	-128	476	202	-274

RECEIPTS, EXPENDITURE AND PUBLIC DEBT OF THE CENTRAL GOVERNMENT.

	(Amount in Lakhs of Rupees).											
	Receipts.						Expenditure.					
	Customs.	Central Excise Duties.	Corporation Tax.	Income-tax Revenue.	Total Revenue.	Receipts from Railways and Posts and Telegraphs.	Defence drawings.	Revenue Expenditure.	Capital Expenditure.	Debt Incurred.	Debt Discharged.	
Oct. 1954	1319	843	104	565	1925	1335	2388	235	5784	5200		
Nov. "	1924	614	419	343	3767	163	1311	1879	142	26574	26587	
Dec. "	1587	1148	315	2228	5239	122	1464	1459	557	3446	8391	
Jan. 1955	2177	937	334	817	4665	374	1365	2000	2171	400	42	
Feb. "	2275	968	296	606	4219	294	1490	1726	-36	452	820	
March "	1832	1401	892	129	5901	37	2110	6089	2403	1682	491	
April "	1174	1109	3	155	2537	882	1066	1644	207	406	406	
May "	1196	1109	123	339	2929	672	1031	1440	404	405		
June "	1240	1220	267	1053	3958	473	1025	1585	468	389	404	
July "	1329	1202	148	340	3177	603	1363	1567	1074	497	408	
Aug. "	1239	1270	73	499	5207	305	1165	1760	72	400	404	
Sept. "	1427	1195	598	1982	5384	10	1256	2000	880	579	607	
Oct. "	1371	1024	234	499	2479	140	1249	2431	313	658	926	
Nov. "	1398	1108	162	597	3593	99	1307	1537	-688	132994	132688	
Dec. "	1569	1311	802	2373	6369	437	1416	1843	124	8887	11111	
Jan. 1956	1507	1231	299	1062	4532	301	1436	2128	702	15800	11887	
Feb. "	1428	1374	438	310	3890	-36	1309	2899	474	27723	26962	
March "	1740	1287	998	1102	6746	-1139	2136	5323	963	16999	7834	
April "	1187	1180	29	272	2801	719	1112	1812	280	20421	15461	
May "	1352	1547	109	393	3365	794	1145	1131	381	27788	28154	
June "	1322	1521	381	1274	4711	405	1259	1750	317	76137	15940	
July "	1179	1371	86	436	3326	338	1205	2216	-385	20574	84429	
Aug. "	1342	1435	276	656	6067	76	1179	1860	356	84239	26297	

*Excludes defence drawings. †Monthly figures are exclusive of expenditure in respect of Railways, Posts and Telegraphs and Defence.

INDUSTRIAL DISPUTES*

	Disputes Workers Man days				Cotton	Jute	No. of Man days lost			Other*
		Involved	lost				Rail-ways	Engineering		
1953 (monthly average)	64	38864	281884	52566	29242	555	27773	171748		
1954 (monthly average)	70	38928	281056	44731	28942	2079	18509	186709		
1955 (monthly average)	97	43981	474821	186397	41739	4455	31352	165618		
1955:										
January	95	49038	322807	89837	17250	8722	22570	184428		
February	91	38370	144302	59448	16792	5784	10190	101588		
March	112	70042	334696	41162	73050	11392	28133	80769		
April	105	32432	333275	85546		6522	46871	193336		
May	120	68441	916776	670136		6769	22342	130761		
June	152	91269	1144011	634912	116072	370	1664	390996		
July	236	90218	533990	68817	121115	89	48622	295356		
August	251	92619	580031	65455	156700	9968	53735	294173		
September	134	47600	214214	56357	2701	1859	73021	80276		
October	99	48609	178112	59909	180		27500	90828		
November	129	45277	239540	94007		2471	25500	117072		
December	111	55260	660492	365674	97008	67	25793	140610		
1956:										
January	107	61050	349655	140693	13300	47	25057	174265		
February	122	69450	778886	401491	50748	162	51646	262711		
March	146	133188	678716	477504	60100	133	17546	223259		
April	143	83580	565964	298971	25228	148	18898	191710		
May	137	64361	553720	82137	11934	2801	204619	257223		
June	152	71818	476166	62640	1800	1574	157991	261629		
July	149	100069	535775	89733	75300	537	161209	203307		
August	136	64516	495639	61935	302361	978	19553	110812		
September	185	125226	908939	56674	57500	158	140716	650450		
October	109	76392	505789	144221	214600		57619	88444		
* Figures relate to stoppages involving loss of work by strikers										

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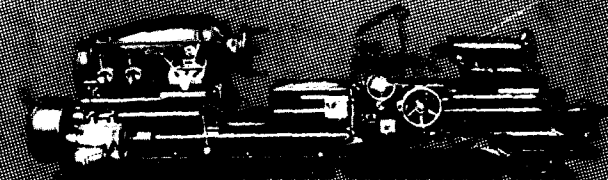
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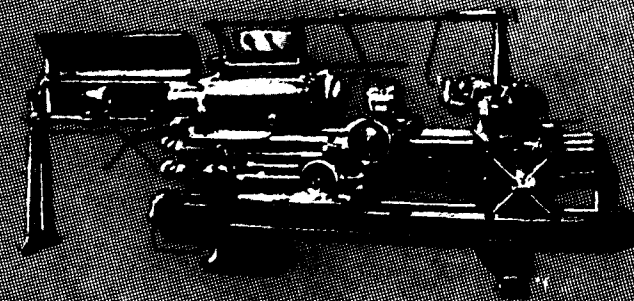
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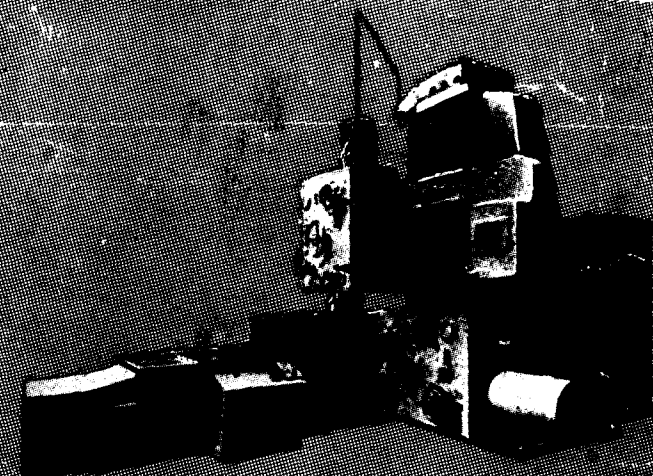
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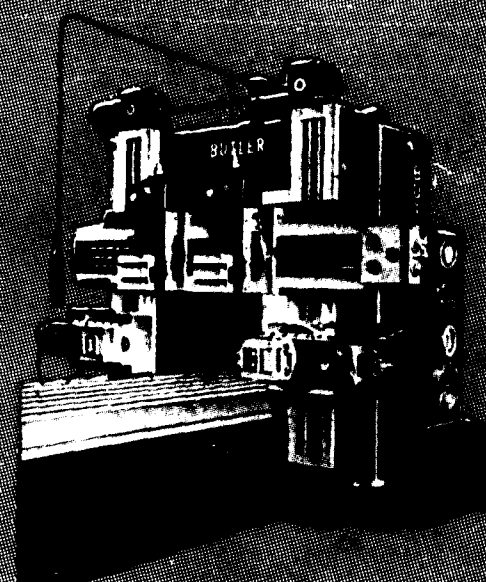
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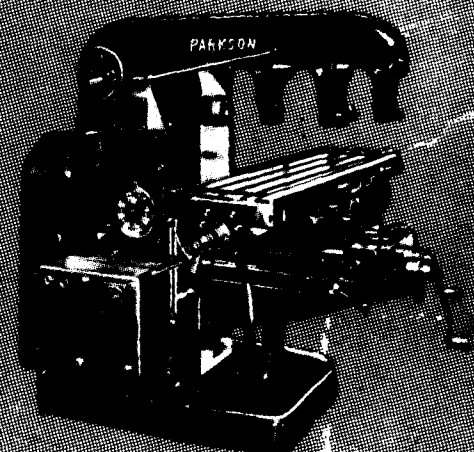
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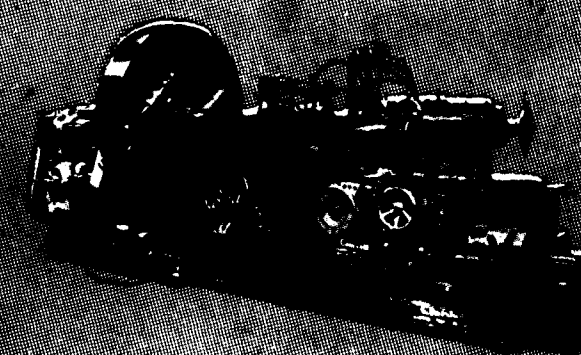
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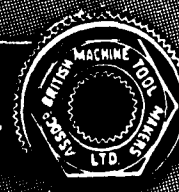


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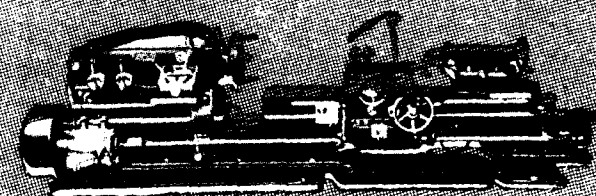
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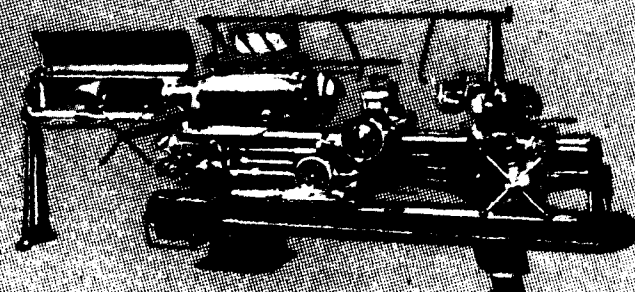
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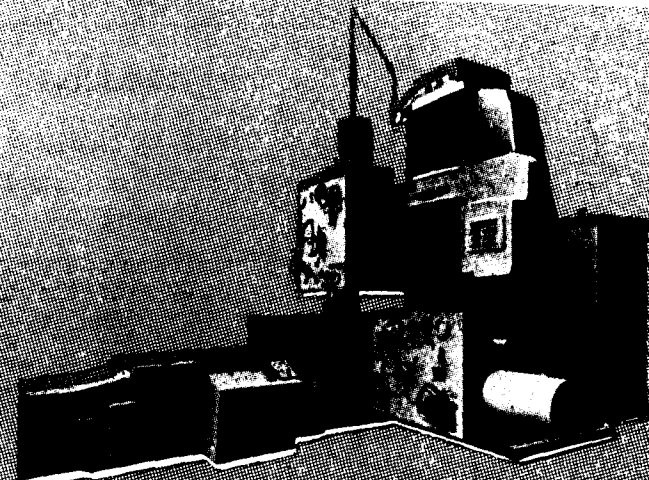
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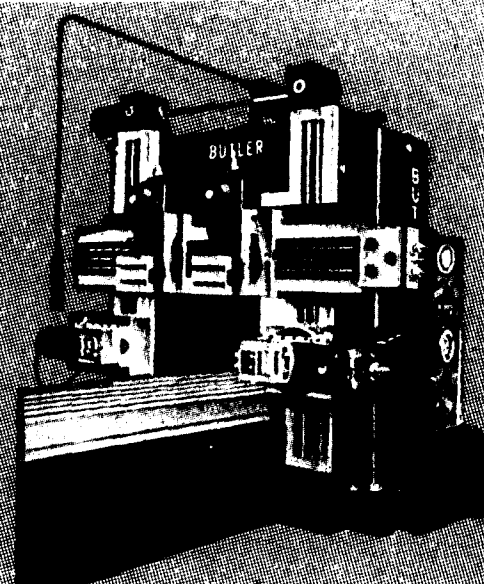
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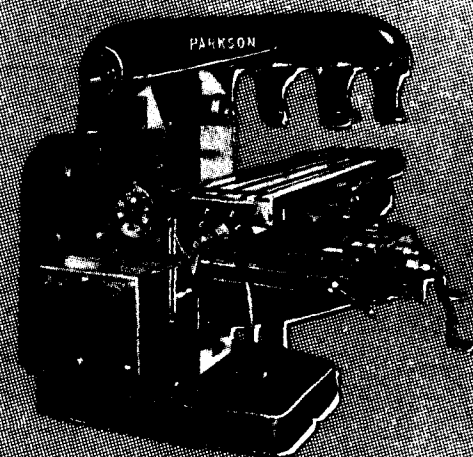
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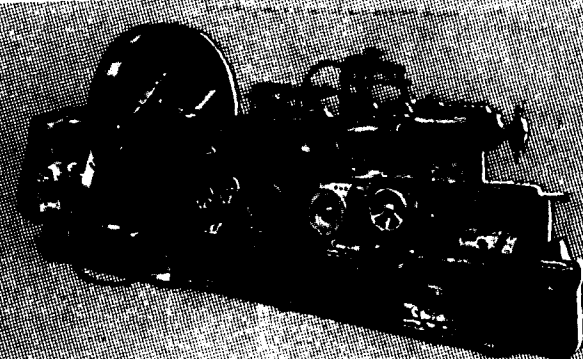
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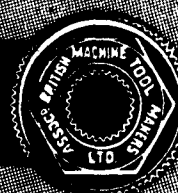


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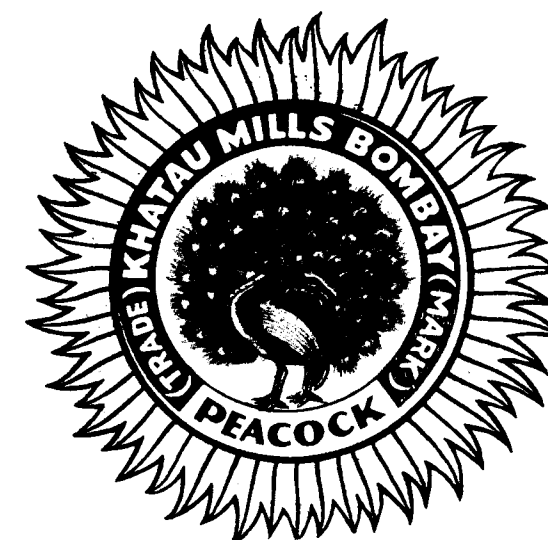
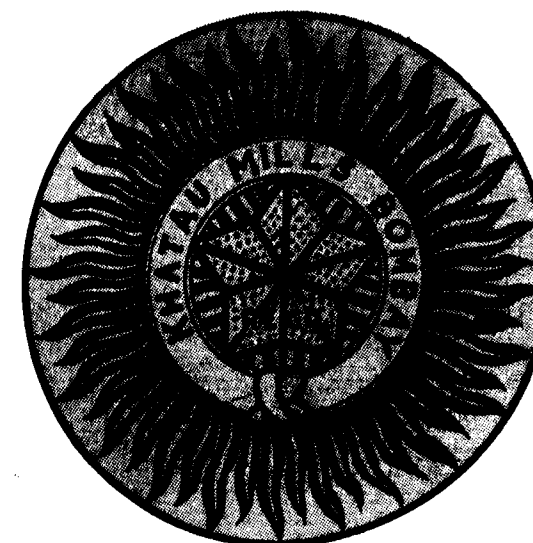
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Need for Courage and Self-reliance

The Difficulties and the Challenges

A Time for Agonising Reappraisal

Internal Economic and Political Stability

EVEN before it got into its stride, or perhaps because it got into its stride earlier than had been estimated, the Second Plan ran into difficulties in the second year of the quinquennium. The year past has been characterised by the circumstance of such difficulties, problems and obstacles encountered in the implementation of the Second Plan; by the consequent dickering, discussion and debate as to the feasibility of carrying it through on its original scale; and by thoughts on the desirability of rephrasing it or repriming it or reducing it. This agonising reappraisal of the Second Plan, which we have had during 1957, we are afraid, does little credit to this country as a self-reliant and enterprising nation, and it also is a reflection on our capacity to progress in the face of circumstances which are not as stable as might have been desired. And yet, it is important to remember that the framers of the Plan did not by any means anticipate that smooth sailing was assured to the steering of the Second Plan endeavours. Why, then, has this country been so base as to succumb to a crisis of confidence at the very first sight of the difficulties? Secondly, are the difficulties of a nature that was unanticipated? Thirdly, are the present problems to be construed as indicating that planned progress is, in the circumstances of today, incompatible with the democratic approach? Fourthly, is the present malaise in the disposition of the citizen toward the Second Plan an index of a strange lack in the national character, which baulks at difficulties, is complacent and refuses to get over them? Fifthly and lastly, are we to conclude that the situation obtaining today presages the failure of India's experiment in planning, and therefore, perhaps, the beginning of the end of democratic principles and way of life in this country? These are not questions lightly to be answered, but it is only in the correct assessment of what they signify that the salvation of the Plan, and, therefore, of democracy lies.

GOVERNMENT STEPS TO CURB FOREIGN EXCHANGE DRAIN

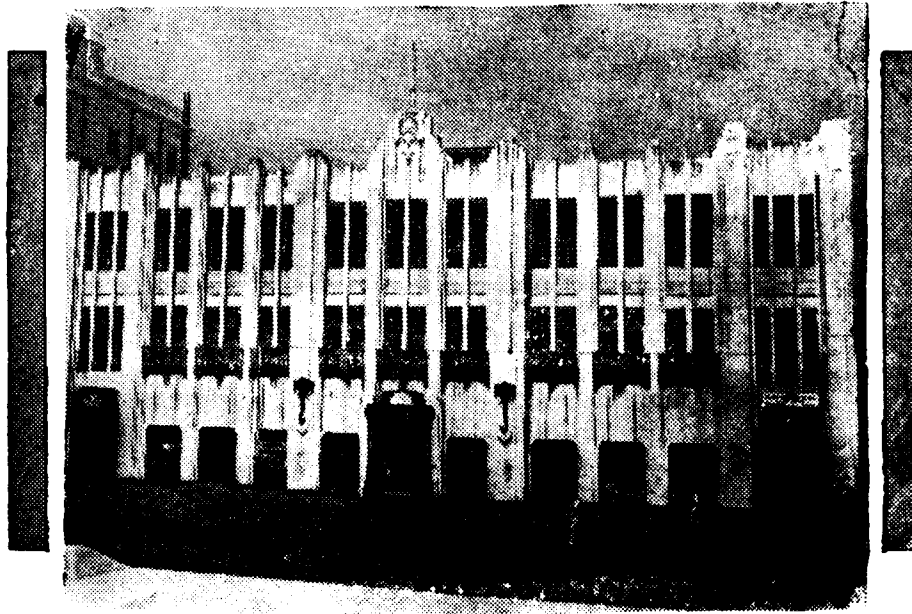
AT the outset, it is to be recognised that the so called crisis of confidence is, in reality, as Mr T. T. Krishnamachari has pointed out, a crisis, not of stagnation, but of development. It is also well

to realise that the problems which have been thrown up during the last year are derived, at least in part, from the fact that the Second Plan got under way at a swifter pace than was originally planned. Thus, the most crucial questions that have had to be tackled were, on the one hand, the rapid denuding of India's foreign exchange reserves and, on the other, the alarming inflationary pressures that were in evidence in the economy. Both, we may remark, are the direct result of an acceleration in the pace of planned endeavours and disbursements.

In the first place, it is now generally admitted that the running down of our sterling balances by Rs 537 crores in the first twenty months of the Second Plan was occasioned by, not a frittering away of our precious reserves in the import of non-essential goods, but a larger than expected purchase of capital goods such as plant, machinery, vehicles, etc.

In this context, it is perhaps correct to attribute the very large decline largely to imports on behalf of the private sector. This, however, is not the same as saying that the private sector must be charged with the blame for our present foreign exchange difficulties. For, provision was made in the original Plan for expenditure on this scale by the private sector; and the only accusation that can be made is that such foreign exchange expenditure has been incurred earlier than planned, and in a more concentrated form than originally anticipated. There is, as we shall see later, an advantageous offshoot arising from the expenditure incurred ahead of schedule by the private sector. The second cause of the foreign exchange difficulties has been the disappointing food crops that have been experienced since the beginning of the Second Plan. While this is a matter on which we shall later dwell in greater detail, the significance of this fact in the present context is that the payments balance, already placed under strain by large scale capital imports, was aggravated by the need to arrange for large scale importation of foodgrains. In the result, India's foreign exchange reserves were being drawn upon at the rate of something like Rs 20 crores a month, and it became clear by the end of 1956 that India's foreign exchange position would be presenting a serious problem for the authorities. So, before the announcement of import policy for January-March 1957, Government scrutinised the import list more closely, and were able to effect

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D. P. PARTHASARATHY
Secretary

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drastic restrictions on the import of several articles. But these restrictions would take some time before they would have the desired effect of mitigating the import surplus. In the meanwhile, licenses already issued were being, as it were, "encashed" and, consequently, the import surplus continued unabated. From a level of Rs 746 crores at the beginning of the Second Plan, India's foreign exchange reserves fell sharply to Rs 530 crores by the end of December, 1956. The statutory minimum as to the foreign exchange holdings of the Reserve Bank for currency cover was then Rs 400 crores, and Government, therefore, had ample forewarning of the necessity to make alternative arrangements and take emergent measures. Thus, negotiations were instituted with the International Monetary Fund for the purchase of foreign currencies, and, early in the current year, an arrangement was concluded whereby India was to draw, from the IMF, its gold tranche as well as the first tranche representing 25 per cent of India's quota. Thus, \$127.5 million in foreign currencies was made available for adding to India's foreign exchange reserves, and, during the week ended February 8, the first drawal of around \$65 million was made. A few weeks later, in the week ended March 15, the balance of \$58 million was drawn. According to the negotiations with the IMF, India also secured a standby credit of \$72.5 million, and this, too, was utilised during the week ended June 14. But the drain continued and, by the end of July, India's foreign exchange holdings were hovering around Rs 420 crores. In the knowledge that, until such time as Indian exports improved or foreign aid on a substantial scale was forthcoming, India would need to meet its trade deficit from its foreign exchange holdings, Government had suitably amended the Reserve Bank of India Act, at a much earlier stage, and this empowered the Government to suspend the statutory minimum from Rs 400 crores to Rs 300 crores as a temporary measure. This was given effect to in the first week of August, when foreign securities held by the Reserve Bank in the Issue Department fell below a level of Rs 400 crores. Even this suspension was inadequate and, toward the end of October, it appeared as if, in order to meet the foreign exchange liabilities, the sterling balances would need to be further drawn upon. Consequently, since Parliament was not in session, Government announced by ordinance that the Reserve Bank Act was being further amended so that the statutory holding in respect of currency cover was determined at a figure of Rs 200 crores, including Rs 115 crores in the form of gold and bullion. This released roughly Rs 240 crores for utilisation in the meeting of the import surplus. It is ironic that, subsequent to the ordinance, the pace of drawal on foreign exchange reserves has perceptibly slackened. Thus, in the three-month period between the middle of October and the middle of December, the foreign exchange holdings of the Reserve Bank declined by Rs 55 crores; but, in the five weeks to the middle of December, the decline amounted only to Rs 11 crores. Thus, in respect of the foreign exchange position, it needs to be noted that, at each stage, the Government have taken prompt steps. At the moment, the foreign exchange holdings amount to Rs 305 crores; and to this has to be added Rs 117 crores in the form of gold and bullion. The combined holding of gold and bullion and foreign securities amounts to Rs 422 crores. This means that India has Rs 222 crores to spare for meeting foreign exchange liabilities. On the face of it, such a reserve is pitifully inadequate. Judged on the basis of the monthly average of foreign exchange depletion since the beginning of the Second Plan, the reserve will suffice or hardly ten months. But 1958 and the first half of 1959 are expected to present the "hump" of the Plan, in the sense that the original anticipations were that the foreign exchange expenditure would be heaviest during this period. On this reckoning, one estimate places the import surplus in the 15 months from January 1958 at Rs 400 crores. At the other extreme, it is possible to advance the hypothesis that the import restrictions are finally proving effective, in the sense that the import surplus may conceivably be reduced to something like Rs 10 crores a month. On such a basis, our reserves are sufficient for nearly two years. However, the actuality might differ substantially from the 10 months on the basis of the monthly average during April 1956 to November 1957, the 7 months on the basis of the hump calculation and the 22 months arrived at on the basis of the recent abatement in the pace of depletion. For, while foreign aid continues to be an uncertain factor, it appears almost certain that deferred payment terms may be secured for imports for, say, Rs 200 crores during 1958. On the assumption that such arrangements will be concluded, and also postulating that the tempo of imports will rise

to a crescendo during 1958, our view is that India's foreign exchange reserve will be found comfortably above the Rs 200 crore mark (including gold and bullion) by the end of 1958.

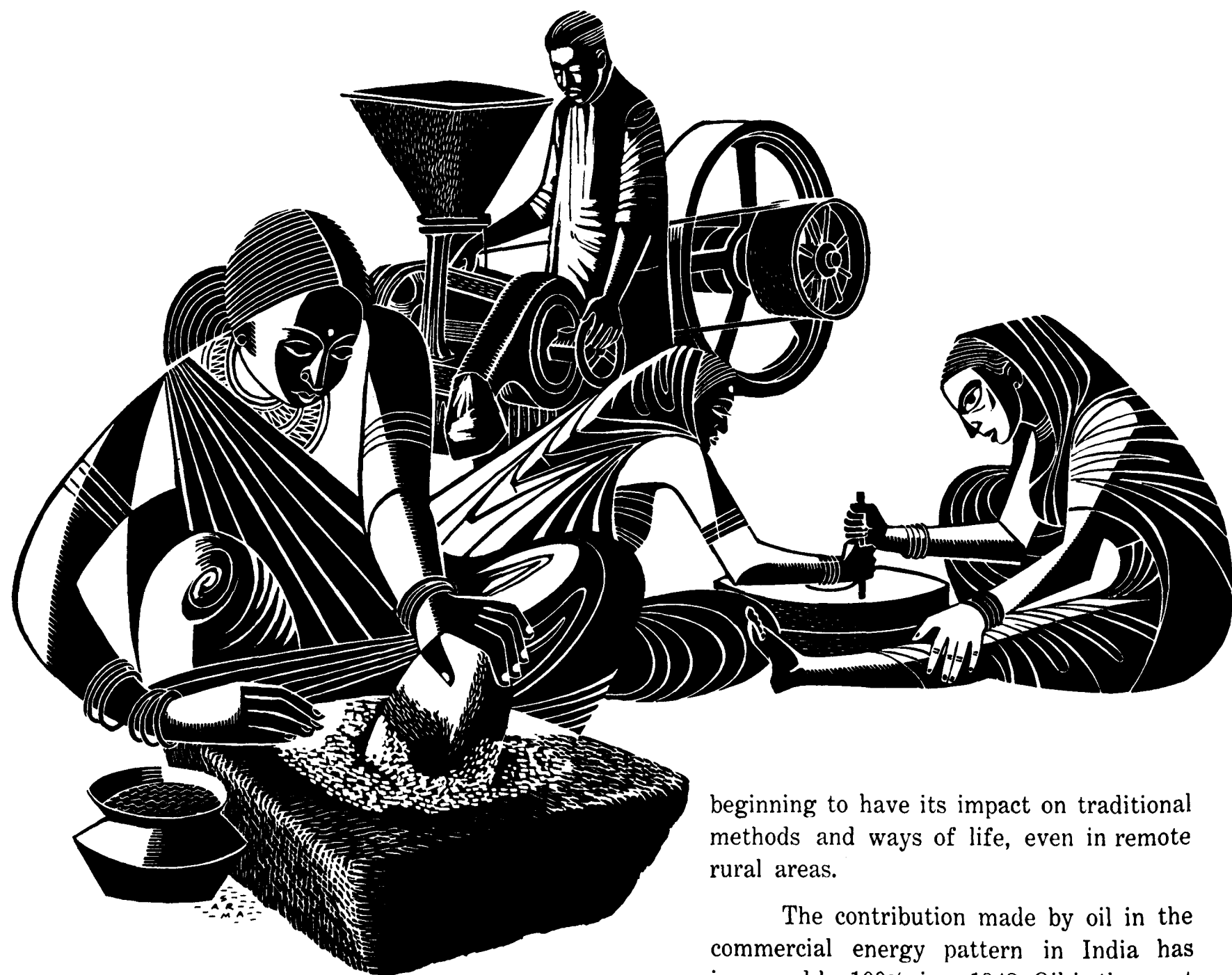
BANK RATE AND INFLATIONARY PRESSURES

THE second important problem that Government faced was in respect of the inflationary pressures that began to be evidenced from some time in the middle of 1956. These pressures were particularly pronounced in respect of foodgrains and cotton textiles. During the autumn of 1956, Government announced that restrictions would be placed upon bank Advances against cotton textiles, and they also announced at the same time that they would be levying a penal excise duty on cotton textiles with a view to restraining consumption and thereby reducing the inflationary pressure in this commodity. Then, in respect of foodgrains, the Reserve Bank issued a directive to the Scheduled Banks, suggesting that their credit against foodgrains should be brought down. However, this directive in respect of foodgrains was partially withdrawn later during 1956, with a view to facilitating the movement of the new crop, which had begun to come in by the end of November. Nevertheless, the rising trend in prices continued, such that Government were impelled to take further steps. Early in 1957, yet another directive was issued in respect of foodgrains by the Reserve Bank of India. Thereupon, later, a similar directive was issued in respect of sugar, where, too, prices had staged a sharp rise. But, up to the middle of 1957, the rise in prices was unabated. So, the Reserve Bank Governor, Mr H. V. R. Iengar, issued a circular letter calling upon the Scheduled Banks to exercise general restraint in the matter of bank credit. Until the end of August, however, the rise in prices persisted. The index number of wholesale prices (1952-53=100) mounted gradually and had risen to a peak of 113.1 in August, as against 98.1 at the beginning of the Second Plan. Then, from the middle of August, the various measures instituted by Government and the Reserve Bank began to be effective, and the index number of wholesale prices began to register week by week declines. It is, we suggest, fair to state that the inflationary pressures, which, after all, were a world wide phenomenon, were efficaciously and efficiently dealt with by the Reserve Bank and by the Government of this country. Now, we have to relate the emergence of inflationary pressures to the intensification of planned endeavours. While, undoubtedly, a portion of bank credit was being utilised for speculative purposes in respect of foodgrains, cotton textiles as well as sugar, it would be incorrect to think that inflation in these spheres was directly or only derived from the availability of bank credit for speculative holdings. The fact of the matter is that the very large Government disbursements did increase the currency in circulation, such that a larger volume of money was chasing an insufficient quantity of goods. So, it is fair to state that the inflationary pressures which obtained during the first fifteen months of the Second Plan were in fact derived from an intensification of planned endeavours. At this stage, we should like to urge that the selective monetary control as evolved and wielded and made effective by the Reserve Bank is more suited to being anti-inflationary in Indian circumstances than any orthodox anti-inflationary measures might have proved to be. Indeed, the raising of Bank Rate early this year did not in itself have any influence in reducing the demand for finance or in making inflation less of a threat. But the Bank Rate in India had to be raised, not because it was universally accepted as the apposite anti-inflationary weapon, but because, due to a chaotic structure of interest rates in the banking sector, the Bank Rate was found to be out of alignment with such existing structure of interest rates. The raising of Bank Rate can thus be considered to have been provoked by forces other than any orthodox onslaught on inflation. To sum up the inflationary situation in this country, India can justifiably claim that it has the know-how and is aware of the technique to keep in check any untoward rise in prices.

OTHER DEVELOPMENTS PROVOKING ANXIETY

THEREFORE, it will be seen that, in respect of both the problems—foreign exchange and inflation—which occasioned the agonising

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Energy means the power to do work, and India needs all the energy she can get if the targets of the Second Five Year Plan are to be fulfilled. The proportion of commercial energy—that is to say, coal, electricity and oil—to the whole energy system is still extremely low in India. Nevertheless, it is

BURMAH-SHELL...IN INDIA'S LIFE AND PART OF IT

reappraisal of the Second Plan, the situation is, if not superlatively, at least satisfactorily in hand. But, over and above the two particular problems that we have mentioned, there were a number of other developments in the Indian economy which were a source of considerable anxiety as to the prospects before the country. In the first place, the cost of the Plan, it was quite clear, had gone up considerably. While the utilisation of substantial foreign exchange by the private sector in the first 20 months of the Plan did not reflect any increase in costs as such, the crisis in West Asia and the continuance of inflationary conditions in Western Europe combined to raise the cost of Indian imports. On the one hand, the plant and equipment and the capital machinery that India needed began to be more expensive. On the other hand, with the closure of the Suez Canal, the freight costs also increased. To this was added the embarrassment of unsatisfactory foodgrain crops in this country, which entailed the large scale importation of foodgrains from abroad. All this meant that the foreign exchange plan grew in magnitude from the point of view of the resources required. Unfortunately, the volume of expected resources could not similarly be revised upward. Exports were static, and the external resources by way of foreign aid and loans failed to materialise on the expected scale. Consequently, the foreign exchange gap widened—a gap which seemed the more ominous because of the very rapid depletion in reserves during the first 20 months of the Plan. Then, there was also the fact that, from the point of view of internal resources, the borrowing programme had made little headway in respect of the New Loans issued in 1956 and 1957. While the target from market borrowings, according to the Second Plan, was Rs 1130 crores gross, including Rs 430 crores of maturities, the New Loan in 1956 realised only Rs 158 crores; and this was inclusive of conversion receipts against the 3 per cent Victory 1957 Loan, for which conversion terms were offered in advance. However, the position brightened considerably with the triumphant success of State Loans, which, in all, gathered in Rs 68 crores. Thus, the total New Loan receipts, on Central and State Governments' account, amounted to Rs 226 crores or the annual average postulated by the Plan. Unfortunately, the 1956 New Loans were followed by a period of great monetary stringency such that, when the Budget for 1957-58 was announced, provision could be made for a new loan of only Rs 100 crores; and, this was to include Rs 31.5 crores in respect of the maturing 3 per cent Victory 1957 Loan. At the same time, the State Governments were advised to desist from any new market loans in the current year. Furthermore, when the New Loan was announced, conversion facilities were, besides, offered for the 3 per cent 1958 Loan in advance. Although this meant that, to a corresponding extent, the charge of meeting a maturing loan would be reduced, the fact was that the 1956 New Loans put together, and inclusive of State Governments' floatations, brought in only Rs 331 crores. Subsequent to the 1957 New Loan, the banking situation considerably improved, but at the moment it suffices to remark that market loans had not, by the second year of the Plan, kept to the target.

The small savings drive also proved to be disappointing during 1956-57. Collections from small savings amounted to Rs 65 crores against the Budget estimate of Rs 71 crores and the annual average postulated by the Second Plan at Rs 100 crores. During the current year, at Budget time, in May, with the suggestion to the State Governments that, if they kept off the market, they would be given a larger allocation from small savings, Government sought to provide fillip to the small savings campaign by increasing the interest offered and by announcing new schemes for small savings. The action taken in this behalf comprises: (a) an increase of $\frac{1}{2}$ per cent in the interest paid on Post Office Savings Bank Deposits; (b) the replacement of National Plan Certificates and National Savings Certificates by the National Plan Savings Certificates, which would carry the higher compound interest of 4.25 per cent; (c) an increase in the interest on Treasury Savings Deposit Certificates to 4 per cent; and (d) issue of 15 year annuities, second series, carrying compound interest of 4.25 per cent against 3.5 per cent previously.

Nevertheless, the small savings campaign did not produce results, and collections between April and September this year aggregated only Rs 23 crores against the Budget estimate of Rs 80 crores and the Second Plan target of Rs 100 crores. However, it needs to be stated that the attractive terms have been available only from June.

Meantime, the food situation took a turn for the worse with unfavourable weather recorded for the third successive season. Except for sugarcane, almost all food crops were adversely affected by excessive rains in one part of the country and drought in another. So much so, the figures relating to the last four food crops were as follows:

FOODGRAINS CROPS

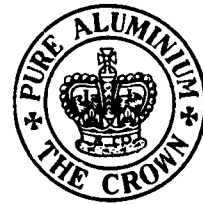
	(Million tons)			
	1953-54	1954-55	1955-56	1956-57
Rice ..	27.8	24.2	26.8	28.1
Wheat ..	7.9	8.5	8.3	9.1
Millets (Jawar and Bajra)	12.4	12.6	10.3	10.3
Other cereals ..	10.2	10.0	9.2	9.8
Grams and Pulses ..	10.4	10.5	10.2	11.4
Total foodgrains ..	68.7	65.8	64.8	68.7

FACTORS AFFECTING FOREIGN ASSISTANCE

THE failure of food crops had two unfortunate repercussions. On the one hand, inflationary pressures were released in the economy, although these, as we have already seen, were kept in check by apposite action by the Reserve Bank. On the other hand, imports of foodgrains were necessitated; but here, also, there was a redeeming feature. The redeeming feature lay in the fact that negotiations were conducted, and brought to a successful outcome, with America for the purchase from that country of surplus commodities under the US Public Law 480. According to the terms of this Law, which was framed with a view to the disposal of the surplus stocks built up by America consequent to its price support schemes, the US Government were authorised to sell, either for meeting famine conditions or for adding to the buffer stocks of a country, quantities of foodgrains and receive payment therefor in the local currency of the purchasing country. This meant that India could secure food to tide over a difficult year without any outlay of foreign exchange. It has been reckoned that the agreement concluded last year enabled a saving of Rs 137 crores in foreign exchange. Moreover, the US Administration, now keenly alive to the desirability of giving all possible assistance to India, also agreed to advance the proceeds from the sale of such foodgrains, which would be kept separate as counterpart funds, as a long term loan for development works in this country. Thus, the foodgrains secured from America helped not only in respect of foreign exchange, but also in regard to the internal resources. While acknowledgment here must be made of the extremely sympathetic assistance that America has been extending to India, this is the context in which it is necessary to refer to the blighting of external resources prospects by the intensification of the cold war. Political moves by the Soviet Union in West Asia elicited from America a greater concentration on military defence and, therefore, on military aid. This was at the cost of economic assistance and, in spite of the well high universal recognition of the supreme importance of India's experiment in democratic planning, foreign assistance had fallen short of India's needs. The situation did not improve when the USSR successfully drew ahead, in a sense, of America in technical supremacy with the successful launching of two earth satellites. The Sputniks sent into orbit by Russia were a grave warning to America of the military potential that Russia might have built up and in particular of the prospect that Russia might possess a stockpile of the dreaded intercontinental ballistic missiles. For, this achievement by Russia stirred up American endeavours at intensification of its own research into inter-continental warfare methods. Thus, the increasing expenditure on defence within America, and the augmentation of military assistance externally by America, both reduced the availability of funds for economic aid from that country to India.

We have tried to enumerate all the particular difficulties, embarrassments and problems which this country has had to face in the first 20 months of the Plan. While both here in India and outside, there is a sufficient realisation of the stormy weather which the Second Plan has run into, insufficient regard has been

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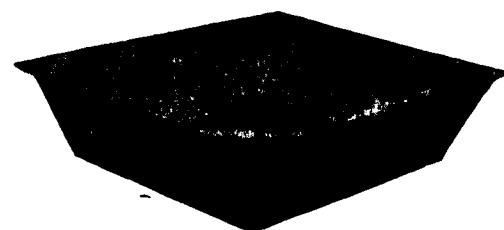
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had for the many favourable developments in the over all picture of the Indian economy. If we are not to be panicked by anticipated difficulties, and if India is to survive the present admittedly anxious months, it can only be on the basis of an undertone of confidence arising from a stock-taking of the many silver linings to the dark clouds that overhang this country at the moment.

SILVER LININGS— HEARTENING ACHIEVEMENTS

FIRST are the two silver linings to which we have already referred. India's success in checking the rise in prices is more commendable in the light of the relative failure which has attended the efforts of other countries, industrially more advanced than we, in tackling the problem of inflation. To have halted the inflationary pressure is in itself a heartening achievement. But its significance is greater for this country, because in an era of planned expansion, there is likely to be recurrent and frequent exposure to inflationary potentialities. What India has done is to prove that inflation in an underdeveloped country which is in the throes of expansion, cannot be likened to the classic inflation that might be experienced in other countries. In a sense, thus, it may be said that what occurred in India was an Indian brand of inflation. In economic planning, apart from a steady augmentation to money in circulation, the more significant issue is the cyclic character of shortages and surpluses in particular sectors of the economy. For, as far as the money supply is concerned, in a country of India's size, such a wide dispersal is effected that, by and large, with an augmentation in the supply of essential goods, the scope for money inflation is reduced. So long as basic production goes up, then the phenomenon of an unduly increasing amount of money chasing a static quantity of goods does not obtain. But the problem in India's case will be, as we have remarked, that shortages will occur in specific commodities, and surpluses in others. Though, until the present time, we have not had the problem of surplus, we have to take account of such possibility in the near future. If extra production is attained in exportable commodities or articles, there is no problem to solve. If output of steel or cement or paper or a long line of engineering goods were to overtake indigenous demand, such a consummation will be welcome as affording a new source of foreign exchange earnings. But there are also the commodities in which export may not be possible. For example, a large raw jute crop may prove an embarrassment to the country; but, over the long term future, raw jute production has necessarily to be much higher than the target for the Second Plan. In the event of such surplus, we can ill afford a collapse in prices which, in the ensuing season, might sharply retard production. Government would do well to take all precautionary steps for tackling any problem of surplus production that may be experienced. As far as insufficient production is concerned, it is at the moment difficult to make good the shortfall in supply by means of imports. Frankly speaking, we cannot afford the foreign exchange expenditure. Nor can India lightly impose controls as to prices and distribution; for, such controls often do more harm than good, by opening up the flood gates for a sea of corruption. The next best alternative is, as India has discovered, selective monetary control. This recognition is explicit in the circular letter addressed to the Scheduled Banks by the Governor of the Reserve Bank, Mr H. V. R. Iengar. Mr Iengar, it may be recalled, called upon the Scheduled Banks generally to show restraint in the provision of credit, adding that bank advances should, as far as possible, be made unavailable for unproductive purposes, as well as in respect of commodities in which shortages were discernible. While it may be an oversimplification to assert that bank credit alone is responsible for a speculative holding of stocks such that prices are pushed up, it is undoubtedly true that, in Indian conditions, bank credit has indeed been successfully utilised for this purpose. We have shown, at least in respect of three commodities—foodgrains, sugar and cotton textiles—that selective monetary control as devised and implemented by the Reserve Bank can adequately take care of India's brand of inflation. This is the first important silver lining.

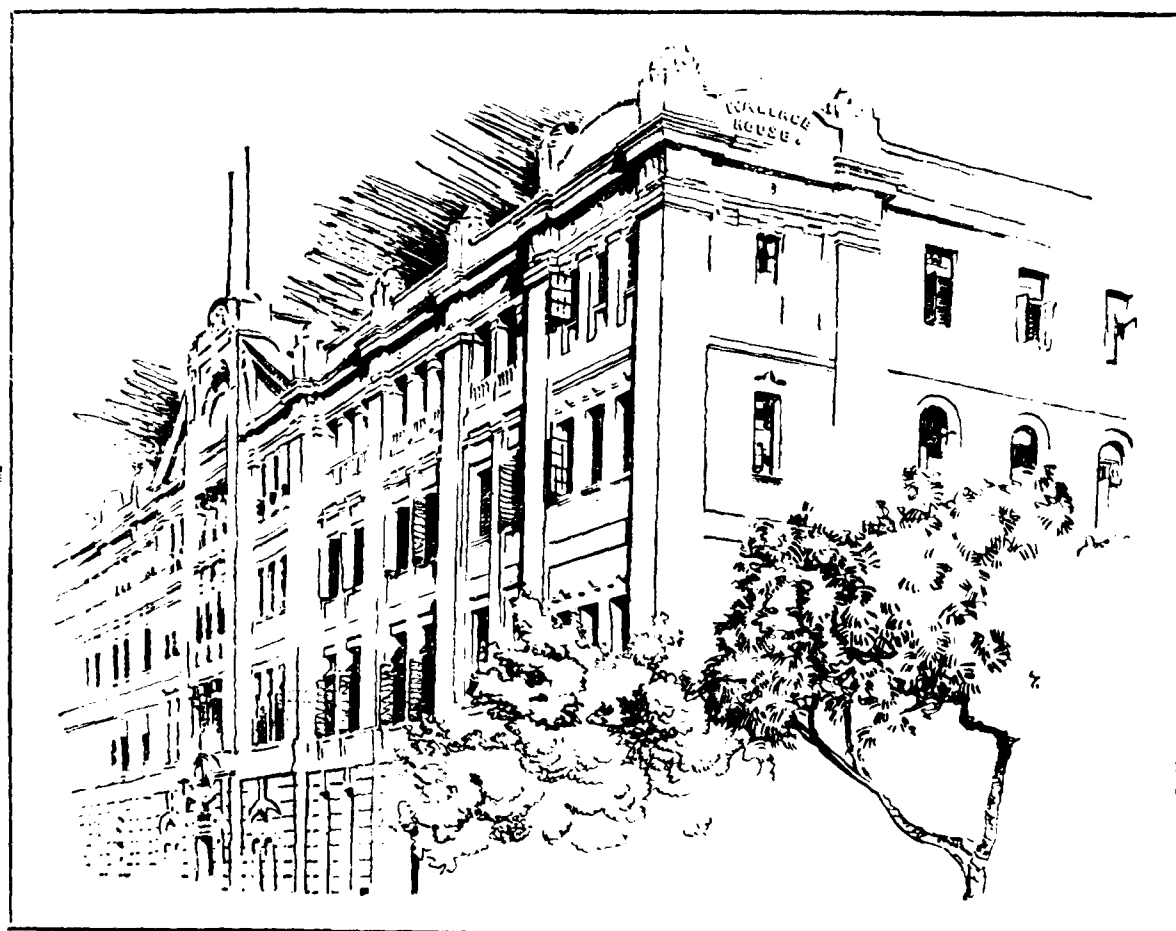
Then, the steps taken to minimise the import of inessential goods was what we could expect of any efficiently working government. We need not, therefore, make much of the manner in

which the import surplus has been reduced. Nevertheless, it stands to India's credit that prompt measures were taken to arrest any aggravation of the unfavourable balance of trade by imposing drastic restrictions on the import list.

REMARKABLE STRENGTH OF BANKING SYSTEM

THE third significant development is the remarkable strengthening of the banking system. Indian Finance had, at a very early stage of planning endeavours, foreseen the inevitable augmentation of the resources of the Scheduled Banks as a direct consequence of the large scale planned disbursements. However, in the first three years of the First Plan, bank Deposits were at best stationary, if they did not, on the contrary, show a decline. But Government expenditure on the First Plan was largely in the agricultural sector of the economy. Such expenditure took some time before, by a process of osmosis, funds permeated into the monetised sector. But, from 1954-55, the Deposits of Scheduled Banks began to benefit from planned disbursements. During 1954, bank Deposits rose by Rs 93.14 crores. In 1955, the improvement amounted to Rs 90.81 crores. In 1956, the augmentation to Deposits was slightly lower at Rs 80.81 crores. And, in the first eleven months of 1957, there has been a spectacular increase of Rs 281.45 crores in bank Deposits.

But, in banking too, there was a period during which inadequacy of resources threatened to jeopardise the role that it could play in serving the needs of the Second Plan. In particular, this inadequacy was in evidence on the eve of the 1956-57 busy season, when, even before the busy season pressure had commenced, banks found themselves in an over-extended position, with the total of their Advances being placed at 68.8 per cent of Deposits. It was apprehended in all quarters that the banking system would be found unable to cope with the requirements of the busy season, and, consequently, the monetary authorities wisely forearmed the member banks with the assurance of resources with which to take care of the busy season's needs. This is the second facet of selective monetary control, by which we should understand, not merely the clamping of restrictions, but also the provision of such facilities as the banks might stand in need of. Following conferences with bankers, the Reserve Bank liberalised the bill market scheme, so that the banking system could replenish itself by means of borrowings against usance bills from the Reserve Bank. The Reserve Bank promptly approved credit lines for a total of Rs 150 crores—the borrowings against usance bills on the eve of the busy season were placed at Rs 40.29 crores. Thus, the banks were assured of an additional quantum of Rs 110 crores by way of borrowings against usance bills with which to meet the legitimate demands for busy season finance. However, in the event, the apprehensions were belied because, already by that time, the Deposits of the Scheduled Banks were rising in a strident fashion. As against an increase in Deposits during the 1955-56 busy season of Rs 33.68 crores, Deposits improved by Rs 128.01 crores during the 1956-57 busy season. As against sanctioned credit lines of Rs 150 crores against usance bills, the peak touched during the 1956-57 busy season was only Rs 73.20 crores. During the course of the 1957 slack season, there has been a further accentuated increase in the Deposits of Scheduled Banks. The additional Deposit resources accruing to Scheduled Banks over this period amounted to the remarkably high figure of Rs 163.95 crores. Meantime, with the general restraint in credit observed by the Scheduled Banks in response to the Reserve Bank Governor's circular letter, bank Advances had shown a fairly sizeable decline. On the eve of the 1957-58 busy season, the Advances Deposits ratio was placed at only 62.2 per cent, this comparing with 68.8 per cent on the eve of the 1956-57 busy season. At this stage, mention needs to be made of the fact that a moiety of the increase in Deposits is accounted for by the State Bank. This is more than ordinarily significant, because a considerable portion of the new Deposits of the State Bank comprised the accumulation of funds on account of the US Embassy, representing counterpart proceeds against surplus commodities which India purchased from America under Public Law 480. Due credit is to be given to the assistance that the Scheduled Banks have indirectly derived from the US sale of surplus commodities to this country. This, however, cannot detract from the



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fact that, even otherwise, the rise in the Deposits of the Scheduled Banks has been phenomenal. So much so, it may be taken as reasonably certain that the banking system will continue to experience such a healthy augmentation of Deposits. In that contingency, the Scheduled Banks will have resources and to spare for financing the enlarged credit stemming from the accelerated pace of industrial activity.

EVOLUTION OF SOUND BORROWING POLICY

IT is, however, an unpalatable fact that, in spite of such spectacular increase in Deposits, the Scheduled Banks had not, until recently, diverted any part of their new resources to investment in gilt-edged. At the beginning of the Second Plan, the gilt-edged investments of Scheduled Banks were placed at Rs 360.07 crores. On the eve of the 1957 New Loan, that is, at the beginning of August, the gilt-edged investments had actually declined to Rs 332.42 crores. With the subscriptions to the New Loan proper, investments rose to Rs 365.90 crores in the first week of September—a scant Rs 5.83 crores more than at the beginning of the Second Plan; and, during this period, the Deposits of Scheduled Banks had risen by nearly Rs 266 crores. For this state of affairs, not much blame can be laid at the door of the Scheduled Banks. For one thing, the inadequacy of resources on the eve of the 1956-57 busy season precluded their ability to set apart any of their funds for investment in gilt-edged. For another, with Government's gilt-edged policy anything but firm or purposive, and with the consequent gradual erosion in gilt-edged values, the Scheduled Banks were understandably reluctant to court depreciation in their gilt-edged holdings. Fortunately, as we have earlier remarked, this vital aspect of our economy is also showing signs of recovering from the malaise with which it has been afflicted for more than a decade. There have been fairly categorical indications from authority that this country no longer believes in efficacy of high Bank Rate as an anti-inflationary measure. On the contrary, the monetary authorities have progressed so far in the right direction as to realise that a high Bank Rate will be, in Indian circumstances, undesirable and injurious. In this regard, we would refer to the decision by Government to create a special issue of Rs 30 crores in the existing 3½ per cent 1962 Loan. Within ten days of this announcement, the issue was fully taken up. Its success lies not a little in the fact that the terms of the issue did not adversely affect the prices of the existing issues. On the other hand, the Reserve Bank in its open market operations ably prepared the ground for a favourable reception to the created issue. This was done by gradually increasing the selling rates of the Reserve Bank for particular scrip. We are emboldened to suggest that the created issue marks the beginning of the evolution of a borrowing policy by Government based on the dictum of borrowing from strength. If this indeed is the case, we can look forward to market borrowings occupying a more central role in the raising of internal resources. This is to be welcomed for two reasons. In the first place, larger realisations from market borrowings will enable a reduction in the reliance on deficit financing. Although we do not agree with the view that the deficit financing in the last two years of the First Plan and the first two years of the Second is solely responsible for such inflationary pressures as had been witnessed, a reduction in deficit financing is, in any circumstance, to be welcomed. Another advantage is that market borrowings are themselves anti-inflationary in the sense that they siphon off surplus funds from the money market which otherwise might have aggravated inflationary tendencies. The second reason for which the prospect of larger realisations from market borrowings is to be welcomed relates to its significance in the matter of tax.

COMPLETION OF THE TAX EFFORT

AT the outset, it may be stated that the completion of the tax effort for the Second Plan is of momentous significance. In the first place, before the second year of the Plan has run out, all vagueness about resources under this head has been removed. In the second place, it is evidence to the outside world of India's determination to raise the internal resources even though the

measures might have been unpopular. In the third place, with the completion of the tax effort, it is possible for the private sector to plan ahead for the next three years in the certainty that, from the tax point of view, the rest of the Plan-period will be "stable". Lastly, the completion of the tax effort means that, if there is an improvement in other avenues of internal resources, to a corresponding extent tax concessions may be feasible from time to time during the next three years. Indeed, it is in this light that the improved tone of the gilt-edged market and the greater promise it makes of higher realisations from market loans augur for the possibility of Government being in a position, as a direct result of larger market borrowings, to offer some tax reliefs.

Let it not be thought that tax reliefs are no longer necessary because, as Mr G. L. Bansal has described in a contribution to this Year-book, the private sector is ahead of schedule, and has already largely fulfilled its targets for the Second Plan. While the attainment of targets has enabled the upward trend in industrial production to be maintained, there is no occasion to warrant the view that, the private sector's targets completed, it has done its bit for the Second Plan. Rather, we would suggest that, with Government encountering difficulties in the completion of endeavours allotted for the State sector, it would be desirable to encourage the private sector to revise upward its targets for the Second Plan. To some extent, Government would appear to be holding such a view already. For, it is not without significance that indications have been given by Government permitting the private sector to take up projects in respect of aluminium and fertilisers, both of which under the Industrial Policy Resolution of 1956 had been reserved to the State sector. It now seems clear that the private sector has a better chance of raising external resources for new projects. The difficulty with the private sector is, as Mr G. D. Birla pointed out after returning from the tour on which he had led an industrial delegation, that internal resources are hard to secure. So, tax concessions offered would, on the one hand, facilitate the raising of internal resources, while, on the other hand, making more attractive the climate for foreign investments in this country.

But let us be clear in our minds that no amount of tax concessions as such will be the sole determinant in attracting foreign capital. What counts for far more, as far as foreign capital is concerned, is political stability. And, as for political stability, India can make no idle claims: it figures today as one of the most stable of all democracies. General elections have been held on time, to schedule, without fuss and without any outbreak of disorder. These elections are the largest in the world's history, with 180 million electors voting for the Government they wanted in the world's largest democracy. No further proof is required of India's political stability. We have tried to show that we are being unnecessarily pessimistic about the internal economy—there is more economic stability than is generally thought to be the case.

COURAGE FOR MEETING THE CHALLENGES

UNFORTUNATELY, it is the difficulties which arouse all the attention. This is generally supposed to be a time for agonising reappraisal of the Second Plan, when, all too often, there are vague and unmeaning discussions of the core of the Plan and the hard core of the Plan. Let it be realised that, if there are difficulties, there are also many favourable developments in this country. Thus, though there may be difficulties, and though it is proper that we should attend to them, we must not allow ourselves to be overcome by them, but instead regard them as challenges which we shall take up and which we shall meet. True, there may be an inadequacy of foreign exchange. But the picture is less bleak than it would at first glance seem to be, if the extensive negotiations for credits and foreign assistance are carried out to a successful conclusion. Let us reappraise the Plan by all means. Let us recognise the difficulties, certainly. Let us take stock of the challenges. Let us admit the inadequacy in foreign exchange. But let us also have regard for the political stability and the internal stability. Let us, in brief, show the world that we possess in brimming measure the courage and self-reliance which will ensure that we, the citizens of India, will continue, in generations to come, to people the world's largest democracy.

The Foreign Trade Outlook

THE Second Five Year Plan has come up against a formidable impediment in the shortage of foreign exchange. Currently, no aspect of the Indian economy engages public interest more than this shortage; and every effort is being made to reduce it and also to mitigate its impact on the progress of the Plan.

The Planning Commission estimated for annual imports at the average rate of about Rs 870 crores for the period of the Plan; and exports at an annual rate of nearly Rs 600 crores. Consequent on the Suez crisis, there had been a sharp increase on the cost of imports for sometime. Of late, what appears to be a surfeit of steel production in some countries has again resulted in price reductions for many items regarded as indispensable for purposes of the Plan. Even after allowing for these fluctuations, it has to be held likely that the total foreign trade deficit for the Plan will considerably exceed the original estimates of the Planning Commission. The necessity to import foodgrains on a larger scale than could possibly be suspected two years ago has further aggravated the situation; for 1958, food imports may run to the order of 3 million tons costing anything between Rs 120 crores to Rs 150 crores.

As far as the year 1956 goes, the export earnings are not very much behind the annual average envisaged for the Plan; though they were smaller than the earnings for 1955. Against the Plan's estimate of Rs 593 crores, which is nearest to the actuals for 1955 at Rs 596 crores, the actuals for 1956 came to Rs 582 crores. Among the leading export commodities, tea fetching Rs 142 crores, an all time record, exceeded expectations (the average) for the Plan by Rs 17 crores; oils excluding mineral oils fetched Rs 24 crores against Rs 22 crores of the Planning Commission's estimated annual average, hides, skins and leather just tallied at Rs 28 crores; cotton raw and waste secured Rs 25 crores against Rs 22 crores; likewise, metals ore, scrap, iron and steel fetched Rs 25 crores against Rs 23 crores. The most disappointing performances were in jute yarn and manufactures at Rs 113 crores against Rs 122 crores and in cotton yarn and manufactures at Rs 62 crores against Rs 75 crores.

On the import side, the actuals for 1956 at Rs 790 crores compared favourably with the Second Plan's annual average estimate at Rs 868 crores. But this difference could not be deemed to indicate a regular trend because machinery and vehicles made the largest contribution to it, having fallen short of the annual average figure of Rs 300 crores by Rs 81 crores. Considered from the standpoint of the progress of the Plan, this

shortfall in the import of essential capital goods, is a matter more for disappointment than for consolation. It is also to be remembered that, in spite of the Plan being trimmed at some points, the import of machinery is sought to be speeded up as much as possible, and to some extent, even irrespective of cost. Imports of iron and steel and of electrical goods and apparatus were substantially more during 1956 than the envisaged Second Plan annual average.

Proceeding from the foreign trade figures for 1956, it could be seen that, on balance, the foreign trade account was happier than the expectations for the Plan, though allowance has to be made for the fact that a sharp rise in imports was anticipated in the 'hump' years of the Plan, roughly 1957 and 1958.

Actually, since the middle of 1956, the drain on Indian foreign exchange started taking a sharp turn, gradually leading to a position in which the authorities are being compelled to think in terms of revising the Plan. Even before the latest Ordinance reducing the minimum for sterling holdings in the Issue Department of the Reserve Bank was issued, the balance had climbed down to Rs 311 crores against the prescribed minimum of Rs 200 crores. About the commencement of the Second Plan, the foreign balances stood at nearly Rs 700 crores. While the drastic reduction in the foreign securities which also functioned as part of the statutory backing for Indian currency may be theoretically unobjectionable, its impact on the balance of payments and even on the success of the Plan is admittedly heavy.

In the First Plan, the projects involving significant foreign exchange expenditure amounted to roughly Rs 818 crores. Power absorbed about Rs 260 crores, industries in the public sector Rs 57 crores, Railways Rs 268 crores and industries in the private sector Rs 233 crores. But in the Second Plan, projects where foreign exchange expenditure is involved have an allocation of Rs 2,660 crores. Of this, Power takes Rs 440 crores; Railways Rs 1,125 crores; (possibly more, after the upward revision announced a couple of months ago); industries in the public sector Rs 524 crores and industries in the private sector Rs 575 crores. The proportion that foreign exchange expenditure holds to total Plan expenditure is substantially different between the two Plans.

India's overall balance of payments on current account in the first quarter of 1957 showed a deficit of about Rs 82 crores and, for the succeeding quarter, a deficit of nearly Rs 85 crores. As the current year belongs to the hump

period of the Plan's foreign exchange expenditure, the annual rate of deficit of the order of Rs 330 crores need not be alarming, especially in the light of a total deficit of Rs 293 crores incurred in 1956-57. And under conditions of rigid import control and of measures calculated to conserve foreign exchange through the total elimination of avoidable expenditure, the level of imports should be regarded as reflecting to a large extent the progress of the Plan. It is only in respect of food imports, which incidentally are not wholly on current account, that the nation should feel concerned, but food imports belong to the indispensable category.

It is thus clear that whatever relief the foreign exchange situation could secure through the trade account should arise out of export promotion efforts. That the Planning Commission's targets for the Second Plan will have to be substantially raised is inevitable, though long-term credits from foreign countries are now being looked upon as the principal prop to the Plan in this respect.

In the task of export promotion, certain world trends are clearly unfriendly. In 1956, while the total increase in the value of world imports amounted to \$9,300 million, that of the industrial countries accounted for \$7,500 million; that of non industrial countries was only \$1,800 million. The industrial countries exported 14 per cent more than they did in 1955 while the non industrial countries increased their trade only by 5.9 per cent. In fact, in recent years the share of the non-industrial areas to the total world supplies of primary products has declined perceptibly. Against a pre-war share of 58 to 59 per cent, their share in 1956 stood at 56 per cent. Their own industrialisation has contributed to these trends. The growth of trade among industrial countries particularly intra-European trade is also responsible for the decline of exports from the non-industrial areas.

There has been a drastic fall in the requirements of raw materials and fuels per unit of manufacturing output in industrial countries. Agricultural production in industrial areas and industrial production in the primary producing areas, growth in the production of domestic raw materials within the industrial areas themselves, the intensified use of manufactured raw materials such as synthetic rubber, synthetic fibres, plastics and aluminium and the relative decline of the textile industries, the failure of semi-industrialised countries to produce sufficient primary export commodities to meet domestic requirements and at the same time to maintain an adequate volume of export supplies

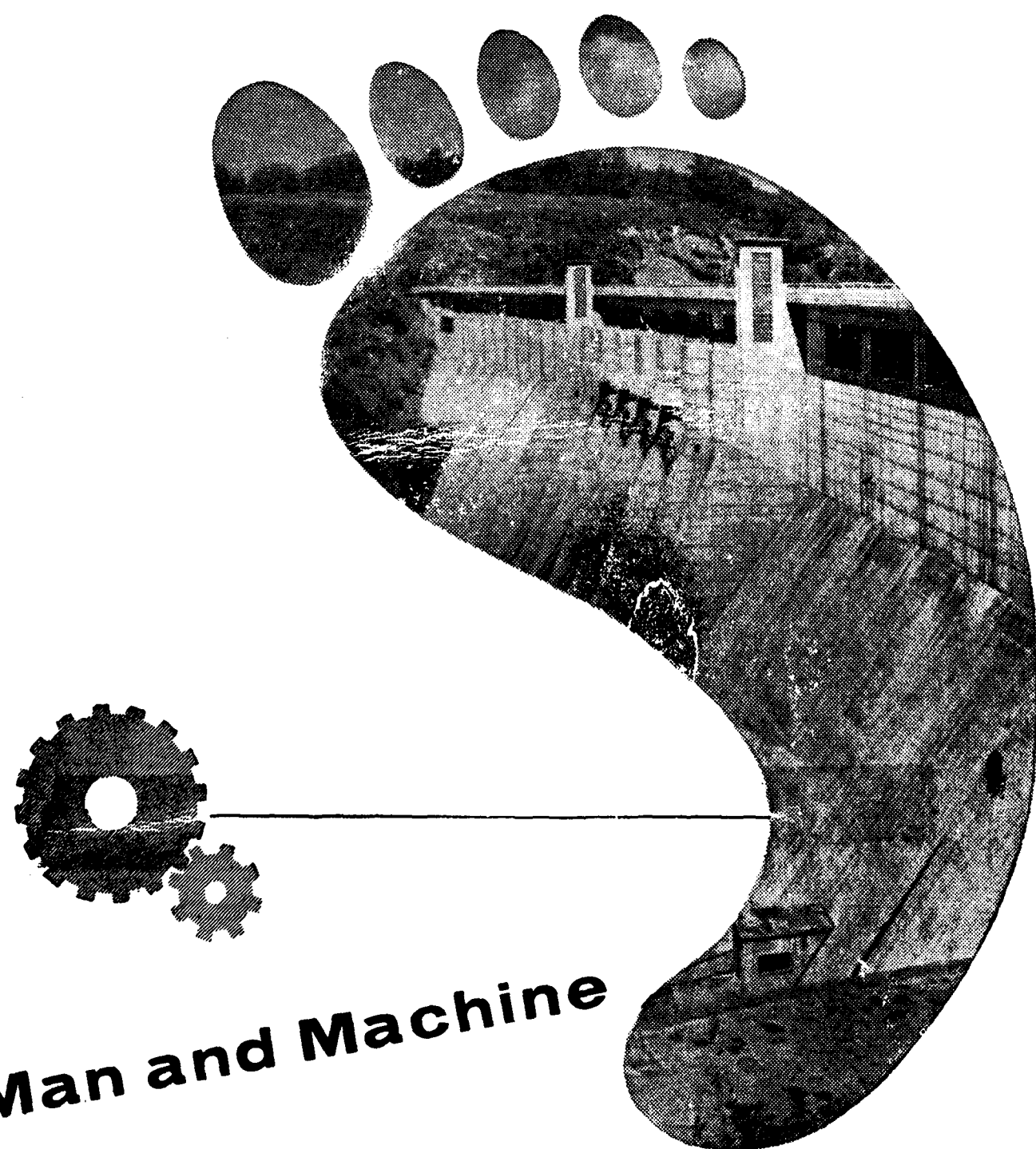
are among the other notable contributory circumstances.

As against these, total world demand for goods of all varieties is increasing with the general increase in population. In Asia and Africa, where nationalism, economic independence and increase in standards of living are overwhelming motives for social action, India can discover new markets, on a complementary pattern of trade. The beginnings of this change are already seen in the export of Indian industrial products to several countries in these two continents. It is also comforting to see a gradual improvement on the invisibles account. In 1956-57, the earnings in invisibles recorded a surplus of Rs 147 crores as against Rs 129 crores in 1955-56. Though temporary fluctuations will have to be reckoned with, the earnings through invisibles are bound to grow progressively.

For the Government's part, they have been quite vigilant in the matter of adjusting customs duties. To quote the latest examples, in October, the export duties of Rs 200 per ton on niger seed oil and kardi seed oil and of Rs 230 per ton on groundnut oil cake were abolished. In November, the rebate on the foreign expenditure content of products exported from India was raised from 7/8 to full. More recently, the Government decided, as a temporary measure, to reduce the excise duty on medium cotton cloth from 2 as to 1 anna 6 pies a square yard.

The State Trading Corporation can take credit for some good work in the exploration of new markets, particularly through agreement with Communist countries. The opening up of iron ore exports through Paradip in Orissa and Honavar in Mysore symbolises a new constructive attitude in the matter of export promotion. Iron ore holds the prospect of becoming a front-rank exchange earner. The agreement concluded between India and Japan last November is the foundation for a prospective increase in iron ore exports to Japan which might reach the order of more than six million tons in 1961. In the agreement, there is also an undertaking by Japan to develop new mines, transport and port facilities in India, with the aid of Japanese finance.

But when one turns to commodities like jute and tea, one comes across factors militating against a fully confident outlook. During the year, tea does not seem to have fared as well as last year's earnings foreshadowed. Better quality teas were of course in good demand but the lesser suffered comparative neglect. The UK has not displayed as much interest as a purchaser as during 1956. In the US too, Indian tea does not appear to have gained ground.



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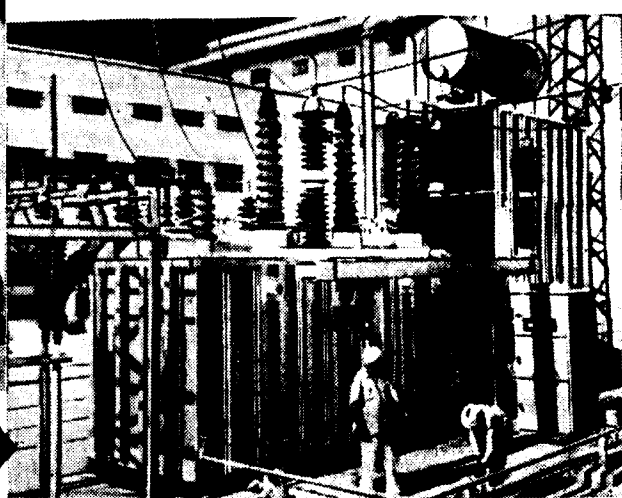
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For the Hirakud Dam Project in Orissa two 37,500 KW generating units are being supplied by the Company. Alongside is shown one of the generating units.

'English Electric' 38,000 KVA Transformers installed at the Delhi Grid Sub-station distributing BHAKRA NANGAL POWER to Delhi.

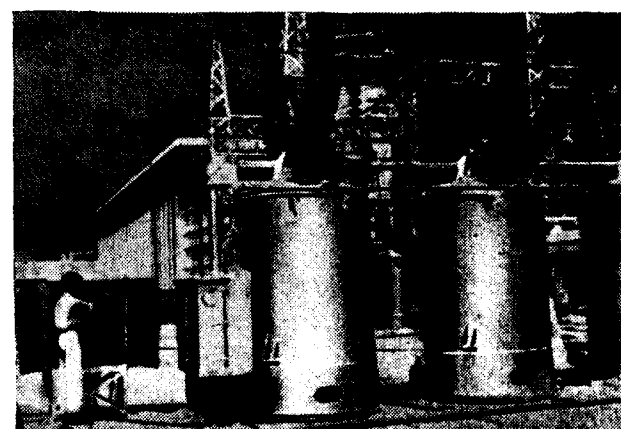


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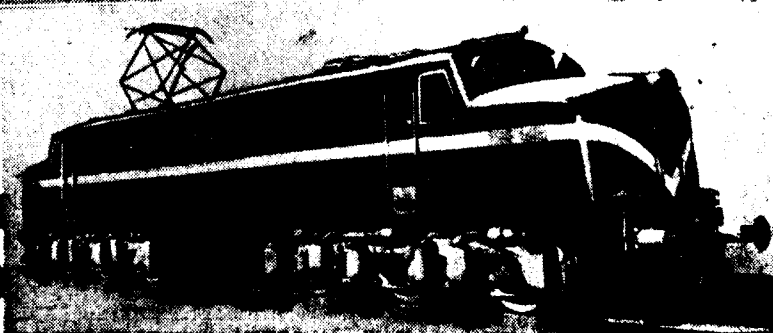
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The Sarda Power House has an installed capacity of 41,400 KW and is the largest hydro-electric station in Uttar Pradesh. The English Electric Company supplied, erected and commissioned all the plant for this Power House. Above is shown one of six 'English Electric' 132 kV Oil Circuit Breakers installed at this site.



One of the twelve 3,120 H.P. electric locomotives built by 'English Electric' for the Eastern Railway, India.

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What are we doing here in Bhilai?

By K. N. SUBBARAMAN

THE age of agriculture is yielding place to the age of industry and we in Bhilai are writing the first chapter on Steel. In the thousands of workers helping to do this, we see the stamp of rurality wearing out and urban colour creeping in. The villager who registers his name in the Employment Exchange or stands behind the application is the symbol of this transference from land to industry. If to get quick entry he pretends to a trade he has not practised, it might as much be an urge not to be left out in this revolution as a not very laudable desire of shipping in "over the shoulders" in a mass. Most of them have left the lands their fathers tilled or which they laboured on for other's profits. There is scarcely a sign of regret but only a spirit of optimistic adventure. Many of them know they will never return and most hope they may not. They had gazed with longing at the shop windows in carnivals, listened with envy to the stories of the town returned youth as he talked of the light that came on at a mere push, the water that gurgled at a mere turn, the house that would withstand the fury of the storm. They seek now to attain these for themselves here by their toil, or through it elsewhere.

Even as early as the eighteenth century, it had been observed with ingenuity and not without truth, that the command of steel soon gives a nation the command of gold. The modern age could not amend this except perhaps to add that it is the command of prosperity, a more laudable aim, than an abundance of steel promises. For, it is the core of modern life, of material comforts and political safety, even as it is the core of earth in various combinations. To improve the quantum and quality of employment, industrialisation has no substitute. The welfare state we aim at and the higher standard of living that we promise are not possible with under-employment inherent in too many people on too small a piece of land; nor is improvement of productivity even credible under conditions that foster idleness and lethargy, almost by necessity, as with the best of wills little work is possible in over-manned agriculture for many months in the year. The agricultural area per India is only 22 per cent of the Russian, which suggests the twin needs of diverting a large number of men from agriculture to industry and improving the productivity of land so that the area meets fully the increased consumption of food following better earning. Even for this productivity rise, mechanisation and chemical products of industry are essential. And an added produce is essential not for industrial workers alone but even without them for the ever increasing population that

shows a geometrical rate of growth of 1.5 per cent per annum, the highest barring China. The priorities and emphasis in the Second Five Year Plan breathe this awareness. The core of the Plan is steel, coal for steel-making to be possible and the first derivatives of this basic production, agricultural machinery, producer goods and fertilisers.

Scarcity of steel inhibited progress, and limiting plans to its availability had become a habit. Railway expansions were brushed aside, renewals delayed. Factory constructions lingered on. Necessity invents substitutes, and housing in a country of chronic shortage of houses was entirely dependent on substitutes themselves not abundant, and in the competition between private housing and public, preferences to the latter crippled the former. In towns which have been steadily attracting and luring rural population, lodging space per head shrank. There was no solution without steel. Lagging most, the steep climb being short was the most tempting and almost shutting the eyes to the tremendous difficulties of such a venture in a country of only shortages in the context of such demands, the Government decided to quadruple the steel production. In one Five Year Plan, the output of 1.5 million tons of steel ingots was to rise to 6m tons. In a socialistic economy, the major producer of this basic material must be the Government, and so they assumed the responsibility of 3m tons. Government Steel Plants under construction are three, Durgapur Rourkela and Bhilai for 1 million tons of ingots each to yield about 2.4 m tons of finished sections for use.

Each stands there by its rights on technical merits in an integrated development of the country, but ugly were the controversies attending the choice of these sites and disturbing the bloated claims over-weighted with politics. Merits then were pressed almost apologetically, encouraging thus an undesirable emphasis to narrow habits of thought in the choice of almost every basic industry. The ore and coal fields are not contiguous in our country, nor rail transport abundant. Ultimately therefore, ore-based steel works must balance coal-based ones so that wagons move loaded both ways: otherwise empty haulage reduces the only marginally sufficient freight carrying capacities of the Railways expandable only with more steel in rails, plates and sundry other shapes and forms to come out of the new Steel Plants and expansions. In the ultimate plan to raise our Steel output to 16 m tons or more per annum, all the areas having the natural advantage of iron ore or coal would

get their turn and not at such distant dates; the scramble for places only casts doubts in our capacity to reach our ultimate plans and so damages our credit outside. This angle is not to be lost sight of.

Our total requirements of finished steel products have been variously worked out at 10 m and 15 m tons for the Second Plan period and 3.5 to 4 m tons a year thereafter to progress the further constructions and keep the assets already created in a good state of upkeep. In the Second Plan, the greater share goes to overdue replacements. We expect 6 to 7 m tons for indigenous production leaving 5 m tons at least to be imported. So far 2 m tons have been contracted for and rates vary from Rs 800 to Rs 1,000 depending on the product and the country. The remaining steel is hard to find and when found is very expensive. The production of the additional steel will have at least Rs 300 million in foreign exchange at present prices. The world demand for steel going up there is little chance of these prices coming down. The steel plant that produces first starts the era of prosperity by saving so much foreign exchange, and more important assuring the supplies. In Bhilai we are striving for this honour,

not merely for the ultimate contribution. It is our potential to save Rs 600 to 700 million in foreign exchange and start doing it gradually from 1959.

Bhilai is an ore based plant. The village of that name has submerged its identity in the creation that is to be: it still exists, as the steel plant occupies ironically perhaps not its boundaries but by erasing those of seven other villages whose names are not even mentioned, preserves them unperished. This place is in the Chhattisgarh region of Madhya Pradesh, on the Calcutta-Nagpur route, both by rail and road about 530 miles from Calcutta. The steelworks about the district town of Durg and the railway station of that name is its rail-head now for passengers and parcels alike. The amenities of Durg now extend to sustain the construction population; later, those of the steel-town will pay the debt back. Iron ore is 60 miles away in the Dalli-Rajhara hills, themselves the head of an unexplored wealth of this substance in the Basta region, the dark interior of India. The Rajhara hill, which will be mined first, has ore enough for over 60 million tons of steel. Limestone is beneath the works but one does not exploit this, and a proper

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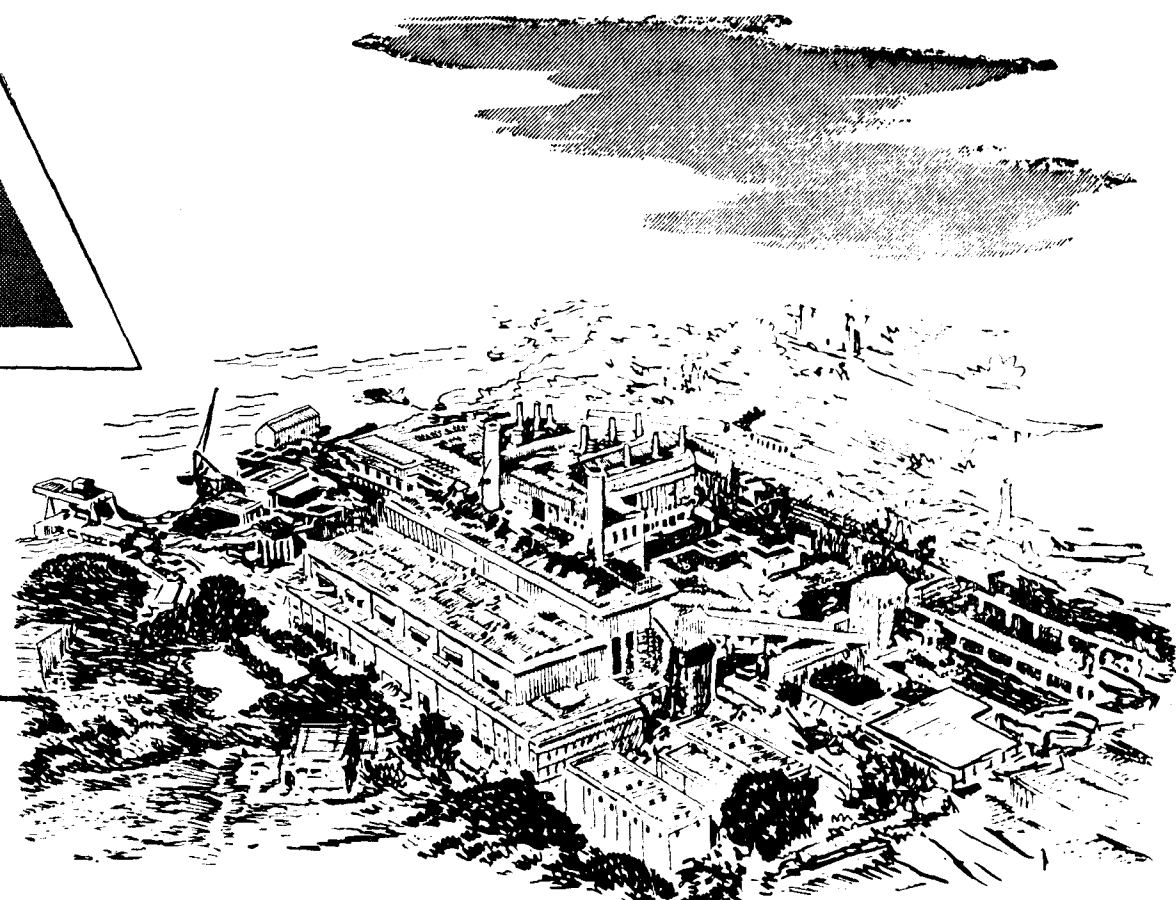
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mine is located at Nandini 16 miles away. To the iron ore and limestone, railway lines are being laid for completion by the end of 1958. Coal comes from Jharia and Bokaro, an average lead of 450 miles. Nearer coal in Korba will later meet ten to twenty per cent of the requirements, this percentage being dictated by coal characteristics rather than availability. The source of water is the Tandula reservoir and the means of conveyance the Tandula canal both already in existence and improved by the Madhya Pradesh Irrigation Department. The capacity of the source, including a supplementary source of 100 million cubic metres specially developed for the steel plant, is 380 m cubic metres; the new source alone is 2 years' requirements of the steel plant with no rain and heavy evaporation. The same water after filtration serves the township and further reach of the canal supplies the Nandini mines. These very lakes may have to feed the Rajhara mines later through a special pipe line. The Tandula really is the nerve of the steelworks. The works and mines will draw 50,000 KW power from a new thermal station put up at Korba by the Madhya Pradesh Electricity Board; from their smaller systems they give the construction power. The poor Chhattisgarh region awaits its prosperity from the steel plant, as such producer industries promote a chain of auxiliary industries in the region. The Centre and State are thus locked in each other's prosperity and dependence. Bhilai has already gathered an association of ideas other than dotted hamlets, drying fields and ill-fed inhabitants; it conjures up a vision of smoking furnaces, pouring steel and conscious citizenship, the vision of a promise and a fulfilment. The name can be changed to commemorate others or other deeds. But need it be?

Bhilai is being built up with Russian help. All the designs and drawings are prepared in USSR. That country has reacted generously to our needs and our desires to grow. The entire machinery is being supplied by them on favourable credit terms. The value of this help is over 600 million rupees. The interest is only two per cent and the loan is repayable in twelve years. The technical know-how for setting up and commissioning is supplied by Russia. The productivity is underwritten by them. The loan is thus repaid from what the Plant earns and they help it to earn and so to pay. Meanwhile they train our men in their steelworks in USSR and later here. A very important part of this technical agreement is that the responsibility both for construction and operation is squarely on us. The USSR experts are there to guide and help, not after a mistake is made, but beforehand, and watch that none is committed. For it seems to be their policy in technical aid to see that this aid flows only to those who are not only willing to help themselves but are

also able to do so. The counterpart of that aid to be put up by the receiving country is not money but working man power. There are now nearly 200 experts from USSR: in that period of construction cum production beginning from late 1958, there would be over 500. Indian engineers of all ranks would not be less than double their number at any stage. The dividend from this arrangement and the following effort is the confidence to undertake such or other works unaided.

Bhilai started its growth after the monsoons of 1956: it is difficult to say when it was born though the preparing for its cradle commenced from about June 1955. Now may be seen the form of its development laid out on the ground, more than a mere skeleton with discernible sinews and nerves waiting to be covered with living flesh. The complicated water carriage and drainage systems, 130 KM in total length, are aptly referred to as underground communications as in their complexity and expanse they are terrifying as the mythological labyrinths of nether region. In the human anatomy they could be compared with the intestines which for all the good work they do are best covered. Once a despair that they could ever be covered gripped every one. Now they are mostly buried. Two Blast Furnaces and two Coke Ovens are founded and the capping structures and complicated construction are in progress. Many smaller buildings,

the essential accompaniments, are nearing completion and others well beyond any fears of failure.

Bhilai is designed for expansion. Its immediate output of 1 m tons is to come out of 3 Coke Ovens, 3 Blast Furnaces, 6 Open Hearth Furnaces and a set of Blooming, Billet and Structural Mills heavy and light. Certain components like Coal Bins, Coal Mills, Pump Houses, etc., are common for an extra Coke and Blast Furnace each so that an immediate expansion to 1.3 m tons is in a sense, partly done. The underground communications are capable of meeting the demands of 2.5 m tons production. The extra outlay of 25 m rupees for the purpose is a prudent investment as subsequent changes would cost many times more. Room is left for putting up more Coke Ovens, Blast Furnaces, Steel Melting Units and the rest without altering the pattern of movement of the various products of successive process. An expansion beyond this would affect these seriously, specially on the raw material side, and immediately would so increase leads as to raise the cost of current production. When the plant grows to 2.5 m tons, the Dalli hills will have to be worked for iron ore; Nandini mines would go on for ever. Further reserves of water will be built up by increasing the storage in the lakes at no great cost. More power has either to be generated by the steelworks or the outside sources expanded. The town can double itself in the land

acquired and reserved for the purpose.

Bhilai will not merely be the evidence of something done but more the proof that it can be done. A complex metallurgical unit has so far been bought and not constructed in that sense. An enclave of the selling country is set up to produce with their means and at their dictation a plant for sale. Our contribution is what they permit. Bhilai has opened a different chapter. The entire responsibility of construction and erection of the various structures and equipment is on us. Ours are the efforts to gather the necessary materials and man power, to interpret the drawings and designs for execution under the conditions obtaining here. The Soviet Experts help us in the exercise; but the understanding and doing of it is ours. Under such conditions, the help is ingrained as learning. The help is given at various levels, and the participants are thus many. Experienced personnel being scarce against the demand for many schemes in the Second Plan, most of the participants are very young, many of them fresh graduates. The learning is shared by more and being in youth would last longer and spread faster. A virtue thus springs of the necessity. Their total effort in the field is so large that Bhilai might well be homage to youth. To place this almost unprecedented responsibility on us must have demanded some courage. We are here striving to merit that trust.

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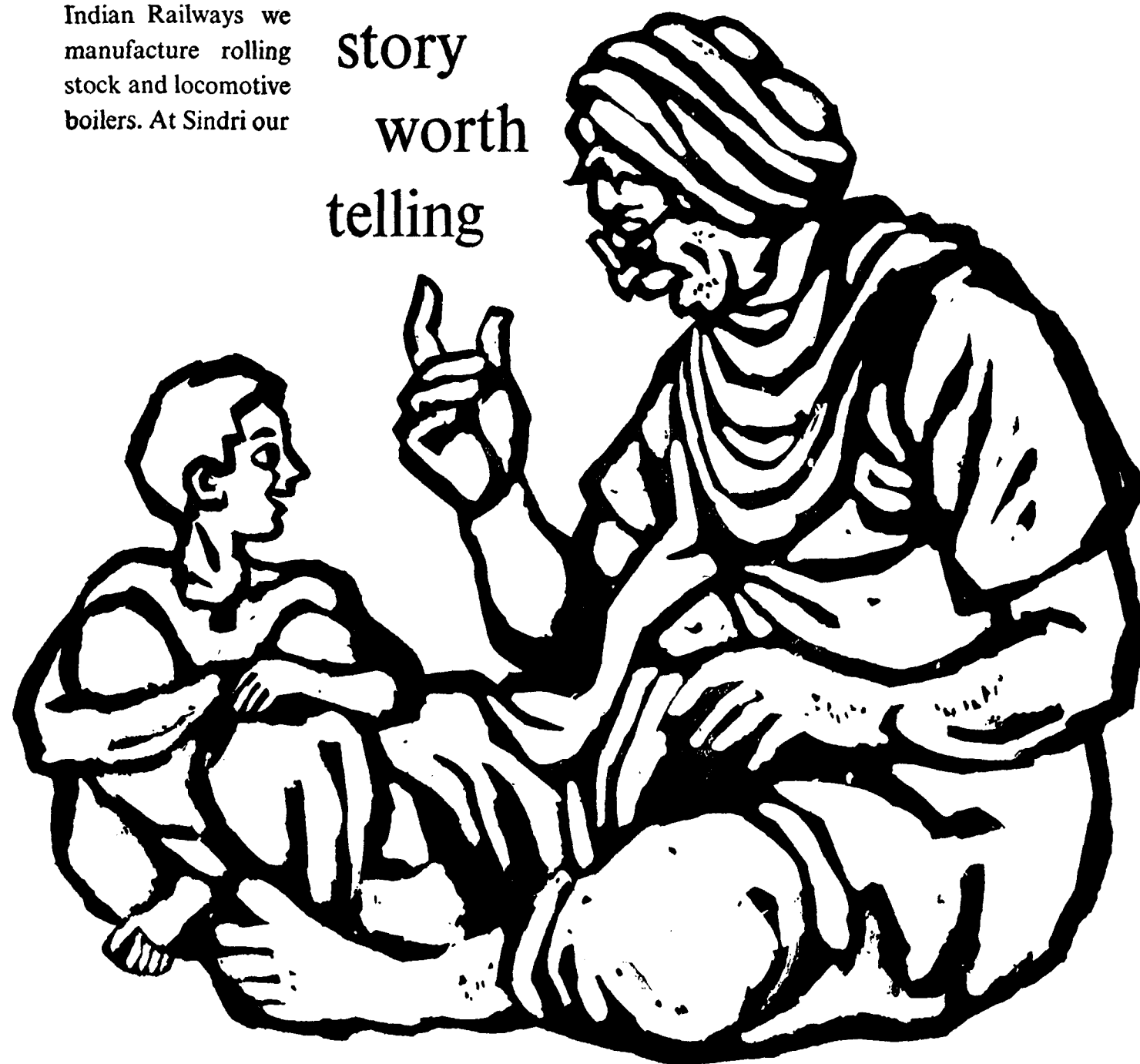
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On the Labour Front

IN the course 1957, several important developments took place in the sphere of industrial relations. In July, a Tripartite Labour Conference met at New Delhi and took certain important decisions. In November a Conference on productivity was held in which a programme for the improvement of output in industry was drawn up. Though there were quite a few strikes during the year, covering fairly large sections of the economy, those which were averted were even more. A few experiments of workers' participation in management were launched in the private and in the public sectors. In the Calcutta Port, what threatened to become chronic disharmony between the workers and the Port Commissioners was met by certain steps resulting in a general improvement not only in the relations between the authorities and the workers but, as a consequence of it, in the handling and movements of goods. This article seeks to make a rambling survey of some of these developments.

The Tripartite Labour Conference met when the whole country was in the grip of an ominous strike fever. Ironically, it was an epidemic concentrated purely in the State sector. Employees of the Posts and Telegraphs, of Bombay Docks, of the Indian Airlines, of the Central PWD and of the Central Tractor Organisation—the incipient threat offered by the subordinate staff of the Income Tax Department may also be mentioned in this connection—were all getting ready to abstain from work in the middle of July, spacing dates conveniently. The National Council of the Federation of the Central Government Employees' Union, which claims support from 500,000 persons serving the State, had also announced its intention to call a country-wide strike.

It was indeed a most depressing atmosphere in which the Labour Conference met. On the second day of the Conference, the Bombay Port and Dock workers' strike was to have commenced. Had that strike materialised, the movement of foodgrains and industrial raw materials from the already congested ports would have been thoroughly paralysed. In so disheartening a situation, the authorities do deserve congratulation for having averted the Bombay Dock strike through a compromise agreement. The gain was not merely the relief over the event but the emergence of a green signal for the Conference to proceed without excitement.

The Conference's achievement lies in the fact that, even without the workers or the employers or for that matter the Government surrendering the basic attitudes to which each was known to be attached, a few broad points of

agreement did emerge. The Union Government were keen to ensure that there would not be a general clamour for all round increases in wages. Mr Nanda could claim at that time that this purpose was substantially achieved at the Conference. It would be easier for the Government to tackle the demands of particular departments or industries independently than a colossal collective demand voiced by State employees of every description. Since then, however, a Central Pay Commission had to be instituted and, in the middle of December, an interim relief to the employees was announced.

At the Conference, the workers' representatives undertook not to resort to go slow tactics or violence. They gave the assurance that all the Unions on whose behalf they could speak would confirm this undertaking through suitable Resolutions. All Parties agreed to the setting up of a Tripartite Wage Board for fixing fair wages in some industries. Differences were not resolved as to the manner of selecting the industries, the labour leaders suggesting quite a few on the spot, while the employers expressed their desire to leave the matter to the decision of the Government. A certain procedure was also accepted for the fixation of minimum and fair wages, as suggested by the Fair Wages Committee. Fifty efficient industrial units were to be chosen for a beginning with workers' participation in management.

All these are concrete and substantial gains on the side of increased productivity and better labour-management relations. The decision that rationalisation devoid of a clear economic purpose has to be abandoned is also wise. But, even when such purpose is unequivocally in view, to make rationalisation schemes conditional on mutual agreement between employers and the unions, failing which through arbitration or adjudications, is a concession to one of the basic contradictions of the economy—to increase output in record time and at the same time to economise in the use of manual labour.

Subsequently, the Union Government announced their intention to introduce the principle of workers' participation in management in a number of specified industries. Even earlier, Joint councils of management had been accepted as a feature of normal administration in the Tata Iron and Steel Company. Since the Union Government's decision, the Madras City Road Transport Service owned by the State Government, and Messrs Simpson and Company Madras, instituted joint councils.

At the meeting of the National Federation of Indian Railwaymen held in the Middle of December at Jubbulpore, the question of workers' participation in the manage-

ment of the railways came up for discussion. It is possible that some organisation would be set up for this purpose in the railways also.

Early in November, a Seminar held in New Delhi, under the auspices of the Union Ministry of Commerce and Industry, outlined a programme and certain principles for a national productivity movement. Mr Manubhai Shah emphasised that cooperation and understanding between the employers and workers were indispensable for any effort to increase productivity, and that there should be a common acceptance of the principle by all concerned that the benefits of the increase would be shared by the workers, consumers and employers alike. The establishment of a Central Productivity Council and State bodies on similar lines was decided on. Hitherto, a few bodies like the All India Management Association, the Bombay Productivity Centre and the Indian Statistical Institute have been making studies on productivity problems. With the establishment of a regular national organisation, the research studies could be put on a more systematic basis. The Report of the Indian Delegation, which had made a study of productivity problems and techniques in Japan as also the international treatises on the subject, would be helpful in this field.

One of the most important practical programmes on which Government have already taken final decisions is the construction of nearly 770,000 houses for Government employees and for coal, mica and plantation workers. In industrial house construction, the private sector of the industry has made conspicuous progress during the last two years, which is expected to gain pace in the years ahead.

Many State Governments have passed legislation toward greater labour welfare and ampler amenities for workers in different industries. Among the legislation passed by the Parliament, the Payment of Wages Amendment Act passed by the Lok Sabha in the second week of December deserves special mention. The Act revises the definition of wages and raises the wage limit from Rs 200 to Rs 400 a month and extends the original Act to the construction industry. During the debate, it was revealed by the Union Deputy Labour Minister that a draft model Bill containing provision for including shop assistants within the purview of the Act was being circulated among the States and, in the event of the State Governments agreeing, shop assistants also would be covered by the amending Act.

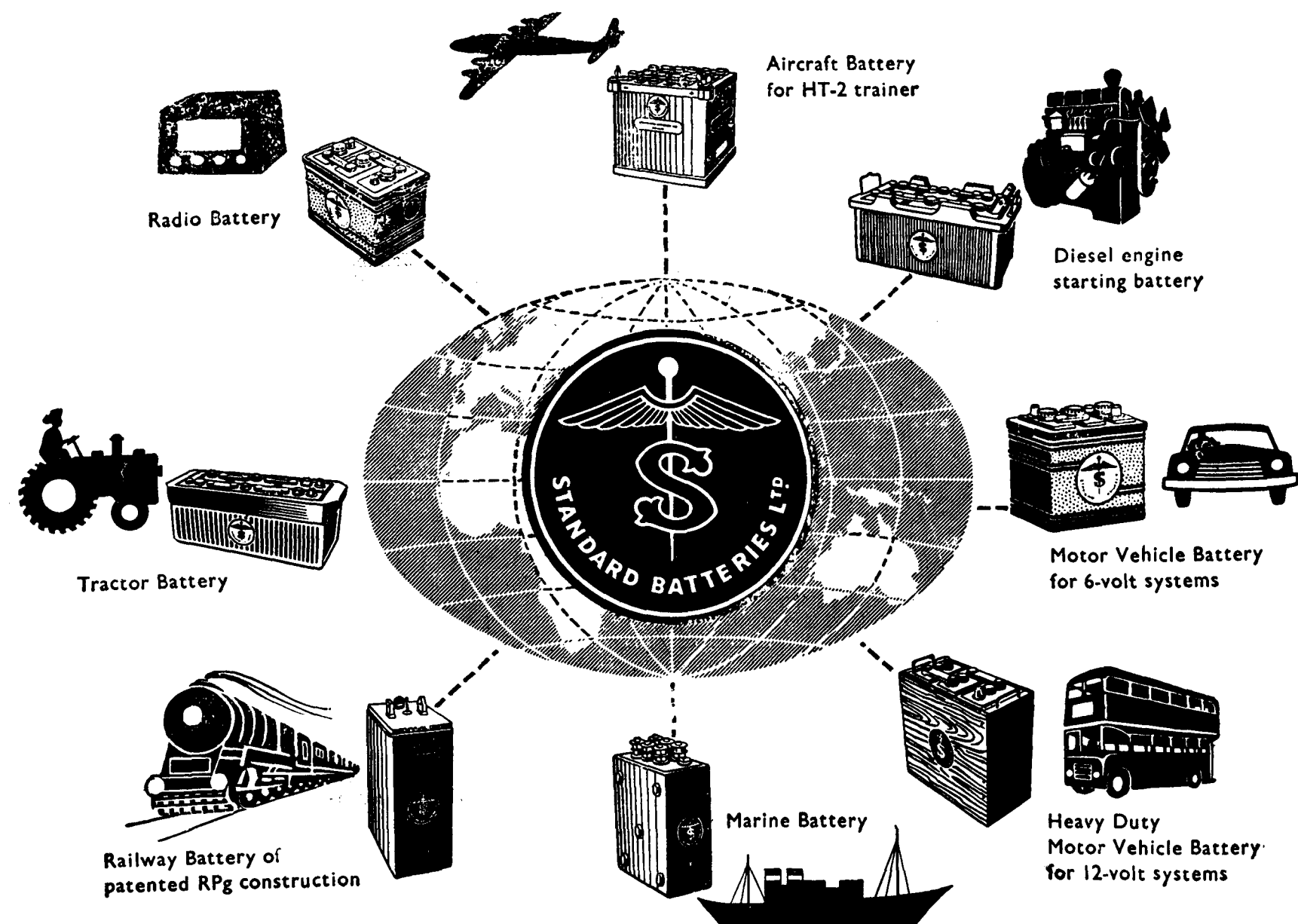
Another notable development is the fixation of minimum daily agricultural wages by the Kerala

Government for specific types of work. In many industrial units, long term agreements on bonus and other questions affecting relations between labour and management were also concluded during the year.

Then came the announcement by the Union Finance Minister that all Central Government employees drawing a basic pay up to Rs 250 will receive an increase of Rs 5 in their dearness allowance with effect from July 1, 1957. This decision has been taken on the recommendation of the Central Pay Commission. The offer does not appear to have evoked the same measure of appreciation among the leaders of the various State Employees Unions. For the Government, the additional expenditure involved is of the order of Rs 1 crore a month. It is to be hoped that the Union leaders will accept the gesture in a friendly spirit and that the threat of a general strike of the Government employees, which was being held out from the middle of the year, would disappear finally.

A word about the general progress of labour legislation would also be not inappropriate. Since the birth of the new Constitution of India, labour legislation is being conceived in relation to the basic concepts of a Welfare State, in which every citizen will have to be provided certain minimum amenities of life, including housing, primary education, freedom from starvation and free medical aid. This aim has governed the legislation during the past five years, and it can be reasonably held that India is striving toward the level of the International code evolved by the International Labour Organisation.

The Minimum Wages Act providing for the statutory fixation and periodical revision of minimum rates of wages, a 48 hour week, annual holidays with pay, special provisions safeguarding the health and safety of workers and regulation in the conditions of employment of young persons, maternity benefits for women workers, compulsory insurance against sickness, injury, etc., the provision of compulsory provident funds in an increasing number of industries, the payment of compensation and other benefits in case of retrenchment and of even voluntary giving up of employment and special provisions regarding conditions of work in coal mines, plantations, etc.,—all make up a framework of laws indicating a highly advanced outlook on the part of the State. There is obvious dissatisfaction with the actual working of some of the labour laws and a realisation that there is no use adding to the legislation when the enforcement of existing laws leaves much to be desired. Inter-state disparities form another problem awaiting the hand of the legislator no less than that of the administrator.



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The Indian Economy: Stable or Uncertain?

By P. A. SESHAN

IN the past one year and more the developments in the internal economic situation have come about in such an unexpected manner that they have had a confusing effect on the minds of the average citizen and even the experienced economist. It was not anticipated, when the Second Plan was launched upon, that so many difficulties, on the price and foreign exchange fronts would be encountered and that the impression would gain ground to the effect that the Central and State Governments were attempting to do the impossible. Even though there may be seeming paradoxes in the trend of prices for the various commodities on the one side and equities and gilt-edged securities on the other, as the Prime Minister has pointed out, the recent unexpected developments are more signs of pain brought about by a fast growing economy rather than indications of an unconscious deterioration in the general economic situation.

The fears created by a rapid decline in foreign exchange reserves have induced a sense of defeatism in particular quarters and the cry has been raised that the Second Plan is over-ambitious and that it has become necessary to reduce the total outlay during 1960-61 or extend the plan period by one or two years. As there is generally confused thinking, it has become necessary to find out what exactly is the true meaning of the new forces at work and what exactly is the significance of the main economic indicators.

The principal reasons for the apprehensions in particular quarters about the ability of the Central and State Governments to implement successfully the various Second Plan schemes have been the sharp rise in prices for food-grains and various other commodities and the rapid decline in foreign exchange reserves.

Even though wholesale prices for various agricultural commodities particularly were recovering from the low levels touched in May, 1955 and in the first few months of 1956 the upward trend was rather pronounced, it was not anticipated that the food situation would give room for great anxiety and that a serious gap in the availability of food grains for internal consumption could have such a disturbing effect in so many directions. It is not clear yet whether the alarm felt over the food situation is fully justified and whether the rise in prices has not been brought about both by increasing consumption and the shortfall in production due to drought and other climatic upsets. What is desired to convey here is the fact that total availability of foodgrains is greater now than at any time in the first two years of the First Plan period, even allowing for the increase in population

and that the 'disadvantages' of a higher level of consumption in the face of a temporary shortfall in production have become rather inconvenient. The increased demand would seem to be also applicable to sugar, though it may be pointed out that there has been a large accumulation of stocks of another necessity, cloth.

Before examining in detail the reasons for these paradoxical trends it will be useful to find out how the changes in the indices for wholesale prices have come about.

As will be evident from the table given below, the index for All Commodities has risen from 103.5 (Base: 1952-53=100) in July last year to 113.1 in the first week of August this year. Thereafter, there has been a drop to 107.8 as at the week ended December 6,

1957. The increase was brought about mainly by the food articles group with its index recording a rise first to 113.5 from 101 in July last year and declining later to 105.5. The index for industrial raw materials, on the other hand, has recorded a net increase of only 3.4 points during the period under reference while manufactures have risen by only 3.3 points.

It is, however, interesting to note that, notwithstanding the higher levels of indirect taxation, the index for all commodities is actually lower on balance. On December 8, 1956 this index stood at 108.2 while one year later it was slightly lower at 107.8. The lower trend is noticeable all round though the decline is most pronounced in the industrial raw materials group.

TREND OF WHOLESALE PRICES.

(Base: Year ended August 1959=100).

		Food Articles	Industrial Raw Materials	Semi- manu- factures	Manufactured Articles	Miscel- laneous	General Index
		(31)	(18)	(17)	(30)	(4)	(100)
1950-51	..	416.4	523.1	348.9	354.2	707.4	409.7
1951-52	..	398.6	591.9	374.4	401.5	721.6	434.6
1952-53	..	357.8	436.9	343.8	371.2	614.1	380.6
1953-54	..	384.4	467.7	359.2	367.4	686.6	397.5
1954-55	..	339.8	436.2	350.3	377.4	612.4	377.5
1955-56	..	313.2	419.7	338.2	372.9	546.4	360.3
1956-57	..	388.5	501.9	402.3	384.6	559.3	414.0
31-8-57	..	435.9	527.8	409.5	393.4	644.0	439.6
28-9-57	..	416.1	522.0	407.1	395.0	644.9	432.6

INDEX NUMBERS OF WHOLESALE PRICES.

Revised Series
(1952-53=100)

Average of weeks ended Saturdays, week ended Saturday	All Commodities	Food Articles	Industrial Raw Materials	Manufactures
August 1956	106.5	105.0	116.3	105.7
September "	106.9	103.6	116.8	109.0
October "	106.6	104.0	115.5	108.1
November "	108.6	106.9	118.2	108.2
December "	107.9	104.8	119.4	108.6
January 1957	107.2	103.2	120.3	108.4
February "	106.9	104.1	117.6	107.4
March "	105.5	102.3	117.2	106.2
April "	106.5	104.3	116.7	106.2
May "	109.0	107.0	120.4	107.5
June "	110.7	109.3	121.3	108.6
July "	111.9	111.3	121.6	108.8
August "	112.0	112.1	120.1	108.6
September "	109.5	108.5	115.4	108.6
December 8, 1956	107.8	105.5	116.8	108.2

From the above changes, will it be reasonable to conclude that the general economic situation is not so bad as has been pointed out to be and that adjustments are being made to the new conditions? The answer will possibly have to be a yes. The position would probably have been somewhat different if the drought in Orissa, Bihar and Eastern UP had not resulted in considerable damage to the standing crop leading to relatively higher prices of food grains as compared to the levels obtaining early last year and a reduction in general purchasing power in particular regions by about Rs 240 crores.

That the picture on the production front is not discouraging in

any sense will be borne out by the following details.

The over all output of food grains in 1956-57 is estimated to be higher by 1.4 million tons at 66.3 million tons. The output of rice particularly is expected to be the record figure of 28.1 million tons, a rise of 4.8 per cent over the production for 1955-56. It was also expected that the yield of ragi and maize would be higher by 1.9 million tons and 3.0 million tons respectively. It is here perhaps, that the earlier calculations have gone wrong because of the prevalence of drought conditions over vast regions in North-eastern India. Even so, it was expected that the wheat crop would not suffer any great damage and that it would be

higher by 300,000 tons at 8.6 million tons.

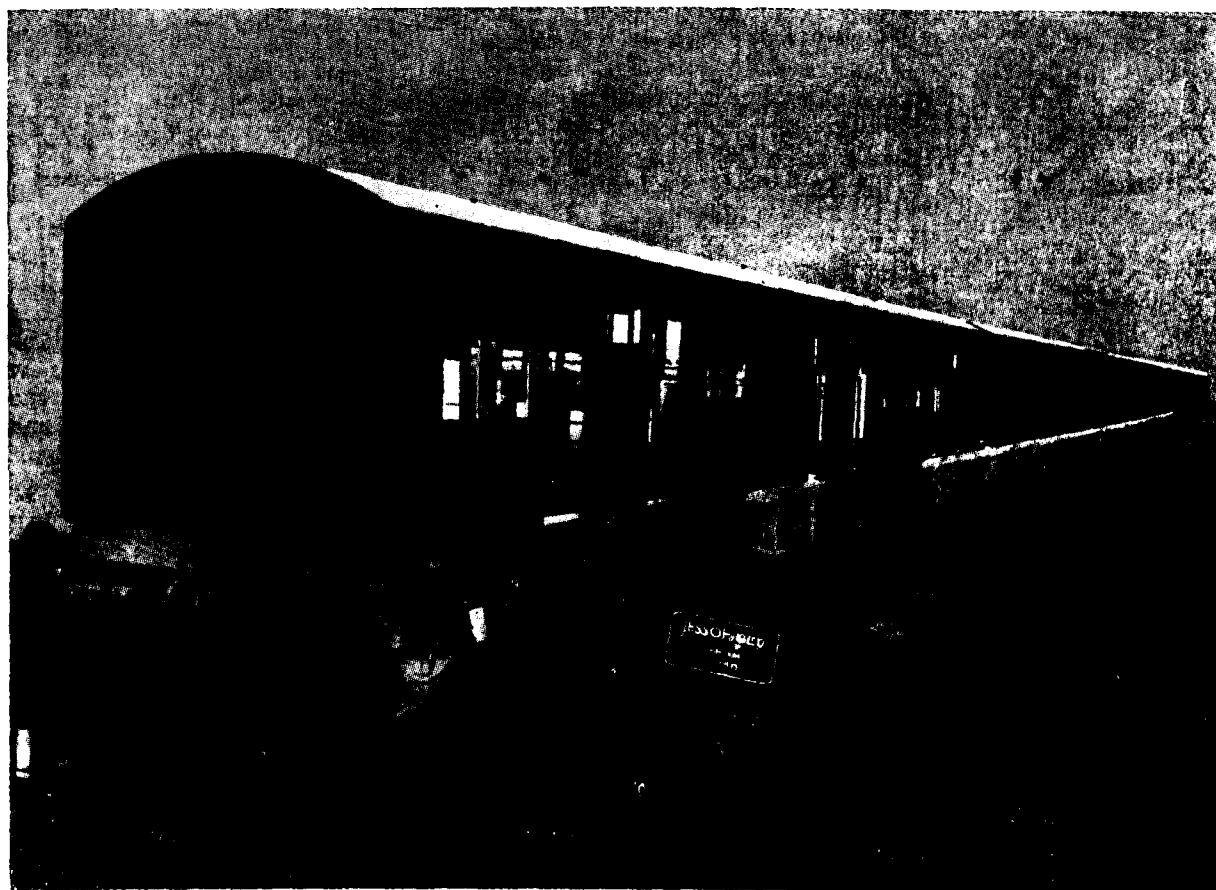
The position in regard to cash crops is expected to be more satisfactory. The yield of cotton particularly might show an increase of over 20 per cent and latest trade estimates indicate the possibility of even a bigger crop. The sugarcane crop would be larger by 16.7 per cent while the production of oil seeds could be higher around, groundnuts by 5.8 per cent, and castor seeds by 4 per cent. The yield of jute has been placed slightly higher than last year. In the present difficult foreign exchange situation, the larger availability of industrial raw materials is to be welcomed.

The trend of industrial production until very recently has been uninterrupted. The cotton textile industry was on its way to establish a significantly higher new record. But cloth output in the past two or three months has had to be restricted on account of the large accumulation of stocks. Yarn output, however, has recorded a significant increase and it has been found that the handloom industry has not been able to absorb fully the increased yarn output. With the result, it was found necessary to permit in the latter half of the year yarn exports to the extent of 75,000 bales. The sugar industry has achieved a new record in the 1956-57 season and the indications in respect of 1957-58 are that there would be a further increase in output. The cement industry has been progressing fast as usual. There have been indeed complaints that transport bottlenecks have had an inhibiting effect on production. The steel industry in the private sector has been successfully maintaining output at a fairly high level in spite of its being busy with its expansion plans. The engineering industries are all doing well while coal has set up a new record with its raisings likely to be in excess of 42 million tons in the current year. In short, the index for industrial production (base: 1951=100) has increased from 132.8 for 1956 to 140.1 by August 1957.

In respect of industrial production, actually, fears have been latterly expressed to the effect that the earlier signs of quick absorption are not in evidence and that there is consumer resistance to an increase in prices, whether due to taxes or otherwise. This may not be said to be quite true of sugar, cement and other commodities. In respect of mill cloth it is not clear whether the increased availability has been the main reason or higher prices have had an inhibiting effect on consumption or both. Yarn production has been running at much higher levels and with the Ambar Charkas also being more busily engaged it has been stated that mill cloth, power-

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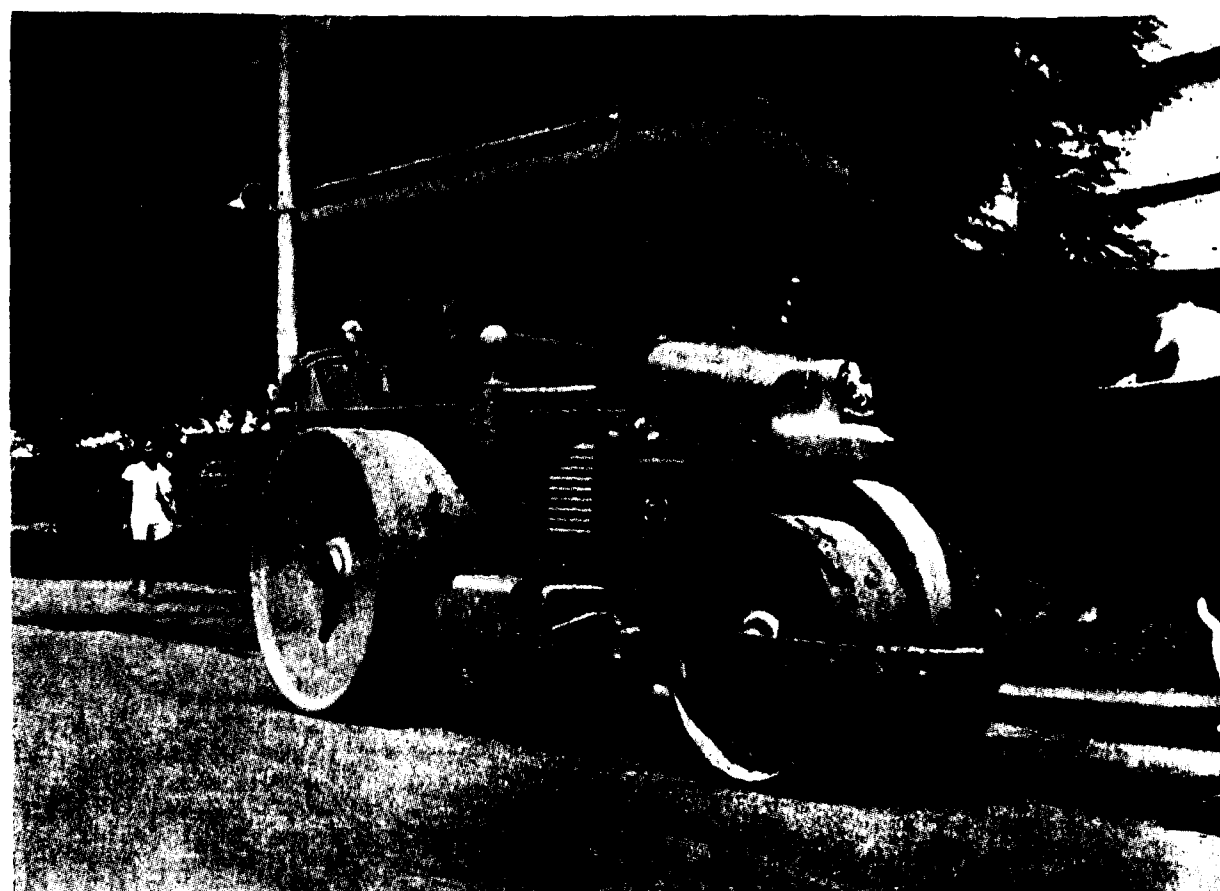
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loom, handloom and Khadi output have all recorded a simultaneous increase. It was felt earlier this year that there might not be difficulty in absorbing a higher level of output especially as exports were looking up. The expectations in this regard, however, have not fully materialised.

It has been asked whether the surrender of quotas of cement by the State Governments or accumulations in cloth stocks are signs of slackness in the economy. It is difficult to say anything definitely in this regard. For, intermediate trends in the internal economic situation have been unpredictable at times. In 1953-54 with a "glut" in food production there was a general collapse in prices all round and it was pointed out, on behalf of the primary sector, that a reduction in prices for food grains and other agricultural produce would be reflected in generally reduced purchasing power and, therefore, smaller demand for industrial products. To support this conclusion there was a crisis in the cotton textile industry and a number of mills had to suspend production because of heavy stocks on hand. Within six months, however, the whole complexion changed and till a few months back the fear related to an increase in production rather than the generation of demand to maintain a specified rate of increase in the former.

In respect of recent developments, suggestions have been made in some quarters to the effect that consumers in the lower strata of society are stabilising their standard of living at the higher level achieved in the past few years and that, with the continued large-scale expenditure in the public and private sectors, the upward trend would be picked up once again. In that event, the required answers to many of the conundrums posed above would have been provided.

It may be justified, to a certain extent, if it is suggested that a direct comparison between the prices that existed at the end of 1956 and at the present moment will not bring out the impact of the heavy indirect taxes imposed by the Central Government, particularly in May this year. It is felt that the transfer of large sums to the Exchequer in this manner have been primarily responsible for the decreased consumption of various types of goods in the urban areas and that the increasing trend of consumption in the rural side, despite the attempt at consolidation referred to above, has not been able to present a net decline in demands in the short period. The correct answers might be provided by the happenings in the next few months. What is, however, more important is the fact that, by and large, the increase in the general level of production, agricultural and industrial has been more than the increase in population and the net national income has recorded a significant increase over a period, thus supporting the claim of the planners that the general population is in enjoyment of a better standard of

living. So far as industrial production is concerned it can be definitely said that the per capita availability is appreciably higher and that the general trend has been upward. This is one of the main

Year	Index of industrial production (1951=100)	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)
1951	100.0	95.6	434.6
1952	103.6	97.5	380.6
1953	105.6	102.0	397.5
1954	112.9	114.1	377.5
1955	122.1	113.9	360.5
1956	133.0	..	414.0
1957	141.9	..	439.6*

*August 31, 1957.

**The year ended March of the subsequent year.

INFLATION IN OTHER COUNTRIES:

It has to be remembered that external inflation has had a greater upsetting effect on the planners estimates than internal inflation. It is true that, on account of the deterioration in the food situation, it has become necessary to import larger quantities of foodgrains, leading to a larger outlay of foreign exchange on imports. But the increase in foreign exchange expenditure on this account could not be considered serious, though uncomfortable, if there had not been other unfavourable developments which led to a great expenditure on imports, because of increasing volume and value.

It must be recognised that the foreign exchange content of expenditure on the Second Plan, in both the private and public sectors, had been under-estimated to a great extent and that, with a sharp rise in prices extending up to 33-1/3 per cent, the situation has become uncomfortable. Even though presently recessionary tendencies are stated to be in evidence in the principal producing countries in the West, the position in regard to deliveries is now very much easier. The dependence of India to a certain extent on outside sources for supply of its requirements of capital goods and producer goods has prevented a decline in prices to lower levels which would normally have been the case. The very fact that it has been possible to conclude easily deferred payment arrangements, in respect of the requirements of plant and machinery for the private industrial sector particularly, speaks of the importance of India as a large buyer in the present context. There is, of course, the advantage of the high prestige enjoyed by this country in respect of international transactions.

That even with an appreciable increase in the level of production, prices have risen all over the world will be evident from the figures given below:

PRODUCTION AND PRICES (Index Numbers, 1953=100).			
CANADA			
Average of months/month	Industrial production	Wholesale prices	
1954-55	100	99	
1955-56	109	100	
November 1956 ..	120	103	
December	113	103	
May 1957	116	103	

reasons for containing inflation, within limits, and latent or potent forces have not been allowed to build up in a large way. The trend of industrial production and prices in the past few years will be borne out by the figures given below:

Year	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)
1954-55	118	99
1955-56	131	101
November 1956 ..	154	104
December	142	105
January 1957	136	105
June	149	105

*August 31, 1957.

**The year ended March of the subsequent year.

GERMANY (West)			
Year	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)	
1954-55	118	99	
1955-56	131	101	
November 1956 ..	154	104	
December	142	105	
January 1957	136	105	
June	149	105	

JAPAN			
Year	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)	
1954-55	106	97	
1955-56	119	98	
November 1956 ..	150	105	
December	155	106	
January 1957	143	106	

UNITED KINGDOM			
Year	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)	
1954-55	109	102	
1955-56	113	105	
November 1956 ..	121	109	
December	110	111	
January 1957	113	110	

UNITED STATES			
Year	Index of Agricultural production (1949-50=100)	**Index of wholesale prices (1939=100)	
1954-55	95	100	
1955-56	105	101	
November 1956 ..	110	105	
December	107	106	
January 1957	108	106	
June	107	107	

Even in the United States there has been a rise of 7 per cent in three years though production was higher by 7 per cent, as compared to 1953. Likewise, in Germany there was a phenomenal rise in industrial output by 24 points since 1953. But prices have all the same risen by over 5 per cent. In the United Kingdom particularly, the increase in prices is by over 10 per cent. The developments in this country, however, might be said to be due to the difficult balance of payment position and internal inflation. But Japan, which is now an important supplier to this country, has recorded a sharp rise in output by over 50 per cent in three years. Prices have risen by over 7 per cent. Wholesale prices, however, do not provide a correct guide because there has been an anxiety to keep down prices of those commodities which are mainly required by the home market while in respect of exports of special items which are in great demand in those countries which had undertaken large schemes, prices have been sharply higher. It is common knowledge that Japan was able to report an increase in the value of exports by over 40 per cent even in 1956 with the volume higher by only 10 per cent.

These developments have naturally been responsible for the faster depletion of foreign exchange reserves. Every effort has been made to maximise exports from this country at the cost of even internal consumption. It must also be agreed

that the value of exports has been running at fairly high levels though it is realised that, with a more realistic policy on the part of the Government, it would have been possible to earn larger sums in foreign exchange. This aspect of the question has been given greater attention latterly and there is now reason to believe that, with the measures adopted for the promotion of exports of iron ore, manganese ore and other items and the stricter control over imports, the payments position cannot be considered to be so serious as it appeared very recently.

But even if there continues to be a sizable gap, as is very likely, there is no reason for alarm. It is quite true that in the period of the First Plan there was no problem in regard to the availability of foreign exchange. Apart from the fact that the level of foreign balances was considerably higher, there was a net drain only in the first year of the Plan. If there were trade deficits in the remaining years they were more than offset by foreign aid and other receipts. It so happened that, by the end of the First Plan period, foreign exchange reserves were actually higher by Rs 50 crores as compared to March 1952. The trend of foreign trade and balances of payments in the past few years will be evident from the figures given below:

TRENDS IN BALANCE OF TRADE AND BALANCE OF PAYMENT IN 1950-1957

Year	Changes in Foreign Exchange Reserves (in crores)	Trade Balance +increase -decrease
1950-51	+ 27.2	+ 3.5
1951-52	-163.6	-232.8
1952-53	+ 18.5	+ 31.1
1953-54	+ 31.0	+ 52.1
1954-55	+ 17.2	+ 85.0
1955-56	+ 15.0	-105.5
1956-57 Upto Dec. 6, 1957 ..	..	-222.26*

*Represents the decline in foreign balances since March 29, 1957.

It will be seen that, only since April 1956, the deterioration has started and that, in a period of under 20 months, about 350 crores have had to be utilised out of the balances held by the Reserve Bank of India in the Issue and Banking Departments. This decline was alarming at particular stages and it was even necessary for the Government to borrow a large sum from the International Monetary Fund. This borrowing and other receipts in foreign exchange could, however, only meet a fraction of the needs. It was, therefore, found necessary for the Central Government to amend the Reserve Bank of India Act, and provide for the drawing down of foreign exchange reserves to the level of Rs 200 crores, which must consist of at least 115 crores in bullion. There is provision for even utilising the balance of Rs 85 crores in foreign securities, in an emergency.

These developments, however, should not be considered alarmist in any sense, as stated above. With the negotiations for the arrangement of loans and credit with various foreign countries and international lending institutions in a delicate stage, available reserves

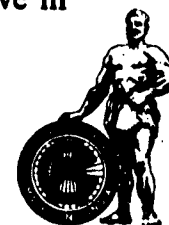


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have naturally to be utilised till such time tangible results are obtained. It may so turn out that a good part of the sums that are now being spent on imports might be recovered though, with the large needs, it will be difficult to find out whether any definite advantage had accrued in this way, at a particular stage. But it is necessary to remember the fact that this country has had an unsullied record in respect of international transactions so far and that foreign exchange reserves have been converted only into assets which would either help saving of expenditure on imports currently being incurred or earn larger sums in foreign exchange which would enable easily the repayment of the various loans now being obtained along with due interest.

But at the present moment foreign balances are declining at the rate of Rs 3-4 crores every week. A stage has perhaps been reached where it is possible to say that the nadir has been touched and that, with the liberal help provided by the USA, West Germany, Japan, the World Bank and other international lending institutions, the foreign exchange position is not in any sense so critical now.

CHANGES IN MONETARY INDICATORS

The declining trend of foreign balances and higher prices within the country have naturally had their impact on the credit structure. In the earlier years, the effects were differently felt. As a result of the deferred expenditure

during the war period and the large expansion plans of the various industries, bank deposits started declining in the immediate post-independence period, even though the balance of payments position was fairly comfortable. This feature remained in evidence till the end of 1953. It is only since then that deposits of the banking system, the scheduled banks, in particular, have tended to increase. The larger expenditure in the last two years in the First Plan was no doubt a helpful factor and in 1954-55 sizable additions to deposits were recorded. But it is during the year when foreign balances have been fast declining that there has been the most pronounced increase in the working capital of the Indian banking system. Only in 1956, it was explained that the relatively smaller increase in demand and time liabilities was due to the larger import gap. But this reason has not been found valid during 1957. As stated above, in the last twelve month period alone the increase in demand and time liabilities of the scheduled banks has been as much as Rs 275 crores, notwithstanding the fact that, consequent on the sharp increase in the Bank of England rate to 7 per cent, there has been anxiety to repatriate surplus balances held by the Britishers in this country as fast as possible. It is true that the State Bank of India has accounted for over Rs 135 crores of the increase in deposits. But it is stated that of this rise, only about Rs 90 crores can be accounted for by the counter-part funds and that the State Bank of

India itself had been able to experience a natural growth in its deposits. This was probably facilitated by the opening of a large number of branches in the under-banked areas. Other scheduled banks also have added to the working capital by over Rs 140 crores, that is, by over Rs 50 crores as compared to the figure for all the scheduled banks in 1956.

From the figures given below it will be seen that even with a fairly

static level of notes in circulation deposits have risen rather sharply. The proportion of deposits to notes in circulation is as high as 90 per cent against only 75.2 per cent at the end of 1956. This has enabled the level of 86.6 per cent touched in 1946, the highest for the war period, to be surpassed. No direct comparison is permissible as the static level of note circulation has been due to the large import gap and deficit financing has been going on, merely leading to a dispersal of income.

CHANGES IN NOTES IN CIRCULATION AND DEPOSITS OF SCHEDULED BANKS IN 1950-57

Date (1)	Notes in circulation (2)	Total of deposits (3)	(In crores of Rs) Col.3 as per cent of col.2 (4)
28-12-51	1,141.09	846.21	74.1
26-12-52	1,092.11	830.73	76.0
25-12-53	1,125.52	838.11	74.6
13-12-54	1,200.49	932.30	77.7
30-12-55	1,361.98	1,022.31	75.0
30- 3-56	1,466.64	1,042.42	71.0
28- 9-56	1,409.23	1,082.49	76.8
28-12-56	1,466.07	1,101.75	75.2
6-12-57	1,509.25	1,360.29	90.1

Having regard to the difficulties in raising internal resources for the prosecution of the various schemes in the public and private sectors and the depletion of funds from the urban areas, it would be encouraging to know whether new savings are being generated or old savings are being made more productive. There is certainly reason to believe that, notwithstanding the recent developments, there are large sums lying about in the rural side and

that the rural citizen is more careful in his daily expenditure than he is believed to be. If it can be so arranged that the credit structure becomes more broad-based and through a careful adjustment of official policies and better co-operation between the various agencies of production a higher level of availability can be ensured, the difficulties experienced in the past one year and more could be regarded as a blessing in disguise rather than otherwise.

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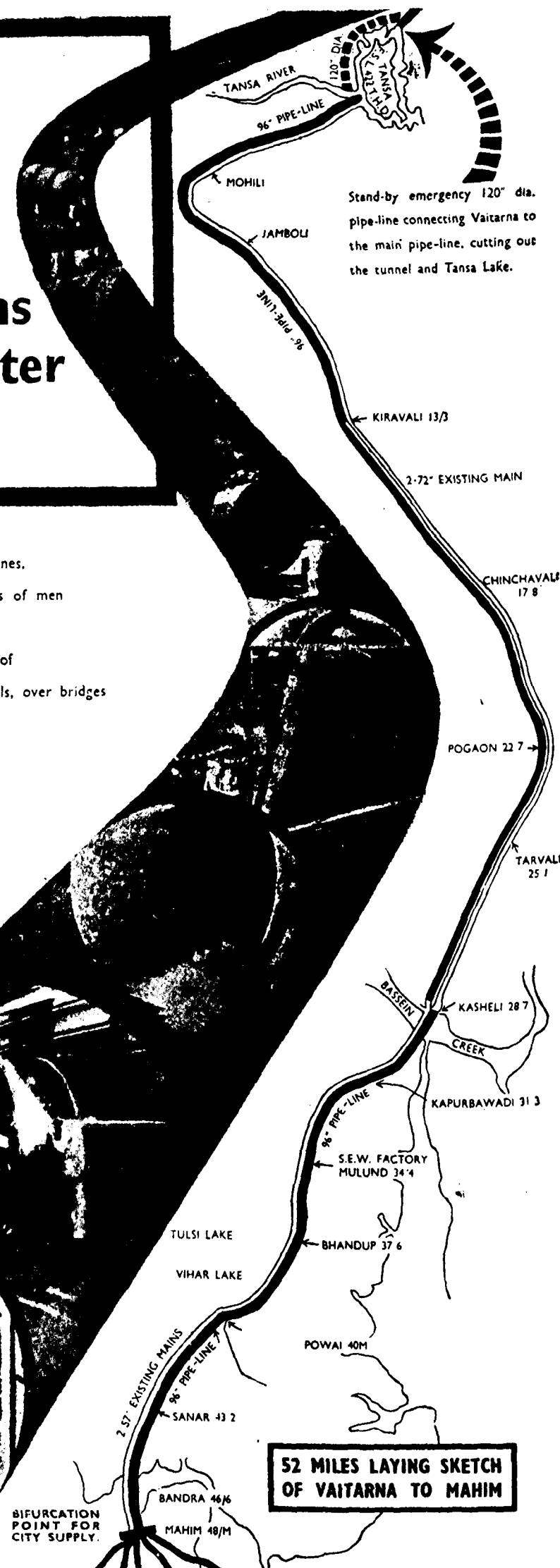
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The Task for the Railways in the Second Five Year Plan

By K. B. MATHUR

IT has been well said that an efficient transport system is to commerce and industry what a healthy blood supply system is to the human body. The history of economic development in India during the past century or so proves beyond doubt the truth of this statement.

It has been our experience in this country, as indeed it has been the experience of other countries which have industrialised, that wherever the railways are extended, industry, trade and commerce follow in close step. The story of coal, cotton and jute industries in India are some outstanding examples.

In India, more than in many other countries, nothing in long-distance inter-regional traffic moves without the railways coming into the picture. Indeed, over the past 100 years, the growth of freight traffic on the Indian Railways has been a true reflection of the progress of the national economy.

In undivided India, in 1938-39, the total originating traffic handled by the Indian Government Railways was 84.4 million tons and the total ton miles were 21,878 million. Because of the needs of military traffic, the total tonnage went up considerably during the war period (93.5 million tons and 27,811 million ton miles in 1941-42) but dropped again in the postwar period.

During 1947-48, the year of partition, it was 69.8 million tons and 20,117 million ton miles and in 1950-51, the year which immediately preceded the first Five Year Plan, the originating tonnage amounted to 91.4 million and the ton mileage stood at 26,963 million.

A NEW CHAPTER

The first Plan may be said to have marked the commencement of a new chapter for the Indian Railways. For the first time in about two decades, the Railways were able to start rehabilitating their rolling stock and other assets, which marks the beginning of a process which was long overdue. Prior to the commencement of the first Plan, the position regarding the transportation of goods could be described as most difficult, with bottle-necks all over, as facilities were lacking and the war wearied assets were greatly worn out. The fun's placed at the disposal of the Railways, during the first Plan could not possibly take care of the entire rehabilitation programme but they positively helped the Railways to break away from the stagnation of the previous years. The inadequacy of the first Plan even for rehabilitation can be gauged from the fact that the percentage of overaged engines and wagons increased from 25.7 per cent and 17.7 per cent at the beginning of the Plan to 30.8 per cent

and 20.1 per cent respectively at the end of the Plan.

From 1951-52, the year when the first Plan commenced, it has been a story of continuous increase in freight traffic. Each year the performance of the previous year has been bettered. While necessarily during the first three years of the Plan the tempo was somewhat slow because the country was just emerging from a long period of inertia, the national economy started looking up in the fourth and fifth years of the Plan with corresponding increase in pressure on the Railways.

While there was an increase in goods traffic during the second and third years of the Plan only to the extent of 0.41 per cent and 1.03 per cent respectively, it went up in the succeeding two years of the Plan by 7.8 per cent each year.

It is interesting to note that the Planning Commission had provided for an average annual increase of only 2 per cent or a total increase of 10 per cent during the first Plan period. As against this, the actual increase for the five-year period was of the order of 25 per cent.

Significantly, during the same period, locomotives on line increased by only 11.7 per cent and goods wagons by 17.6 per cent.

SECOND PLAN TASK

The second Five Year Plan marks the beginning of planned industrialisation. It is abundantly clear that the pattern of traffic increase witnessed in the first Plan period will be repeated during the second Plan period on a very much larger scale.

It is well known that the Railways have been asked to plan for an additional carrying capacity of about 61 million tons per annum by the end of the second Plan period, over and above the potential traffic at the end of the first Plan. This increase is made up of:

	Million tons.
Steel (including all raw materials and finished products) ..	25
Coal (excluding that for Steel Works) ..	13
Cement ..	5
Other traffic ..	18
Total ..	61

The Railways carried a total of about 115 million tons of traffic during the last year of the first Plan, leaving a backlog of 5 million tons. Adding the anticipated traffic increase of 61 million tons during the second Plan period, it follows that the Railways would be called upon by the end of the second Plan period to carry a total traffic of 181 million tons, or an increase of 57 per cent.

The volume and the pace of increase which we have to achieve

is something unprecedented in the history of the Indian Railways.

A point which deserves to be taken into account here is that in making the above estimates of likely traffic increase, no account has been taken of certain factors which might well result in an even greater pressure on the Railways. For instance, no account has been taken of "repeat" movements of goods from producers to wholesalers and again from wholesalers to retailers. Nor has any account been taken of the likely increase in the "leads" of traffic ("lead" is the average distance over which a ton of goods is carried). Experience in certain foreign countries has proved that under the impact of planned development, traffic "leads" have gone up by as much as 50 per cent. Recent trends in this country give the same indication.

The second Plan makes a provision of an annual increase of only 5 per cent in general goods traffic (other than steel, coal and cement). That this is inadequate seems evident by the actual experience during the first year of the second Plan, when the increase in general goods traffic was of the order of 10 per cent; the total traffic carried being 125.4 million tons.

HIGHER OPERATIONAL EFFICIENCY

When resources are limited, it logically follows that greater reliance must be placed on more efficient organisation and operation. Here, the Indian Railways have a creditable record.

The best internationally recognised way of judging the overall operational efficiency of a railway system is through its index of net ton miles per wagon day, showing the intensity of wagon usage both in terms of tonnage and the distance over which this tonnage is carried.

In India, the broad gauge system bears the brunt of about 80 per cent of the entire goods traffic in any year. What happens on the broad gauge system, therefore, could be taken as indicative of the general operational efficiency of the Indian Railways.

In 1938-39, and again in 1947-48, the net ton miles per wagon day index on the broad gauge system touched its bottom point of 351. The highest ever reached under the highly favourable war time traffic conditions was 451 in 1942-43. During 1955-56, the last year of the first Plan period, with traffic conditions far more complicated than during the war time, the index touched the record figure of 541. This was an improvement of 54 per cent over the pre-war bottom figure and of 20 per cent over the best war-time figure. During 1956-57, the first year of the second Plan, the index has

shot higher still and is estimated to be 614, which is an all-time record for the Indian Railways.

Similarly, on the metre gauge, the net ton miles per wagon day index advanced from the "low" of 133 in 1946-47 to 203 during 1955-56 and is expected to be higher still in the following year. This again will be a record figure.

The number of "sick" wagons is another indicator of operational efficiency. This index on the broad gauge system stood fairly high at 8.2 per cent in 1948-49, but has since then come down to 4.7 in 1955-56 and is expected to be lower still in 1956-57.

A similar picture is available in regard to the index of the engine miles per day per engine on line. On the broad gauge system, this index has advanced steadily from 71 in 1948-49 to 84 in 1955-56.

Meanwhile, the density of traffic on most of the trunk routes has approached the saturation point. Judged on the basis of the internationally recognised statistical data of gross ton miles per track mile, our Railways rank fairly high and are better than most of the advanced countries of the world.

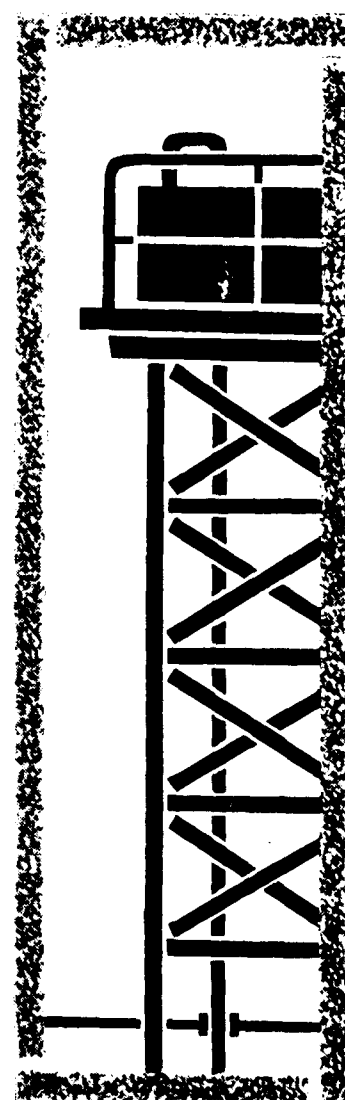
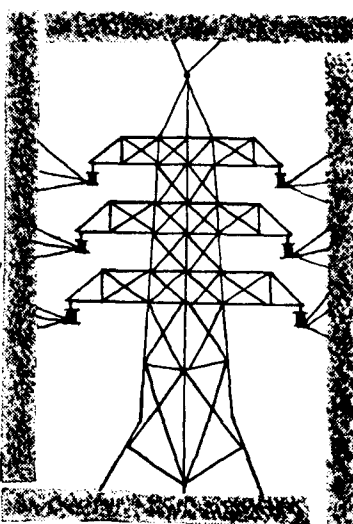
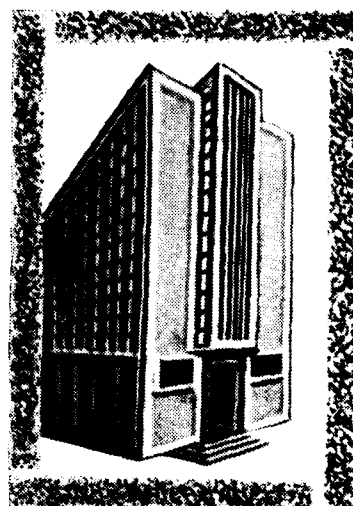
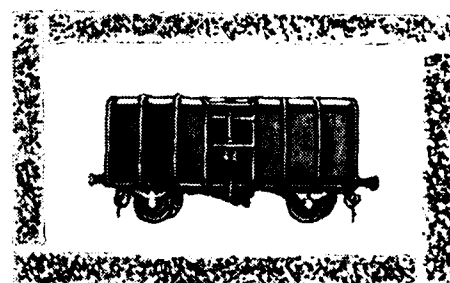
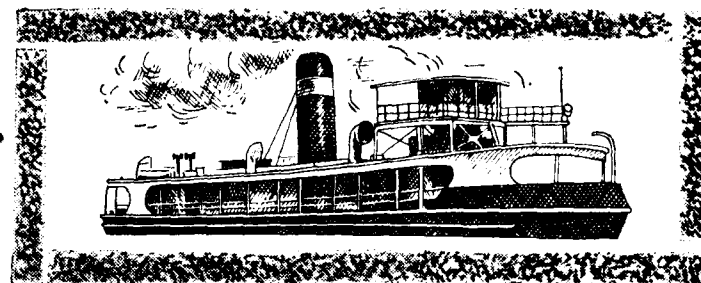
While these are undoubtedly most gratifying results, the Indian Railways are keenly aware of the need for achieving even higher levels of operational efficiency. Several steps are being taken towards this end.

HOW INCREASED EFFICIENCY WAS ACHIEVED

Without exaggeration it could be said that the remarkable results achieved during the course of the past two or three years have been brought about without any substantial improvements in transportation facilities available in marshalling yards, goods sheds, transit points, signalling, and other paraphernalia which normally accompany a modernisation plan. It is a high tribute to the common Railwayman in this country that, largely through better organisation and human effort, he has brought about the improvements in operational efficiency of which we can rightly be proud of.

That these results have been achieved in the face of a multitude of handicaps goes only to enhance the value of this achievement. Among these handicaps may be mentioned the severe speed restrictions, which are current, while a large number of development works are in progress, large arrears of track renewals and a chronic and continuous shortage of essential materials which has since shown some sign of getting eased. Throughout the first Plan period and the first year of the second Plan period, it has been a hand-to-mouth existence in so far as the supply of steel and cement is con-

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cerned. Only small portions of the demands made by the Railways for these two vital materials have been forthcoming and these too not always in time.

It is perhaps idle to speculate at this stage about the extent to which operational results could have been further improved if these handicaps had not been present.

SHORT-TERM MEASURES

We have resorted to a number of "palliatives" to remedy the desperate transport position which threatened to choke economic development.

Pride of place could perhaps be given to the work of a live "chasing" organisation, functioning from the highest level in the Railway Board down to the level of the Yard Master and the Traffic Inspector. It has been the function of this organisation to keep up a ceaseless vigil on the movement of goods traffic, cutting out delays at various difficult spots where they have traditionally occurred.

The issue of all-India marshalling orders in 1955 was another important measure which has helped considerably in a smoother flow of traffic. These orders ensure that wagons intended for distant destinations move in blocs, undisturbed at the traditional intervening points where formerly detentions were caused.

"Zoning" of traffic on the metre gauge system is another measure which has yielded highly satisfactory

results. This includes an extensive use of the B.G. parallel route in the direction of movement of empty wagons, which in some cases involves double transshipment.

Careful watch of the pattern of wagon movements and their skilful manipulation has also made it possible for the Railways to exploit certain alternative routes with spare line capacity to ease pressure on busy lines, thereby speeding up traffic.

Additional traffic capacity has also been created by a better balancing of the movements of empty wagons, which have traditionally been only partially utilised. Extensive use of open wagons has also been made by giving them a tarpaulin cover, for goods which traditionally have been moved in covered wagons.

We are considering various suggestions for effecting further improvements without large capital outlay. For instance, we are considering the use of the centre buffer coupler with the help of which it is intended to run longer trains. A beginning with the centre buffer coupler is being made for moving iron ore to the steel plants in the eastern region of the country. We are also considering the use of bogie wagons which in certain foreign countries have been used to great advantage.

COMPARISONS WITH FOREIGN COUNTRIES

Comparisons of the operational performance of the Indian Railways

with that of some other foreign Railways are often made to the disadvantage of the Railways in this country. While doing this, little allowance is made for the immeasurably greater degree of modernisation prevalent on these foreign systems.

Comparison between the Indian Railways and some of the more advanced foreign Railways would be valid only if it relates to a period when those foreign Railways were subject to all the numerous pre-modernisation handicaps which today continue to hamper the Indian Railway system—still suffering from many of the accu-

mulated ills of the past two decades, e.g., the setback caused by the economic depression of the 1930s, the severe strain and wear and tear of the second world war, and the heavy dislocation which followed the partition of the country.

In spite of the allowances which have to be made for these highly pertinent factors, the Indian Railways come out in the forefront with the other large Railway systems of the world as will be observed from the latest available comparative efficiency statistics of some Broad Gauge Railways in different countries, quoted below:

	U.S.A.	Canadian Pacific	Canadian National	U.K.	Indian
Net ton miles per wagon day (equated on the basis of carrying capacity of wagons) ...	388	560	490	84	568
Wagon miles per wagon day ...	45.6	51.5	51.4	9.98	47.7
Number of hours a wagon is on the run per day ...	2,452	2,201	2,669	1,095	4,974
Percentage of wagons under repairs ...	5.2	4.0	5.0	5.4	3.6
Engine miles per engine day on line ...	110	..	97	79	82

The Technical Consultants of the World Bank who recently visited India and saw the working of the Indian Railways in practice, were completely satisfied about the efficiency of the Indian Railways and the soundness of our plan of development. I have no doubt in my mind that, man to man, the Indian Railway worker, who is a match for his opposite number anywhere else,

can proudly take credit for this judgment.

With the improvements in line capacity, marshalling yards and signalling, which are in hand, Indian Railways will be well set to confront the task which awaits them in the future. In the field of transportation, it can be said with confidence that we can certainly look forward to a fairly comfortable position.



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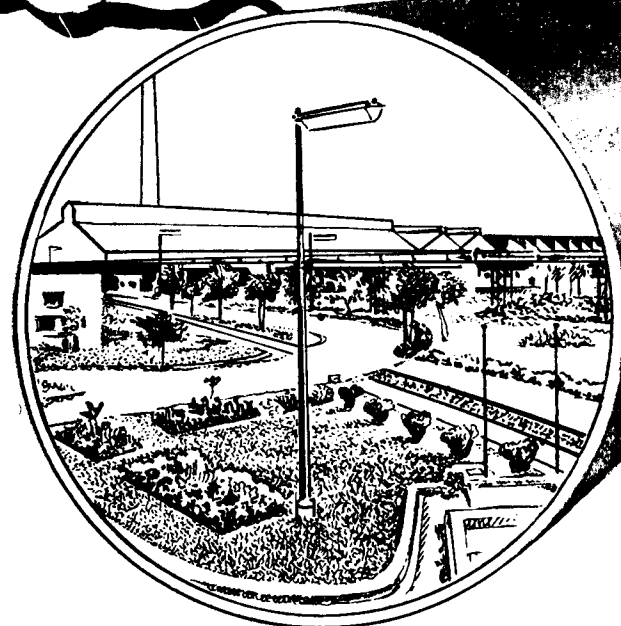
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WHEN the objective of the Life Insurance Corporation to take the message of life insurance to all parts of the country and to millions of our countrymen is discussed, a natural question is very often asked. "What exactly is meant by Reaching the Millions, and how is it to be done?"

A flash back on the status of this Industry at the time of its nationalisation reveals that the total sum assured in force at the end of 1955 stood at Rs 1,250 crores, covering 5 million policyholders. Even this figure of 5 million may be some slight overstatement, because many of the policyholders have more than one policy to their credit. Thus when it is stated that the possible target for life insurance in India could be Rs 8,000 crores, a target put forward on behalf of private enterprise, this appears to be a staggering figure. It is in this context that the phrase 'Reaching the Millions' is freely used, because the coverage offered so far does not exceed 5 million against a total population of 380 million of which 80 millions may be considered as wage earning population.

FUTURE TARGETS

That the potential for life insurance in India is vast, is not denied in any quarters. Indeed the figure of Rs 8,000 crores, sum assured in force, is well within the realm of possibility. This figure, which was originally put forward in 1955 as a possible national objective, is based on the following observations. "There are nearly 8 crores of families in India with an average annual income of about Rs 1,325. If on an average, life insurance policy is taken out for only Rs 1,000 by each family, the total life insurance in India would reach a figure of Rs 8,000 crores. This is by no means an utopian idea, when it is realised that the cost of a Rs 1,000 life policy is only about Rs 50 per annum which is even less than 4% of the average annual income of the family. It is not suggested that this business target is achievable in a year or two. It is however, an objective which is not unattainable within a decade."

Most of the major insurance companies which played a significant part in the development of this Industry, had, till nationalisation, concentrated mainly in urban or semi urban areas which were fairly intensively developed. Some work had also been done to introduce small policies and to start a form of industrial insurance. Yet the vast hinterland had been left practically untouched. Industrial workers had not been approached to any great extent, and both organisationally as well as from

the developmental point of view the location of head offices or branches, had not taken into account the potential based on which a sustained drive could be planned. It is quite possible that a swing towards rural economic development would have made expansion in this direction necessary, but it could not have been done to any appreciable degree because necessary resources, both of men and finance, would have been necessarily limited in the case of each individual insurer. It is here that an organisation like Life Insurance Corporation has the advantage of evolving a new organisational pattern keeping in view the expansion to cover the country-side. Having the necessary resources and a set objective of reaching the millions, it was natural that from the outset offices of the Corporation should have been located in different parts of the country with a view to ultimately extending the net work to take in both the highly developed, semi developed and undeveloped areas.

In order to force the pace of Life Insurance Industry and to tap the potential which is increasing every day, four factors have to be taken into account:—(1) Organisational set up; (2) Field force; (3) Liberalising insurance conditions and making it possible for almost everybody to afford the protection that life insurance offers and (4) Promotional techniques.

A VAST NETWORK

It may be said that organisationally the Corporation has offices now even in areas which were previously not served by any of the insurers or were not adequately served in many cases. With a net work of 5 Zonal Offices, divided into 33 Divisional Offices, 185 Branches and 57 Sub-Offices, the Corporation has rationalised its working, in that, the Divisional Office is now located in such centres as to be able to serve a given area adequately through a number of Branches and Sub-Offices. With progressive expansion of business, more branches will be opened during the next few years.

FIELD STAFF: RECRUITMENT AND TRAINING

Taking the second pre-requisite into consideration, the Corporation realises that unless it has an adequate agency force fully trained and consisting in the main, of whole-time agents with adequately trained field officers to guide the agents, it may not be possible to expand business to the heights planned so far. Agency profession in the past, has not been given its due recognition nor have the agents had the advantage of being systematically trained in the art

of scientific salesmanship. Recruitment efforts have also not stressed the attractiveness of the profession, not merely from the financial angle but also from the advantages it offers both for social work as well as for a recognised place in the society to the agents.

Although the Corporation may expend its energies in devising new methods of promotion, in using all possible media, to carry the message of life insurance, it will ultimately be for the field force to take advantage of the atmosphere so created to close the sale. Recognising the fact that life insurance will have to be sold always, the Corporation is now preparing a series of training courses, both for the field officers and for the agents. It is also directing its energies (i) to recruitment of new agents, (ii) to activation of many of the old agents who may have ceased functioning, and (iii) to offering an attractive career to the field officers, hitherto known as Inspectors, on whom will rest the responsibility of recruitment of new agents, servicing of existing agents, and of developing new areas. Creating new prospects and of making them

insurance minded, is a major task to which this force will be mainly devoted. Outside the big cities, they will be given exclusive areas and on them will rest the main responsibility of spreading the message of life insurance within their particular areas. This will be the major plank in the Corporation's programme for reaching the millions.

From the pace of recruitment, which showed appointment of more than 27,000 new agents by the end of June 1957, it is felt that in the course of the next few years the Corporation should be in a position to build up a large agency force. Although the pattern of working in urban areas is fairly well settled, a new approach or approaches may be necessary in the rural areas. In view of the distance involved, the lack of communications facilities and a lack of understanding, it may be necessary for a wider dispersal of agency force with small blocks of areas given to each agent to be tried out practically on the same basis as the National Extension Service, which has a village level worker for a group of 10 villages. In addition to trying out this

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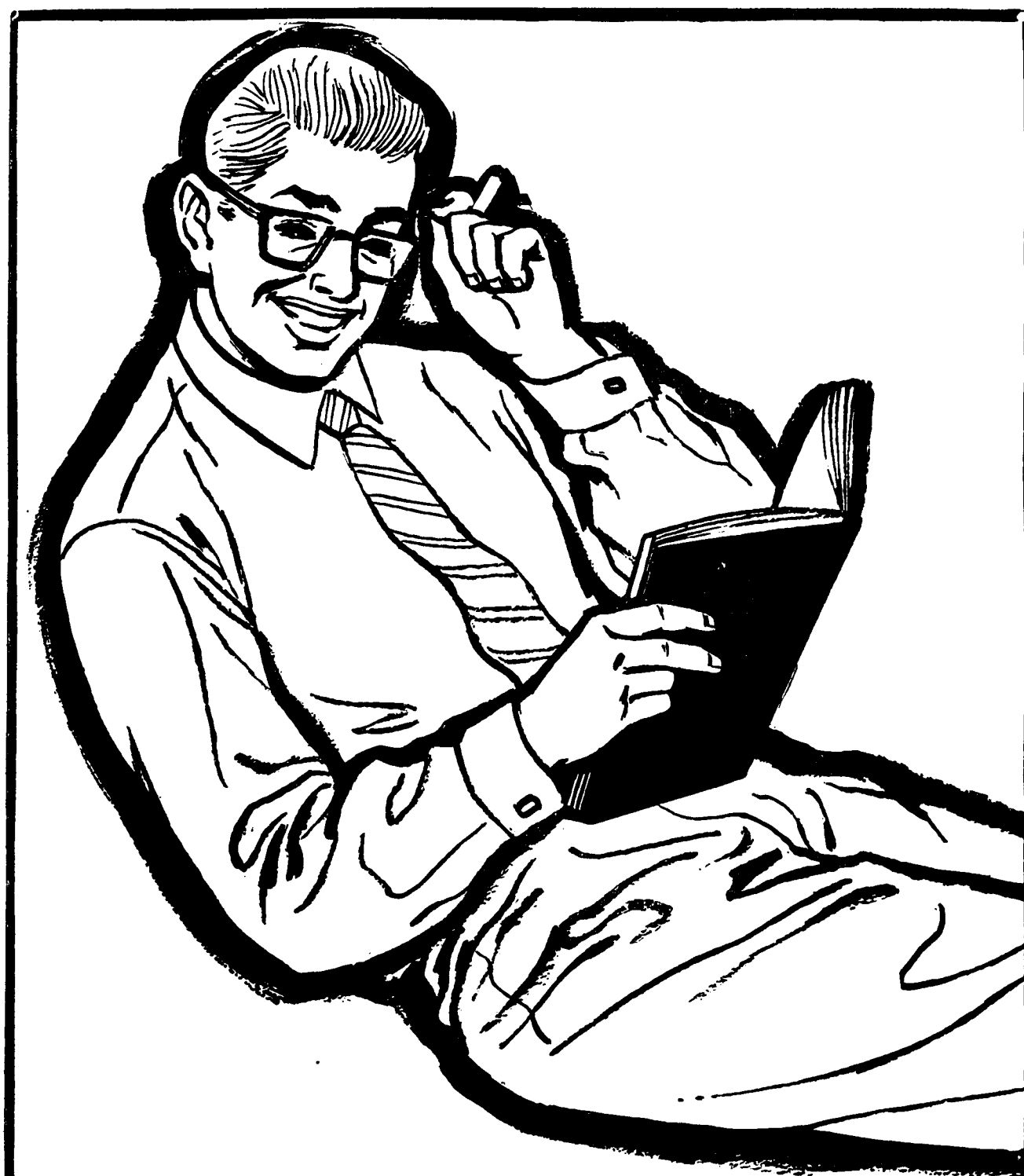
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method of working, services of the existing agencies, such as the village post master, the village school teacher, the Panchayat secretary, etc., may also be utilised because in order to reach a large part of people residing in a vast area, cooperation from all the forces working in the development of the country will be necessary.

INSURANCE FOR ALL

However, having adequate field staff or a good organisation by itself, will not do much if the conditions under which insurance protection is granted are antiquated, looking to the times in which we are now living. Insurance industry has ceased to be merely a profit making trade. Profits are not to be neglected; but there is now an equal emphasis on the life insurance being an essential social service which has to be provided for everybody in the country; care will be taken that in making life insurance available to all on terms and conditions which are liberal, the scientific basis is not scrapped. The Corporation authorities have felt that there are a number of ways in which certain liberalisation would help making insurance a real service available to many more people. It has already taken a number of measures to change terms and conditions and to liberalise these. It has also revised certain standards keeping in view the expanding facilities available all over the

country-side from the medical point of view by including within its scope certain impaired or sub-standard lives. This has the effect of making insurance protection available to thousands of country-men who were hitherto denied this privilege. Rates of premium were substantially reduced for a majority of people because immediately upon nationalisation, the Corporation decided to adopt rates which were slightly below those of Oriental rates which were amongst the lowest in the country, less one rupee. Thus uniformity of rates has not only brought about a substantial concession but has made insurance much cheaper for many who otherwise would have had to pay different rates of premium in different parts where different companies were operating.

In addition, the Corporation has launched the Janata Scheme, which it hopes to expand after an initial period of pilot working, Group and Superannuation Schemes, Salary Reduction Schemes, etc. It may be stressed here that in taking these steps and in utilising certain conditions related to loans, etc., actuarial basis has been strictly adhered to.

PLANNED PROMOTION

While the organisation, recruitment of trainees, training of field forces and liberalisation of terms and conditions, have paved the way for reaching the millions, another important aspect of creat-

ing better understanding about life insurance has also been receiving adequate attention from the Corporation. As has been stated earlier, the Corporation does not expect people to flock around its counters to buy life insurance. It expects to maintain a trade force to do the selling, but it certainly hopes, in time to come, to create realisation about the need of an individual for this form of protection and to sell insurance to willing clients. As its drive gathers momentum, the promotional part of its activity will both precede and follow as well as accompany this drive. In areas which are already insurance conscious to some extent, Corporation's promotional techniques will take into account straight selling; in areas which are still to be developed it will attempt insurance education using a number of different media and will also provide the agency force with the necessary sales aids and will continue the after sale service propaganda.

In view of the literacy percentage in this country while the use of printed word will be limited, basic literature from which Audio-Visual aids can be prepared, will always be necessary. Printed literature will be necessary for the training of agents. It will be necessary for preparation of advertisement drives and for making simple and illustrated literature

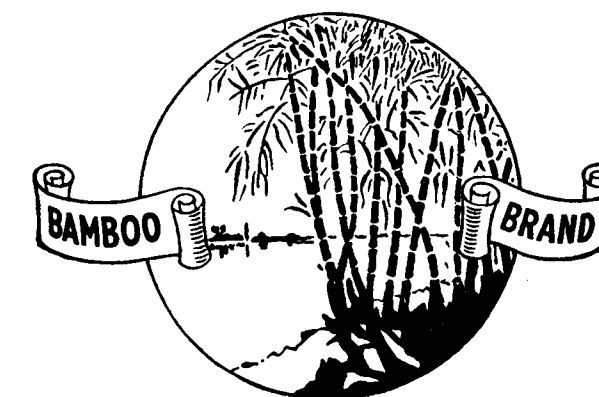
available to those who have had the advantage of literacy. In its promotional drive the Corporation again expects to make use of the other Government and non-Government agencies working in the country and to take advantage of their facilities in furthering the cause of life insurance.

INDIRECT BENEFITS

We have hitherto discussed how the Corporation plans to reach the millions directly. But this is not all, as indirectly the Corporation activities have already reached the millions because of the support it has given to the public and the private sectors in the industrialisation of this country and in many developmental projects.

The Corporation investments support development activities in some measure and it is these development activities which are expected to lead to a brighter future and better standard of life for the people of this country. The circle will be complete when the people, as they benefit from these activities, will invest more and more in life insurance so that the Corporation, as the central collecting agency of the peoples' savings on the one hand, helps the country in its development efforts thus making good use of the people's savings and on the other hand makes adequate insurance protection available to all, thus contributing to a worry-free future for its policy-holders.

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Private Sector Ahead of Schedule

By G. L. BANSAL

THE private sector of industry in this country has, for a long time, been the target of attack for not showing sufficient enterprise. The criticism, however, lost much of its edge on account of the performance of the private sector in the implementation of the First Five-Year Plan. Thus the 'Review of the First Five-Year Plan' itself provides ample testimony to the fact that the progress of investment over the expansion programme in the private sector has been upto the initial expectations which were around Rs 233 crores and goes on to say, "The results of the plan in the industrial field were highly satisfactory not merely in terms of utilisation of capacity already in existence at the commencement of the Plan but also in terms of the new capacity installed in new and important lines". As against this, it will be seen that while the planned outlay on industries in the public sector was of the order of Rs 94 crores, the actual investment has been about Rs 57 crores.

"EXCESSIVE" ENTERPRISE

Recent criticism, however, has been from a different standpoint. It would appear as if the fault of the private sector, since the beginning of the Second Five-Year Plan, has been that it has shown too much enterprise and has co-operated rather 'excessively'. By way of substantiating this, it has been suggested that the private sector has been responsible for the present worsening of the balance of payments position and that the present 'crisis' in the economy is due to reckless 'over-investment' by organised industry. A certain section of the critics has also contended that a substantial part of the imports of the private sector was not related to the developmental expenditure. Some others have gone even to the extent of suggesting that there has been a 'conspiracy to subvert' the Indian economy. An attempt is being made here to examine the validity of these statements.

The Second Five-Year Plan has allotted a place of considerable importance to the private sector not only out of pragmatic considerations but because it is an essential part of the mixed economy contemplated in the socialistic pattern of society. The ultimate objective of both the public and the private sectors is the same, namely, to subserve planned development for utilising the resources of the community to the utmost. Thus both the sectors will be judged in the ultimate analysis by the results achieved. Though the ratio of public to private sector investment in the Second Plan is roughly 61:39 as compared to about 50:50 in the First Plan, in absolute terms

the investment is greater. The overall investment in the field of manufacturing industries in the Second Plan under the National Industrial Development Corporation and in the private sector was expected to be of the order of Rs 720 crores. This comprised Rs 570 crores for new industries and Rs 150 crores for replacements. Out of this, a sum of Rs 55 crores was earmarked for the National Industrial Development Corporation. Excluding the NIDC and modernisation, the investment in the new private sector of industries in the Plan was set at Rs 515 crores. But due to increase in the cost of machinery and other materials as well as due to the raising of the production targets in respect of several items like electrical equipment, spindleage and loomage for the cotton textile industry, the overall investment in the private sector required to fulfil the targets would be in the region of Rs 825 to Rs 850 crores.

It is worthwhile, in passing, to refer also to the Industrial Policy Resolution of April 1956. It would be wrong to interpret the Resolution as classifying the industries under watertight compartments. Apart from this, the limitations of the State with regard to resources, particularly technical and managerial skills, are being felt to an increasing extent, and hence it is hardly surprising that the private sector is now receiving greater recognition of its role. There have been two instances recently to substantiate this point. One is the statement by the Food Minister in the Lok Sabha that there has been recently a shift in Government's policy with regard to the starting of fertilizer factories to meet the increasing demand for fertilizers in the country. All along Government's idea seemed to be to have them in the public sector, but it would now appear that they could be assigned to the private sector also. Another instance is the announcement that private parties are in future to be granted mining leases for minerals listed in Schedule 'A' of the Industrial Policy Resolution of 1956, which is normally reserved for the public sector, and this shows the flexible and pragmatic approach that is likely to characterise Government's policy with regard to problems of industrial development in the future. The Finance Minister in the course of his recent tour abroad significantly pointed out that only 3 per cent of India's industry was State-owned and over the next decade the public sector would perhaps expand to just 10 per cent in the country's industry. Thus, it may be taken that the future pattern of investment in industry is likely to be in the ratio

of 1:2, that is, 1 for the public and 2 for the private sector.

2ND PLAN TARGETS ATTAINED

In a statement made in the Lok Sabha on the 13th September, Shri Gulzarilal Nanda gave due credit to the private sector for the implementation of nearly two-thirds of the industrial targets allotted to it. Private industrial investment, which has been rising markedly over the last three years, was of the order of Rs 140 crores in 1956-57 which can be compared to the figure of Rs 85 crores during the last year of the First Five-Year Plan which was the highest. Indian Industry has been able to secure its foreign exchange requirements as much in time as it has seized the opportunity to make the investment. Foreign exchange amounting to about Rs 200 crores for new industries had been secured which represents four-fifths of the original anticipated total for the entire Plan period and it has been estimated that with a further allotment of about Rs 44 crores in foreign exchange, the private sector would be able to complete the schemes in progress. If one compares the target capa-

city for 1960-61 and the existing and licensed capacity, it will be found that in the case of a number of industries the targets for capacity laid down in the Plan have been covered. These include cement, refractories, sewing machines, bicycles, dry batteries, electric motors, electric fans, radio receivers, soda ash, paints and varnishes, power alcohol, plywood, sugar and art silk yarn. In some cases the targets had, therefore, to be revised upwards.

The progress made in the private sector so far has been faster than anticipated in the Plan and in view of Government's heavy draft on the country's resources, it is open to doubt whether the same tempo of development can be maintained. The Planning Commission has now directed that no new industries involving immediate foreign exchange commitments should be initiated till 1959, but the fact that schemes are already in progress in the whole range of industries and import licences of considerable amount (a good portion of which is for machinery and capital goods) will be 'cashed' in the next one or two years, would make it appear

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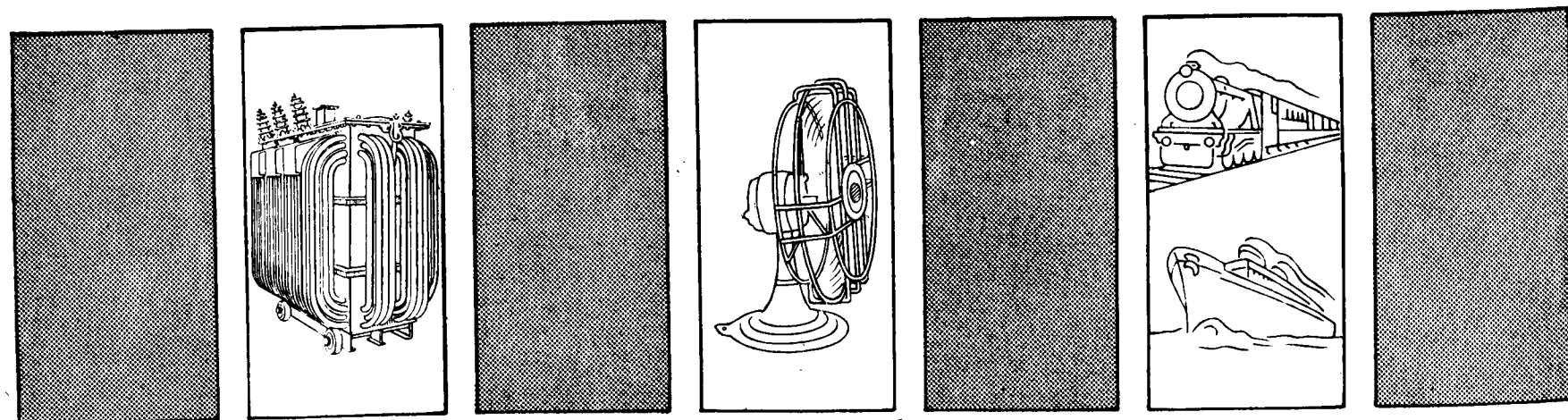
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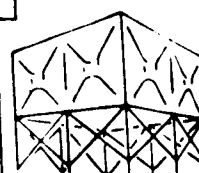
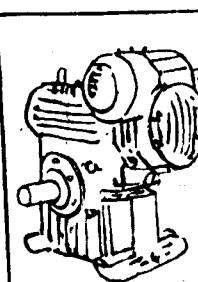
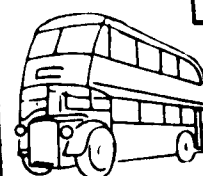


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that substantial fulfilment of targets is likely in many industries. Now, let me turn to the gravamen of the charge that the private sector has imported heavily and indulged in over-investment. As is only too well known, the private sector has to function within the limitations of the four corners of policy laid down by Parliament and Government from time to time. To any impartial observer, it will be evident that Government have wide powers of control over every aspect of industrial development, a control necessitated partly by planning and partly by "other considerations", not all of which are economic. Some of these regulations are deemed necessary and useful by the private sector itself in the interests of both rapid and coordinated economic development. The Industries (Development and Regulation) Act arms Government with extensive powers over a wide range of industries from the time an application is made for starting an industrial undertaking or for the expansion of an existing undertaking. Further, the Import Trade Control and the Control over Capital Issues are also other instruments in Government's armoury to regulate (and develop) private enterprise in the direction it wants. In the face of this, it will be a mistake to make any sweeping remark that the private sector has

indulged in unauthorised imports and made reckless investment.

CAPITAL IMPORTS

It is a truism that a developing economy needs a growing volume of imports. Whatever increases in imports have occurred in India have been mostly under machinery, vehicles, iron and steel, non-ferrous metals, raw materials for industry and various components of production. Under capital goods, viz., machinery, vehicles, iron and steel and other metals, the imports in 1956-57 have been Rs 442 crores as against the Second Plan average of Rs 430 crores. Even assuming that the Second Plan did not assume that during the first year of the Plan imports would be of the order of Rs 430 crores but much less, it is obvious that allowance should be made for higher prices, higher freight, etc. Again from the point of view of investment this figure should not be considered excessive since it is now recognised that the foreign exchange component of the Plan seems to have been under-estimated. What has happened is that the private sector has taken the initiative to make use of a substantial portion of the import of capital goods and has gone ahead in its investment programme.

There is another charge that considerable investment has taken

place in projects not related to the Plan. This has not been really substantiated. It is really too naive to believe that a large diversion of resources of capital goods could have taken place surreptitiously and without anybody's knowledge. Even if some of them had not been devoted to developmental expenditure directly, they could not but have been used to produce essential consumer goods for which there has been a pent-up demand consequent upon the drastic cut in imports. The imports thus made have only gone to strengthen the production potential and are bound to bring returns in due course.

"CRISIS OF DEVELOPMENT"

Finally, it has been stated that in the import-content, there has been a substantial element of consumer goods. This argument has gained strength from the Reserve Bank figures for 1956-57 which showed under 'other imports' an increase from the Plan average of Rs 140 crores to Rs 266 crores. As a matter of fact, under 'other imports' the figure for the base year 1955 (on which the Plan average is based) is not Rs 130 crores as assumed by the Planning Commission but Rs 174 crores. This means that there has been a rise of only Rs 92 crores and this has been pointed out as the villain of the piece. The Finance Minister

himself stated in the Lok Sabha that even with regard to this figure, Rs 50 crores is on account of Government imports not included elsewhere in the Reserve Bank table, another 6 crores is on account of ships, aircraft and parts, and Rs 12 to Rs 13 crores represents increase in what the Reserve Bank is allowed for in lieu of the return of currency notes from abroad. There is actually only a figure of Rs 22 crores involved, which is unaccounted for and even this would cover a large variety of raw materials and important and necessary consumer goods like medicines and infant foods.

Thus it is obvious that various factors have gone to inflate the import content of the first year of which defence needs and food take a substantial part. As explained earlier, there has also been under-estimation of imports which had not been related to the needs of a rapidly expanding industrial machine. It is conceivable that we were not prepared either for the implications of dynamic planned development or the suddenness and magnitude of imports which it engendered. Thus this can only be termed as a 'crisis of development' and not a 'crisis of stagnation'. It is also true that based on past experience future lines of policy can be chalked out in various directions so that we may not be taken unawares again.

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Inflationary Threat in A Developing Economy

By Dr. D. BRIGHT SINGH

EXCESS DEMAND AND INFLATION

A rise in prices in itself is no more an indication of inflation than a fall in prices of deflation. A rise in prices that occurs after an economy has reached the throes of depression is only a sign of recovery and a fall in prices brought about by monetary or fiscal policy after prices have touched a peak level indicates only that the policy has been effective. On the other hand, inflationary pressure can exist in an economy even when the price level is kept constant by means of controls.

Normally, however, inflation is associated with a rise in prices. Prices rise when the demand for goods and services increases at a faster rate than output. So long as resources remain idle or unemployed, increased demand would lead to higher levels of employment and increased production. If the rate of increase in output is proportionate to increase in demand, there cannot be price-rise but if supply is relatively inelastic either because full employment has been attained or because of the various bottlenecks common in an underdeveloped economy, increased demand would manifest itself more in an increase in money incomes than in real incomes. Such a rise in money incomes or prices is an indication of inflation.

Inflation then is caused by excess demand. Aggregate excess demand at any point of time in a national economy is the sum of excess of imports over exports, excess of government spendings over receipts and excess of private investment over savings. It is the net excess that matters here. Thus, if there is no excess of private investment over savings and excess of exports over imports is offset by excess of government receipts over government spendings, then there is no aggregate excess demand.

In a modern developing economy excess demand arises mainly through government activity. The primary objective of economic development is to increase real national income. This is possible only by raising the rate of investment. To the extent that government plays a prominent part in the development of the economy, a rise in total investment is accounted for largely by government outlays. Investment involves the utilisation of real resources for purposes of capital formation. If government investment is to increase, real resources normally used for consumption or investment in the private sector are to be transferred to the public sector. If the demand for these resources in the private sector remains the same, then government's increased investment represents an addition to total normal demand. In other words, increased investment by the government causes an excess of aggregate demand over the normal supply of resources. Now, if government by means of physical controls

or other direct measures restricts consumption or demand in the private sector, the transfer of real resources to the public sector can be effected without any rise in prices. On the other hand, if this transfer is to be brought about through the normal market mechanism, then government would have to find the means of buying these resources; that is, government will have to use its past savings or issue currency or borrow from the central and commercial banks. This can lead to an inflationary trend in prices.

It is immaterial in which sector of the economy excess demand starts. The point to remember is that as long as excess demand in any quarter is not offset by restriction of demand in other quarters, there is the possibility of the development of inflation. If private businessmen are to raise the normal rate of investment, they borrow from banks and get the resources via credit expansion. If labourers want higher real incomes their money wages are to be raised, and if reduction in employment is not possible because of Trade Unions, employers will have to resort to borrowing from banks in order to pay higher money wages. However, in a developing economy where the government undertakes the responsibility to initiate the process of growth, excess demand comes from the government. And government's economic activity involving excess of outlays over normal receipts, causes prices to rise.

WHY INFLATION IS A THREAT

This would mean that if the normal market mechanism is not to be impaired—and democracies set a great store by this—transfer of real resources to the public sector for investment purposes is done through a rise in the price level. Now, if a case can be made for increased investment activity by government, i.e. if it can be shown that such increased investment activity can lead to better economic results, then it would be possible otherwise, then a rise in prices is not only welcome but is to be deliberately brought about. In fact, the entire argument of the protagonists of inflation as a means of economic development hinges precisely on this point. They point out that inflation is necessary and beneficial in a developing economy in so far as it facilitates the transfer of resources from where they are consumed to where they can be invested. A moderate dose of inflation by increasing the money incomes of profit-earners as against wage earners, transfers real resources from the wage earners and the fixed income earners whose propensity to consume is high to the businessmen or the profit earners whose propensity to save is high, and thus facilitates larger investment. The mechanism of transfer is the same when government takes the role of the investor.

Recent investigations however tend to show that this claim in

favour of inflation is greatly exaggerated. The validity of this case depends on two factors: (1) the transfer of real resources through inflation is of the magnitude required; (2) this transfer of resources results in productive investment which substantially adds to the income earning capacity of the economy. As regards the first, it may be pointed out that in the USA during the entire 1939-52 inflation, the labour share rose by 6 per cent of the total personal income (from 64 per cent to 70 per cent) contrary to the general notion that wages and salaries lag behind during inflation. Unincorporated businesses, excluding farming, retained a stable share of total personal income, again contrary to the general notion that the business share increases during inflation. On the whole, against all normal expectations there was a substantial gain in the labour share mainly at the expense of the interest share. This would mean that inflation in USA was not good enough or bad enough to bring about redistribution of incomes of the type or order that was required. But then, the extent to which prices should rise in an underdeveloped economy is much greater than in a developed one to bring about that degree of redistribution which will ensure a substantial rise in investment rate. Given a rise in prices, the extent of the

transfer depends on the propensity to save and consume of the profit earners and the wage earners. If the marginal propensity to save out of profits is high, the price rise required would be correspondingly less. It is doubtful whether the marginal propensity to save of the business classes in the less developed countries is equal to that of their counterparts in a developed economy. Furthermore, since the transfer of resources is from wage earners to profit earners, the extent to which this transfer can be effected depends also on the proportion of wage income and profit income to total income. The ratio of wages to profits is much lower in the underdeveloped than in the developed economies. In USA and UK, it is 2.1 : 1 and 2.3 : 1, while in Ireland and Chile it is 1 : 1 and in Kenya it is 0.6 : 1. Since the base out of which the transfer is to be made is relatively smaller, it is necessary to have a greater rise in prices in an underdeveloped country to achieve a given transfer of resources than in a developed economy.

Even assuming that transfer of resources of the required magnitude can be effected by means of inflation, the question arises whether these resources when transferred, would be properly invested. There is always the possibility of an allocation of resources to luxury goods and consumption, and speculative

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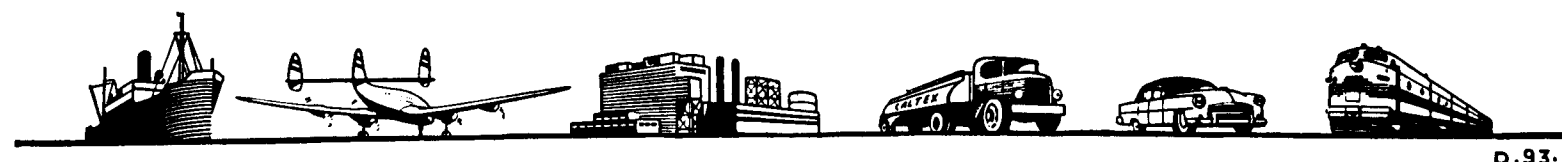


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investment in inventories or foreign exchange. Besides, the danger of a mild dose of inflation developing into hyper-inflation is much greater in an underdeveloped economy with an inefficient administrative machinery than in a developed country whose administrative mechanism can be depended upon to counteract any such tendencies.

The conclusion therefore emerges that inflation as a means to economic development has only a limited value. It is a real threat to stability and growth and is something not deliberately to be brought about but to be carefully guarded against.

INDUSTRIALISATION AND INFLATION

If excess demand is the initiating factor in inflation, then attempts are to be made to keep it in step with supply or real income or output. But the nature of excess demand arising in an underdeveloped country is to be rightly understood. In this connection it is worthwhile to bear in mind the following facts:

(1) Most of the underdeveloped countries which have awakened to the need of economic development have only recently emerged from the state of colonial economies.

(2) They have before them as models well developed economies which are highly industrialised. Rapid industrialisation is therefore their main goal. For them industrialisation is almost synonymous with economic development.

(3) Since these countries lack adequate entrepreneurial skill, enterprise and tradition, the burden of giving a start in industrialisation and development has devolved on governments. Besides, only governments can afford to make the huge initial investments necessary for providing the various overhead facilities.

This emphasis on industrialisation has naturally resulted in the expansion of the industrial sector. Large investments by government for the development of industries and transport in effect mean a steady rise in the level of demand coming from that sector.

Now, what does this excess demand in the industrial sector mean? It means that for starting and expanding major industries and for the building up of factories, a large amount of real resources in the form of raw materials is required. It means the employment of more labour and that creates a demand for food. If the economy is a closed one, all these resources are to come from the agricultural sector. But from the point of view of the effect of investment on output, there is a difference in the two sectors. By and large, while investment in the industrial sector takes time to fructify in the form of real consumption goods, in the agricultural sector a good part of the total investment results in an immediate increase in supply. In other words, in the short period, investment in the industrial sector leads more to the creation of additional money incomes than investment in the raw materials sector. Thus, while the demand for raw materials in-

creases with every progress in the industrial sector, the amount of money that can be offered is also increasing. These exert a combined pull on the agricultural sector.

Obviously then, if this excess-demand should not exert a pressure on the price front, there should be a proportionate increase in the supply of raw materials. Otherwise, when there is a relative shortage of primary products, the economy experiences a rise in wholesale prices. Manufacturers of final products raise the price of their goods in response to rise in costs; the cost of living goes up and wage earners press for higher wages. This further raises costs of production and with more or less lag, other money incomes also go up, resulting in a full-fledged inflationary trend.

The situation is only slightly different in an open economy. Underdeveloped economies which are in the early stages of development, export quite a good proportion of their raw material products in return for much needed imports of machinery and other capital equipment from developed economies. This makes increased production of raw materials and agricultural commodities all the more important because such materials are required not only directly to meet the growing domestic requirements of industrialisation but also indirectly for the earning of foreign exchange. This is the fundamental reason why underdeveloped countries find themselves face to face with balance of payments difficulties at quite an early stage of development. In these countries manufactured products can substitute raw materials as foreign exchange earners only after industrialisation has sufficiently advanced. Even then the extent to which manufactured goods can be exported depends upon the availability of external markets and the demand for these commodities at home. For, it is a fact that as an economy develops and income increases, the income elasticity of demand goes up and people consume more of goods of the comforts and quasi-luxury category. To some extent such goods produced at home replace similar goods imported hitherto; nevertheless, because of increased domestic consumption, there will be less of such goods for exporting and therefore there is greater difficulty in getting manufactured goods of a higher order—viz. capital goods and machinery.

Lack of balance in the growth of output in the agricultural and industrial sector explains the inflationary rise in price in Britain in the 1890's. Too much concentration upon industrialization in Soviet Russia under the New Economic Policy led to an acute shortage of agricultural products and an inflation of their prices which drove up all other prices in a spiral movement. Due partly to the closed economic conditions prevailing in Russia and partly to the policy adopted by the government, the terms of trade, which remained at first favourable to agriculture, turned adverse to it and produced the famous "Scissors crisis" of the 1920's.

THE SITUATION IN INDIA

What has been stated above does not claim to be a full explanation of how inflation develops in a growing economy. It is only an outline of one of the ways in which inflation can and does start when an economy is concentrating on industrialisation. It only suggests that too much emphasis on rapid industrial development can lead to an inflationary situation. Recent price trends in India lend some support to this view. And the statement repeatedly made and emphasised by economists and publicists that agricultural prices, especially food prices, play a strategic role in determining the general price structure in a developing economy, fits in well with the analysis attempted here. Of the total outlay of Rs 1960 crores in the first Plan period, 15 per cent (Rs 299 crores) was incurred on Agricultural and Community Development Schemes. Irrigation and Power accounted for Rs 585 crores. Part of this was for industrial purposes. If this is assumed to be half of the total, Industries, Power and Transport and Communications together should have claimed about Rs 923 crores or 46 per cent of the total outlay. Investment on industries alone increased from Rs 9.4 crores in 1952-53 to Rs 39.9 crores in 1955-56, i.e. by about 4 times. This investment represents the initial release of money income by the investment process. Of late, there has been a fall in agricultural output and a significant increase in the rate of industrial investment.

The recent trends in the prices of different groups of articles illustrate the effects of this acceleration in investment. The fact that the rise in wholesale prices has been greater than the rise under manufactures, but less than the increase of the prices of food articles and industrial raw materials shows clearly that the last mentioned group of articles has a preponderant influence on the general price structure. The important point to note is that simultaneously with a decline in agricultural output an upward pull on the prices of these articles has been exerted by higher investment in the industrial sector.

The foregoing analysis draws attention to the importance of balanced development as between agriculture and industry in a growing economy as a means of ensuring stable growth. Large investments in the industrial sector leading to the expansion of industrial capacity and involving a rapid rise in money incomes of a large section of the community would constitute a source of inflation if expansion in the industrial sector is not matched by an increase in the output of raw materials and agricultural commodities. Inflation is like a malignant growth which manifests itself only when it has assumed serious dimensions. Monetary and fiscal measures are generally devised to check the evil when its dangers are known. But measures to bring about balanced growth are of the preventive type and are therefore more effective.

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Industrial Relations and Labour Policy for India's Second Five-Year Plan

By P. C. JAIN

INDUSTRIAL peace is vital for the success of India's Second Five-Year Plan. If work is dislocated due to strikes and lockouts there is fall in production thereby reducing the national income and the supply of goods in the market which, under the existing conditions, would further intensify inflationary conditions. It is unfortunate that labour unrest in India has increased during the past three years. The number of man-days lost increased from 3.4 million in 1954 to 5.70 million in 1955 and 7.14 million in 1956. The number of disputes increased from 840 in 1954 to 1,166 in 1955 and 1,263 in 1956. The situation in 1957 has continued to deteriorate and in July 1957 the number of man-days lost was 723,854 with 178 disputes as against 713,892 man-days lost with 147 disputes in June 1957. A prolonged strike by bank employees in Calcutta and industrial workers at Dalmianagar, the threatened strike by certain categories of Government employees and the industrial unrest in Kerala clearly indicate the trend. The immediate cause of increased unrest is the continuously rising price level. The workers, like other people in the lower income groups, were already finding it difficult to make their ends meet. The situation was made worse by the rising prices of wage goods. In the case of Government employees another cause has been that the Government have increased the railway fares and freights and the postal rates and taxes, but have not simultaneously increased the wages of their employees. The latter wanted to get some benefit of the higher revenues of the railway and postal departments and of the increased general revenues of the central Government for themselves. The question is not whether they were justified in their demand. The question is that they were induced by the increased revenues of the Government to demand a greater wage and to threaten strikes if their demands were not met. It must also be admitted that the increased industrial activity and the rosy picture of the future which the second five-year plan painted has given a false hope to industrial workers and Government employees in India that their economic condition would soon improve and in their impatience to get this advantage immediately they have resorted to strikes or have threatened to do so.

REAL WAGES RISE

The basic difficulty in India is that the wages of most industrial workers and Government employees in the lower grades are too low and do not ensure a satisfactory standard of living. Moreover, some 2 million labourers are added to the working population every year at the present rate of increase in India's population and it is not possible to provide suitable employment to all these

persons with the low rate of economic growth in our country. The low wages and the prospects of unemployment for their kith and kin create a feeling of unrest among the labourers. But the solution for this difficulty is not to go on strike or to threaten a strike. The situation will considerably improve if the labour leaders in India realise this basic fact. It is recognised by everybody that the emoluments of labour should increase but this is possible only if there is an increase in the productivity of labour. Another fact which should be clearly realised by labour leaders is that industrial workers and low-paid Government employees are a part of the nation and it is not only the workers, but all categories of people who are suffering because of low productivity and high prices in India. The condition of industrial workers would effectively improve only when the national income rises and the Indian people are able to get a larger amount of food, clothing and other consumer goods. It is also worth emphasising that there has been some improvement in the condition of industrial workers since Independence. With 1939 as the base, the money earnings of industrial workers in India have increased and the index in 1954 recorded a level of 381 as against 357 in 1951 and 253 in 1947. There has also been an improvement in real wages, i.e. the condition of industrial workers has improved taking into account both the wages and the price level, and the index of real earnings has risen from 78 in 1947 and 92 in 1951 to 103 in 1954. Subsequent figures are not available but the improvement has continued. We emphasised above that the 'labour leaders' in India should realise this basic fact because it is they who really matter in keeping industrial peace in India. The majority of workers are too illiterate and too disorganised to realise their true interest and are led by what these 'labour leaders' tell them. If the 'labour leaders' realise the true state of affairs and take a national point of view the industrial relations in India would definitely improve.

Industrial disputes are different from ordinary disputes and the settlement should not only be just and fair but should be considered just and fair by both the employers and the employees. The present emphasis of the industrial disputes machinery is on compulsory arbitration for settling the disputes. There is also a machinery for bringing about conciliation and voluntary arbitration. But in the past arrangement for bringing about a mutually acceptable settlement on a voluntary basis has not worked satisfactorily and needs to be strengthened. Some of the disputes would never arise if they were nipped in the bud and if the parties were able to settle their differences before they took the

shape of a dispute. There is the institution of works committees, but these committees are not working smoothly because (i) the exact scope of their work is not specified and there is a clash of interest between them and the trade unions. The trade unions have the feeling that the works committees are encroaching on their functions while the works committees have the experience that trade union officials are not sympathetic to them. This makes them half-hearted in their working; (ii) the employers and business executives have not always given due importance to the works committees and have either not sent the proper men to attend them or have ignored their deliberations; and (iii) the number of works committees in the different units has not been adequate to deal with the problems that arise. In order to prevent trouble from arising it would be necessary to improve the working of these works committees and to coordinate properly their work-

ing with the trade unions. The multiplicity of trade unions in India is not only a direct hindrance to the speedy settlement of industrial disputes and the faithful enforcement of the industrial awards; it is indirectly responsible for the failure of works committees. Industrial relations in India would undoubtedly improve if the multiplicity of trade unions is done away with and we have one trade union representing all the labourers in a particular industry in each locality.

NEED FOR PERMANENT MACHINERY

But all the difficulties and troubles which ultimately take the shape of an industrial dispute cannot be resolved by works committees even if they work in the best possible way. It is, therefore, necessary to have a permanent machinery with suitable staff and technical personnel both at the centre and in the states, as was



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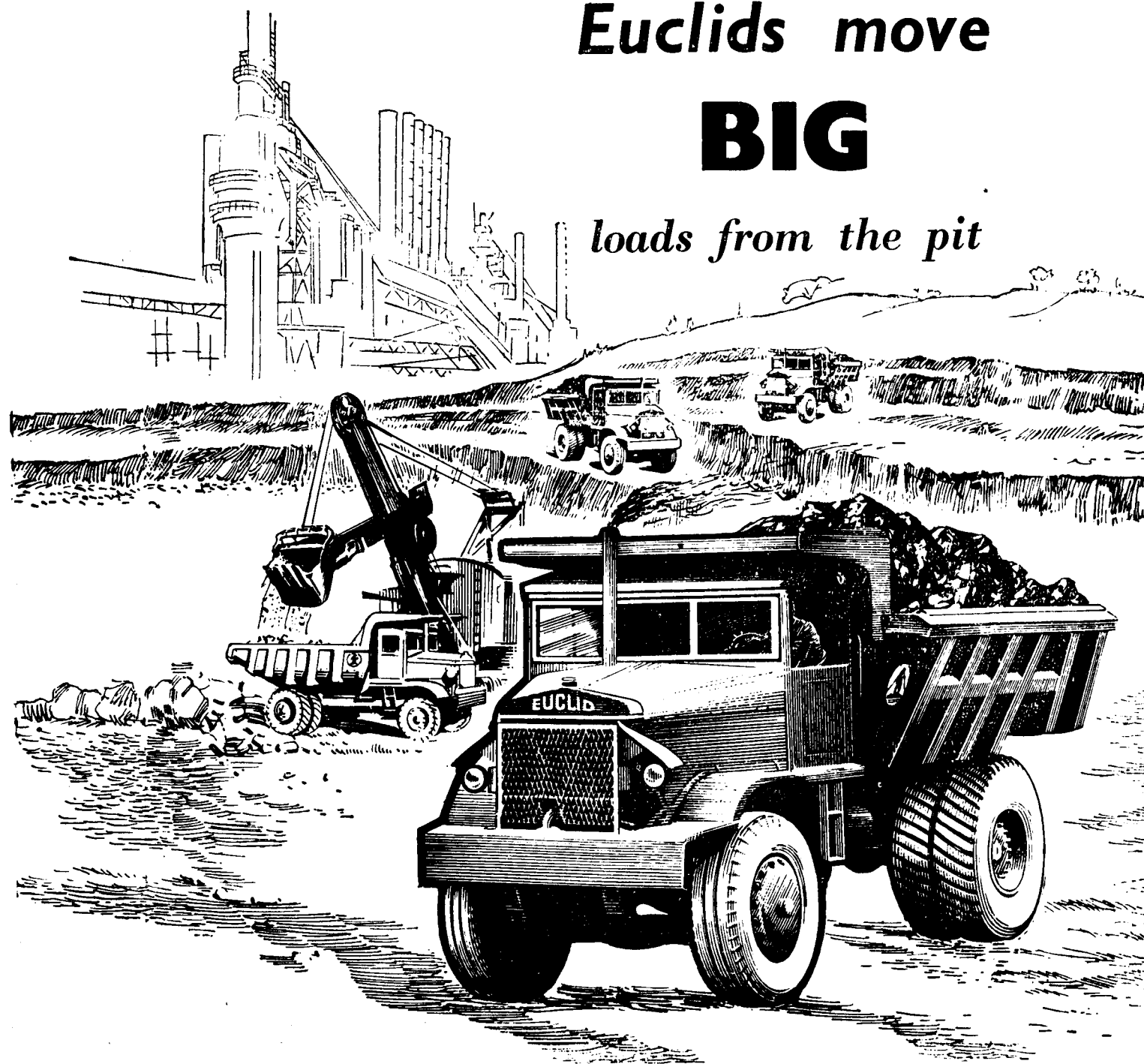
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recently suggested by Mr. V. V. Giri at Kanpur. This permanent machinery might be a part of the tripartite labour conferences which now bring together employers, employees and the Government for discussion of their mutual problems and might have panels, consisting of representatives of workers and employers and some experts, for each basic and big industry. The panel should automatically come into immediate operation when there is an industrial dispute and should submit its report to the permanent machinery of the conference containing the facts of the situation and its own appraisal of the points in dispute. This report will not be binding on either the employers or the employees but will educate public opinion and would provide true facts to the Government and Parliament. The ultimate object of a strike or lock-out is to get one's claim recognised by putting pressure on the Government and public opinion. The report of the panel will make it possible for them to take a correct view of the matter and this would have a sobering effect on the parties to the dispute. This method would be somewhat costly but would undoubtedly hasten the settlement of disputes on a voluntary basis.

In spite of the efforts that are made to prevent industrial disputes and to solve them speedily they are bound to take place, thus wasting time and reducing productivity. It

is, therefore, necessary to declare an Industrial Truce for the duration of the Second Five-year Plan. Such an industrial truce has worked satisfactorily in the past and would do so in the future. Since both the employers and the employees are interested in making the Second Five-year Plan successful they should have no difficulty in agreeing to such truce. Some beginning in this direction has already been made by the standing labour committee of the Indian Labour Conference adopting a Code of Industrial Discipline which lays down that employers and workers will bind themselves to settle all future disputes by mutual negotiations, conciliation and voluntary arbitration and would avoid go-slow tactics, lock-outs, strikes without notice, intimidation and other forms of indiscipline and victimisation which usually are the causes of industrial disputes. The remarkable thing is that the Code provides for methods of enforcing it and for an evaluation machinery to find out how far it has been actually enforced. The representatives of the employers and employees on the standing labour committee have agreed to get the Code ratified by their respective organisations before the end of December, 1957. This Code is a significant step forward in the peaceful settlement of industrial disputes in India. The next step, namely an Industrial Truce, is not a big one and would ensure in-

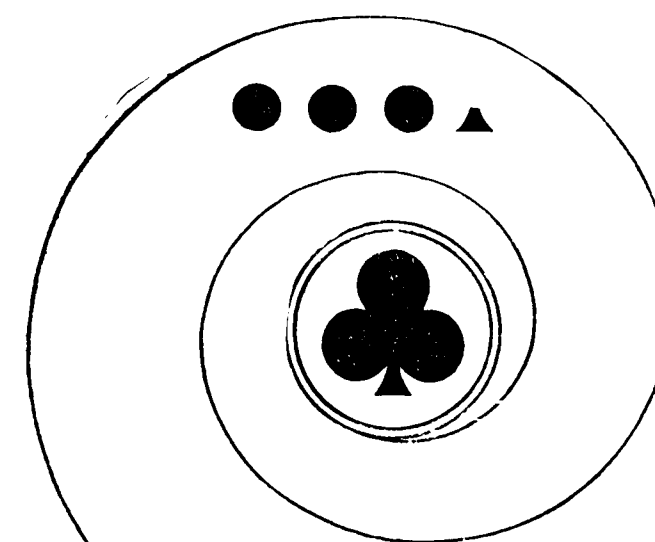
dustrial peace so vital for the success of the Second Plan.

BETTER RELATIONS

In spite of an increase in the number of disputes and the man-days lost as a result of industrial disputes during the past three years the condition of employee-employer relations in India is better than it was three years ago. Now there is a greater realisation both on the part of employers and labour leaders that strikes and lock-outs and other devices do not help anybody and it is better to settle the disputes peacefully. As this realisation gets deep down into the consciousness of 'labour leaders' and employers the industrial relations would undoubtedly improve. Secondly, in the past the Government's labour policy was partial to labour and this irritated and annoyed the employers and made them stubborn in case of an industrial dispute. Recently there has been a healthy change in Government's attitude towards labour problems. Formerly the employers did not have the right to dismiss a labourer even for misconduct or indiscipline unconnected with the dispute during the pendency of a dispute before a tribunal. The Industrial Disputes (Amendment and Miscellaneous Provisions) Act 1956, concedes this right. In the past the employers did not have any effective remedy against go-slow tactics of the employees. Now it

would be considered a cause of industrial dispute and the Code of industrial discipline provides against it. In the past, the Government always appeared to be supporting any claim for wage increase. Now the policy is that while a wage freeze is out of the question the labourers demand for a 25 per cent increase in wages or any increase in wages unless there is an improvement in industrial productivity, or some other such event, is not to be countenanced. This labour policy would inspire confidence in the employers and would keep the labour demands in check. This is calculated to bring about industrial peace.

Finally, there have been a number of far-reaching agreements between employers and employees on a voluntary basis covering the question of wages, bonus, participation in management, etc., in the past three years. Agreements have been concluded between the relevant labour Associations and the Ahmedabad Millowners' Association, the Bombay Millowners' Association, the Tata Iron and Steel Company, the Mysore Iron and Steel Works, the Scindia Steam Navigation Company and the Indian Aluminium Company Limited. It is reasonable to expect that many more such agreements will be made in the future and as their number increases the foundations of industrial peace in India would become stronger.



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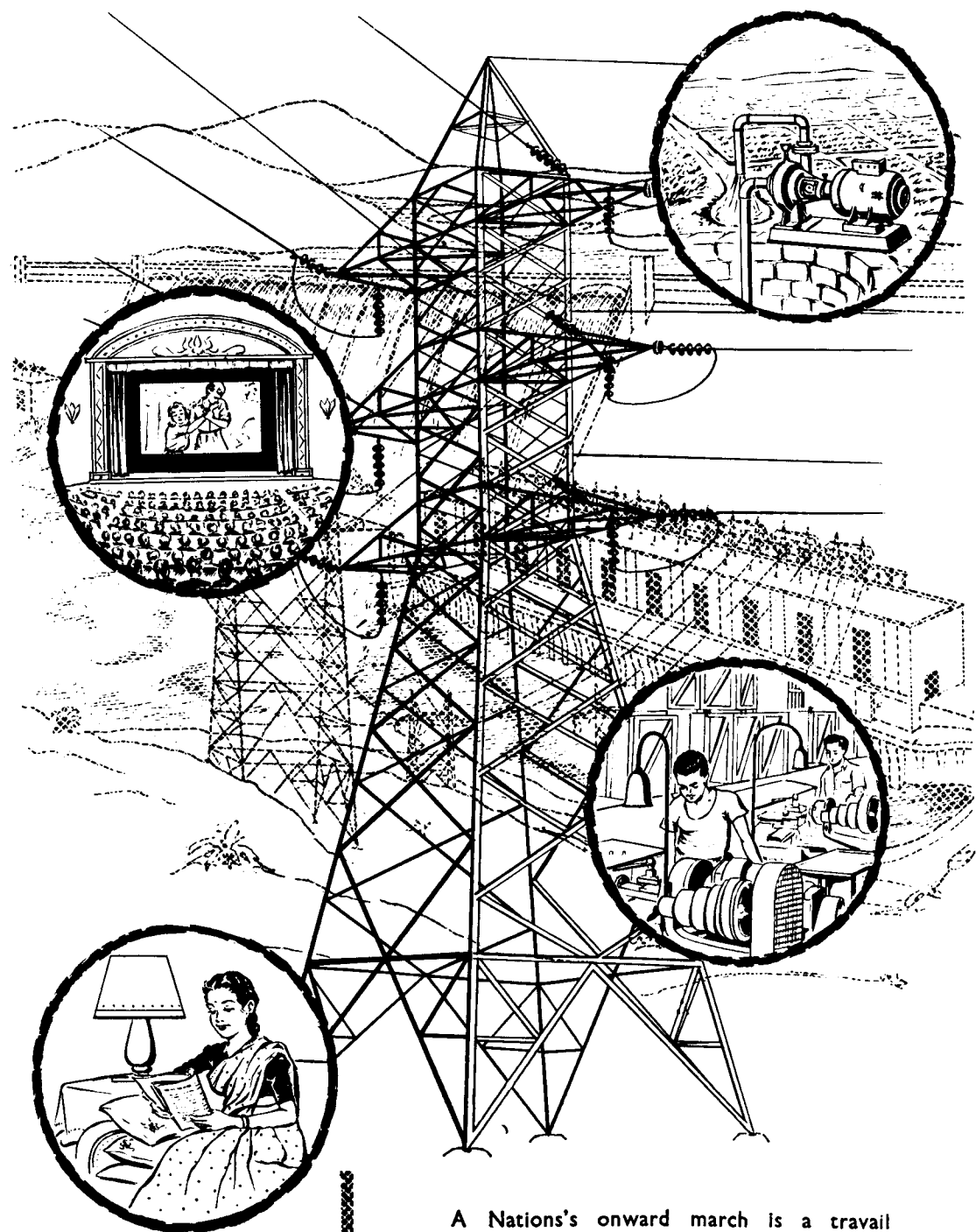
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Electrification of Railways in India

By R. SUBRAMANIAN

PRESENT-DAY art, attempting to portray the future scene, seldom fails to show an electric train as one of the prominent features in it. Electric traction is taken for granted as the accepted mode of land travel in the future. This is becoming increasingly clear as the pattern of world power unfolds. At one time, coal was dominant; now electricity and oil provide much of the world's power: but coal and oil are both wasting assets, increasing in cost and beset with many difficulties of supply. We are seeing a rapid development of nuclear power production, and herein lies the hope of the future for power needs of all kinds, particularly traction.

It is, therefore, but in consonance with world trends in industrial development that the electrification of railways in India is coming to the forefront. The first electric train in India ran on February 3, 1925 from Bombay to Kurla; the following decade saw some fairly extensive electrification round Bombay and Madras. Since then, however, railway electrification in this country has been at a virtual standstill, largely no doubt due to the depression of the thirties and the intervention of World War II.

The exacting demands of the first and second Five Year Plans brought railway electrification out of its period of hibernation. The first Plan increased the real national income by 18 per cent, raised the per capita income by about 11 per cent, laid the foundations for larger-scale industrial development, and paved the way for major steel and heavy industrial production.

CALCUTTA ELECTRIFICATION OVERDUE

The first of the schemes in this Renaissance is the electrification of the railways in and around Calcutta, the first phase of which is nearing completion. This long-deferred scheme assumed mounting urgency with the phenomenal growth of Calcutta's population, following partition, and the tremendous industrial development of the Bengal-Bihar belt. Each of these in itself has constituted, in other parts of the world, adequate grounds for railway electrification.

The population of Greater Calcutta in 1951 was estimated at 10.8 millions, a very large proportion of which lives along the banks of the river and travels to work in the city. The average daily passenger traffic in the two main railway termini of Calcutta is placed at the phenomenal figure of 300,000. It is true to say that nowhere else in the world is such a volume of suburban traffic handled by steam traction, and from this point of view, the steam suburban services on Calcutta's railways are probably unique. Indeed, suburban electrification in Calcutta is overdue by at least 20 years.

The problem is further accentuated by the intense main line traffic which the same railways and

termini have to handle. Calcutta is the entrepot of a rich and extensive hinterland covering a vast territory. The huge coal deposits of Bihar and Bengal coalfields, the iron and steel industry already existing at Tatanagar and Burnpur, and now growing at Rourkela and Durgapur, and numerous other industrial units that have sprung up in this belt, following the planned development of the Damodar Valley and the Hirakud basin, all depend on Calcutta for the export of their products, with the result that the railways from Calcutta to Moghalsarai and to Rourkela constitute vital arteries of the country. The traffic on this route is expected to reach a maximum of 20 million tons a year by the end of the Second Five-Year Plan.

To provide for these increases in traffic, electrification of all the suburban lines around Calcutta and of the main lines to Moghalsarai and to Rourkela was inescapable. Detailed planning on this 960 mile route electrification scheme commenced in 1953, the first phase of which, comprising the 88-mile Howrah-Burdwan Main Line and Tarakeswar Branch, is expected to go into service by the end of this year.

MID-1961: TARGET DATE

The Second Five Year Plan includes a provision of Rs 80 crores to cover the remaining phases of this electrification. The entire work is targetted for completion by mid-1961. A substantial proportion, estimated at about 80 per cent, of the total capital outlay will require to be in foreign exchange, although the progressive establishment of suitable manufacturing capacity in India is expected to give some relief to the foreign exchange requirements.

Apart from the fact that the above electrification has become an operational necessity, the financial results of this scheme are no less important. An analysis of the comparative costs of operation, maintenance and depreciation under steam and electric traction for the traffic expected at the end of the second Five Year Plan, together with an assessment of the increase in revenue due to additional traffic that electrification inevitably brings, shows a handsome overall return on the gross outlay of about 17 per cent.

An electrification scheme of such ambitious magnitude represents a substantial call on finance, a considerable portion of which must come from abroad. The second Plan itself relies heavily on loans from international agencies, trade credits, grants from abroad and private foreign investments. And, at a time when money all the world over is difficult to come by, this country's chances are made more difficult by her policy that she will not take any help that impinges on her neutrality. Even so, the chances are that she will get the finance she needs. To the foreign investor, she conti-

nues to be too big a market, too important an Asian experiment.

It is significant that railway development is retained in the core of the second Plan, immune from the effects of the prunings and rephasings that are being forced on it by the foreign exchange position. One need only look at the cold facts of the dependence of industry on transport to appreciate the wisdom of this decision.

DEBATE ON THE SYSTEM

A review of railway electrification in India will perhaps be incomplete without reference to the much debated choice of the system of electrification. Perhaps no other technological problem in recent years has given rise to the same measure of controversy as this one has.

Briefly, the facts are that, till today, the established system of traction has been the D. C. system, at Voltages varying from 600 to 3000 volts, depending on the traffic conditions of the railway being electrified. Experience with this system, extending over half a century, has established beyond doubt some of its excellent characteristics. This system, however, requires converting substations at regular intervals along the track, for converting the A. C. power into D. C. power suitable for supply to the electric trains.

Attempts have concurrently been made to use the standard 50 cycles high-voltage single phase A. C. power direct on the trains, thus dispensing with the need for converting substations. In spite of a measure of success in this direction, the system remained an indifferent competitor to the D. C. system, because of the difficulties in designing a suitable A. C. motor for traction service.

In 1949, the French National Railways began a series of experiments with high voltage single phase A. C. traction, as a result of which they adopted this system for one of their main line electrifications. This was made possible by developments in rectifier design, whereby the A. C. power, instead of being converted to D.C. on terra firma as of old, could now be converted on the train itself. Other countries such as the UK, Portugal, Turkey, Belgian Congo etc. soon adopted this system.

The real virtue of the single phase A. C. system lies in the large economies inherent to it. As power is drawn directly from the national supply grid, expensive converting substation plant and special transmission lines to feed them are not required. Since the feeding voltage to the contact system could be kept at as high a value as is economic, the overhead equipment could be lighter and cheaper. Under certain traffic conditions, the locomotives on the A. C. system could be lighter and smaller, because of their superior adhesion characteristics.

So much on the credit side; but the debit side should not be over-

looked. The inductive interference due to an A.C. system requires all telegraph and telephone circuits running adjacent to the railway to be cabled; this can be quite costly. The heavy single phase traction loads can cause disturbances on the three phase power supply net-works, calling for expensive palliatives. Heavy alterations to civil works, such as tunnels, bridges etc. may be necessary. Additional maintenance problems are introduced.

Thus, while the A.C. system could truly be said to be the system of the future, its suitability for any particular railway system must be decided on the basis of specific investigations. One must also recognise that this system has not yet reached the same state of proved development as the D.C. system. The choice between A.C. and D.C. thus becomes a question of equating the relative economic and technical advantages of the two systems—in other words, a problem of engineering economics.

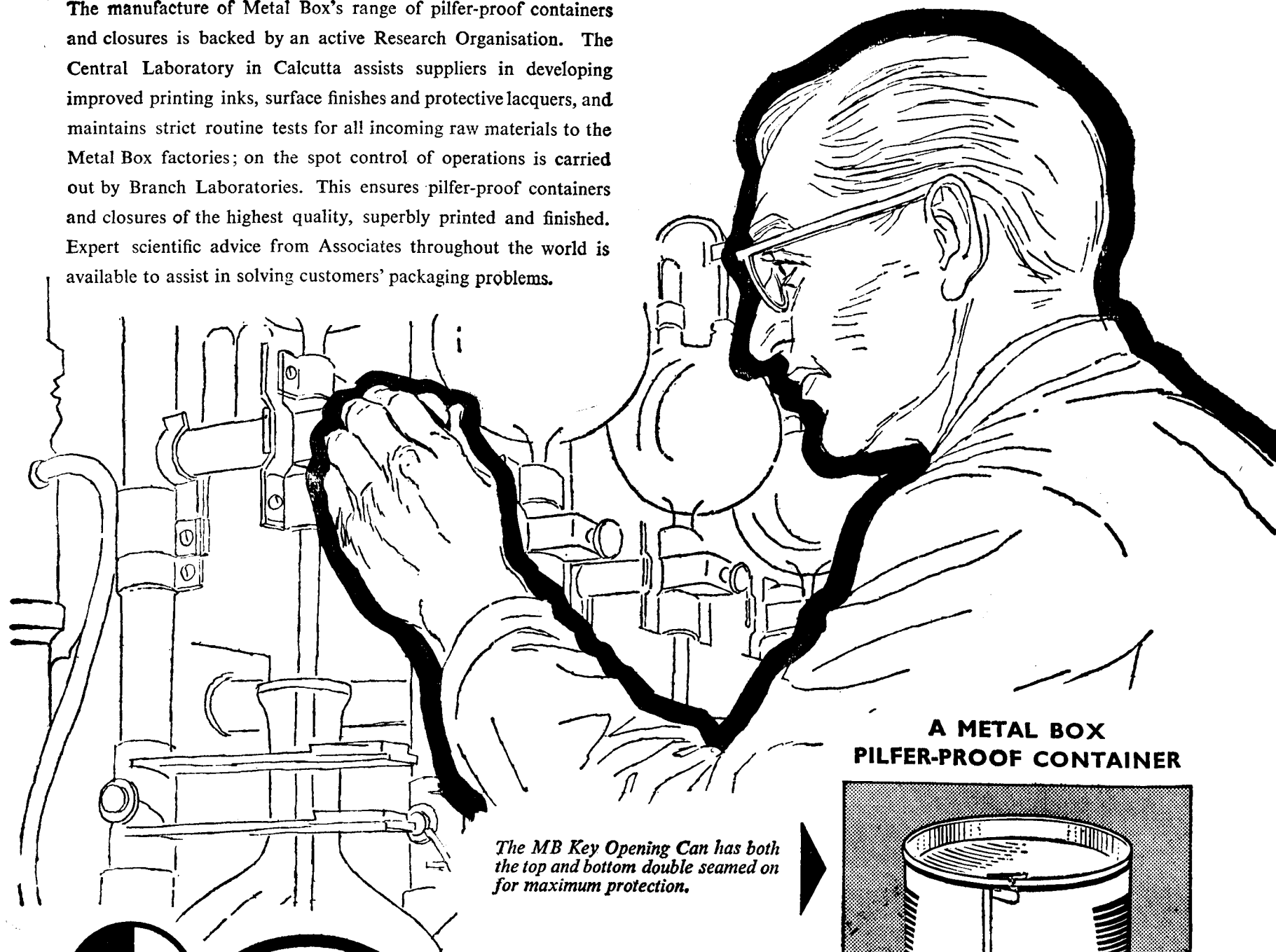
In this context, it would have been preferable if the recent pronouncement of the Indian Railways that all the electrification included in the second Plan would be carried out on the A. C. system had been preceded by an experimental section of electrification on this system. France, as stated earlier, carried out experiments on a short section of line before deciding on its large-scale adoption. Great Britain had an experimental line in service for nearly four years before she made up her mind. Japan is following a similar procedure. No one country has yet an A.C. system in service, covering anything like the mileage that India now proposes to electrify on this system.

That India should adopt the A.C. system of electrification, which is eminently suited to some sections of its railways, there can be no two opinions about; at the same time, there is a good case for a more cautious approach to the problem. In view of the Rs 80-crore outlay that is being contemplated. In any case, the recent suggestions that the original decision to adopt the 3000 volt D.C. system in this country was incorrect do little justice to facts. On a technical appraisal of the problem, there could be no question that, at the time the decision was taken, it was the only sound one that could have emerged.

In the ultimate analysis, however, no matter which system of traction is chosen, railway electrification, as a potential force in economic advancement, has come to stay. On the world's stage, there has appeared, in turn, in the traction scene, animal power, steam power and oil power. Each has performed in various roles; each has at times dominated the transport drama. Now perhaps the scene is set for the final entry of electric power as the greatest star of all. And when this star does appear, there is no doubt that India will be in the front stalls to admire and benefit by it.

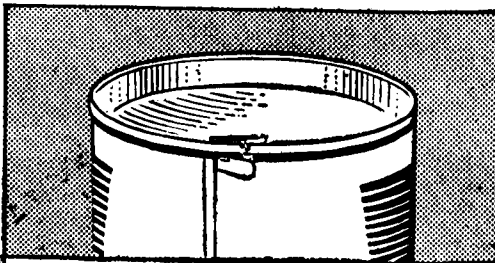
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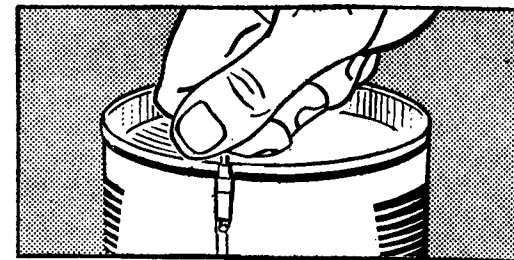


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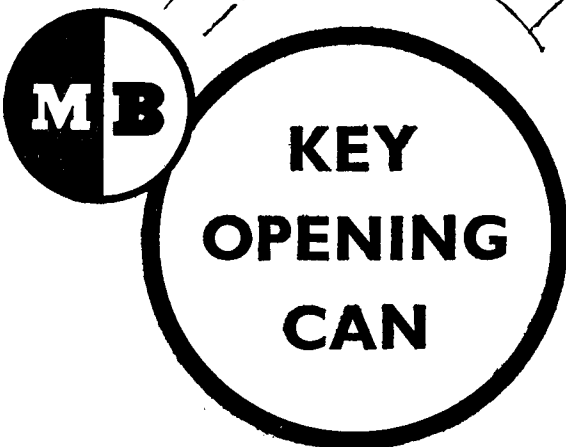
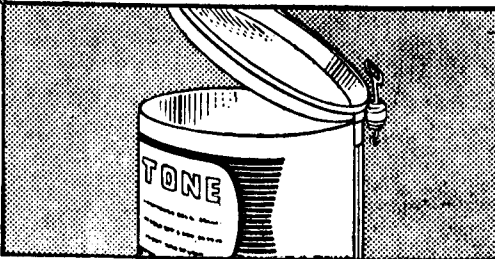
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Tea and the Second Five-Year Plan

By M. K. SINHA

IT seems that tea was quite forgotten in the First Five Year Plan and only belatedly recollected in the Second when a target of 700 million lb. was fixed for its production by 1960-61. The forgetting was however more reasonable than the recollection. For the production of tea was going ahead irrespective of any planning, and such was its exuberance that it had to be regulated lest the crops were too large for the statistical balance of supply and demand. Even under the pressure of regulation the overall outturn touched the 666 million lb. mark last year. So to many the afterthought of the target would appear as an underestimate of the potentials of tea even within the given Plan period. Besides, the bare mention of the target indicates that the expansion of tea output does not require any annotation or elucidation other than that 500 million lb. was for export and 200 million lb. for internal consumption.

It is not easy to understand the implications of the reference made in the Second Plan, and so it may be explained, though the explanation is a personal responsibility of the present writer. The export of tea already hit the 500 million mark twice,—once in 1953 and then again in 1956. In such a case, the target would seem to be superfluous. But probably the Plan reference means not a "hit or miss business" as the export figures would now suggest, but a steady level from which there would be no lapses. Taking the average of exports in 1950-53, the level was at 427.3 million lb. and that of 1953-56, 438.3 million lb. The lift to level 500 million lb. from this latter figure should not be easy, and must require additional efforts. In the same way, the production level, assessed on averages, is for 1952-56 (5 years) 640 million lb. and for 1954-56 (3 year period) 657.8 million lb. Whether the increase of production to steady 700 million lb. is a tough job for the industry or not cannot be said at present; for production itself is going to be an unpredictable business in view of the fact that a large percentage of the existing tea bushes are pretty old and long past the bearing capacity of their prime.

INTERNAL MARKET

The Plan refers to an allotment to be made to internal consumption which is 200 million lb. Here measurement is likely to be just a guess because internal consumption has never been accurately measured, nor any apparatuses for scientific measurement have been devised. The Tea Board's Statistics (from which the figures are borrowed here) put the consumption at 167.2 million lb. for a population of 371.0 million in 1955 and 213.2 million lb. for a population of 374.6 million in 1956. But obviously these consumption figures are derived by the oversimple method of subtracting exports from the aggregate outturn, and indicate the pressure of exports rather than an expansion of the popularity of tea. The Plan may

therefore be easily imagined as having adopted an equally arbitrary figure for internal consumption by following the same facile method of calculation.

In so far as the marketing of tea goes, that seems to have been institutionalised in the course of these one hundred years. The supplies are made through the auctions at Calcutta and Cochin in the first instance, and then they flow into several distribution channels to the consumer. The distributors start their operations at the auctions, and they are either wholesalers or retailers. There may be some exceptional cases where the producers would take over distribution at wholesale or retail level. Generally, the Trade takes over where producers leave it, namely at the auctions. And Trade has to provide for not only the actual consumption during a period but also to carry some stocks of different varieties of tea all the time beyond the period to be able to moderate the price fluctuations, come across at the auctions. Obviously, the so-called consumption figures mentioned above include the stocks carried and if so the supplies to consumption actually made should be much less than these figures.

SOME INTERESTING DISCREPANCIES

In the auction reports one finds teas sold in the export market and teas sold for internal consumption. One may run away with the idea that if the latter are added up, these would give the total of supplies to the internal market. But then in the first instance mostly dust teas are sold in the internal catalogue and a very much limited quantity of indifferent leaf grades. The total of such sales is given year and season wise in the following table:

	(in million lb.)		
	Cochin	Calcutta	
1954	7.1	108.8	
1955	9.6	78.1	
1956	10.3	78.9	

From the total of each year or season a small fraction of dust is exported also. So the supply to the internal market through the specific sales to internal consumption may be hardly enough, they are even less than one half of what is supposed to be consumed. Evidently, therefore, there are supplies from the export market as also from outside sources. It is well-known that two of the biggest internal distributors buy at the Calcutta Export Auctions, and they are certainly no exceptions. The internal distributors not unfrequently lend strong support to the export market when outmarket buyers are lagging. So more than one half of the teas going into the internal market come from the export market, and so involved in some very interesting and possible movements, one of which is that, prices favouring some of these teas may be exported or resold to shippers, while the business may be utilized for ensuring profits, first by selling the quota rights purchased

with the export teas, and secondly, without making proper and full deductions for the recoveries made by selling the quotas.

PRICE MOVEMENTS IN INTERNAL MARKET

The price movements in the internal market are not also easily followed. The distributors buy teas almost equally in the export and the internal auction markets. The quotations in these change from week to week. It has been found that the prices in the so-called sales for internal consumption are equal to contemporaneous prices in the export market minus the current price of export quota. How and why this happens cannot be explained, seeing that dusts are mostly sold in the internal catalogue and usually dusts are not exported in any appreciable quantities. If so, the prices in these sales should rather move to the pressure of demand and supply of the internal market or home consumption. Yet, in practice, it is the prices of the export market that would seem to give a lead to those in the internal catalogue sales, that is, sales without the export quota.

As it is not known how the internal traders make up their blends, one has got to take them at what they state about the just or unjust retail prices at which consumers buy tea. If, however, the auction prices of the sales for internal consumption are taken and the retail prices of loose and packet teas, one comes across such a picture as the following:

(Monthly average in Rs. as. and pils per lb.)

	Highest	Lowest
1954	2-9-0	1-13-0
1955	2-10-7	1-11-4
1956	2-6-0	1-9-9

Against these prices, those of loose and packet tea are given below:

	Loose		Packet	
	Highest	Lowest	Highest	Lowest
1954	2-15-6	1-6-1	3-8-8	2-13-11
1955	2-15-1	2-6-9	3-8-10	3-5-0
1956	2-9-0	2-6-9	3-4-8	2-10-9

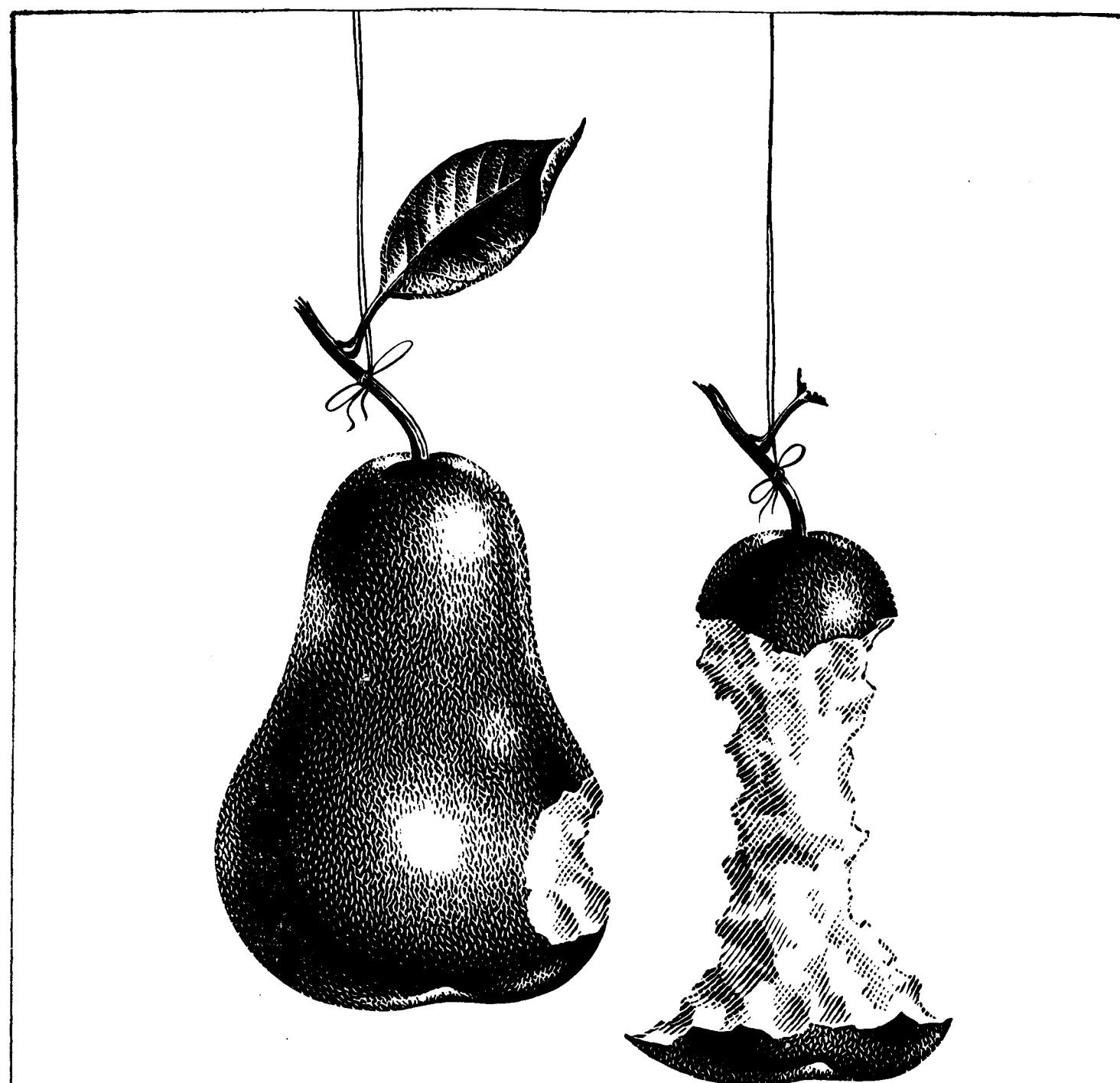
These Tea Board statistics are derived probably from the information supplied by the retailers (the wholesalers have given their own figures) but they are not verifiable in actual market where the most ordinary common thin liquorin; tea, with some sprinklings of stalks and residues, costs at least Rs 2/- and teas of medium to good quality not less than Rs 3-8/- in loose form and not less than Rs 4/- in packet form.

HAS THE PLAN AFFECTED INTERNAL MARKET?

As already stated, the Plan, after having indicated the target, has left the tea industry and trade alone. In such a case, the influence, or impact of the Plans, first or second, cannot but be indirect. If at all, the Government have been only feeling the ground and seeking enlightenment through misleading enquiries and reports, of which the Plantation Enquiry is an example par excellence. What the Tea Board has been doing is no more

than fulfilling some of its statutory obligations in its own way, which may not be the way of the producers or traders or of the Plans. The only immediate impact is that of the increasing solicitude for foreign exchange with the necessary emphasis on exports. It is not likely that the investigations that have been going on rather intermittently into the state of production or the Tea Board's activities are in any way connected with the Plans, nor all that is being done for promotion or regulation of tea trade. Apparently, the idea is that the industry and trade can take care of the business in tea under any conditions, which is to a certain extent true. But it might be possible for the Government to help reorganizing the industry by doing something about the very small holdings and the uneconomic units, and to find a way to financing the necessary replantation in consultation with the producers. If anything at all the impact of the first Plan has been to lend an impetus to the consumption of tea through certain favourable conditions, namely, more new industrial centres where workers and employees concentrate, and by providing increasing facilities for communication and contacts; for it must be remembered that the most fruitful medium of the diffusion of the tea habit is social intercourse graced by tea and tea parties and tea festivals. As conferences and committees have grown into almost a habitual feature of the present day social and political activities also, these may be said to be helping the cause of tea to a certain extent, though one doubts if tea is the only drink to which these are confined. Yet, such opportunities for increase of internal consumption of tea are being thrown away, first because not very good tea is supplied to the internal market, and secondly, the quantities that are supplied are conditioned by the exigencies of export. The fact that the Calcutta auctions have been expanded appreciably during the past three or four years does not appear to have made any great difference to this situation.

Probably if more tea and good tea were available at prices less than what are being charged these days for a pound of tea in the internal market, the consumption would increase and the internal market would have organised itself into a number of competent distributing agencies instead of being atomistic and yet exploitative. Large investments in distributing business are unusual for Indian traders in this market and the Plans have not created any new favourable conditions for such investments. Nor is the necessary enterprise forthcoming. But for any such change there must be in the first instance much more tea and good tea produced, and "there's the rub", to use Shakespeare's phrase. How can the internal market expand at a fair rate and the internal trade organise, when the supplies are uncertain from year to year?



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Road Transport and the Transport Gap

By A. D. WENZEL

AMONG the most important problems facing India today, that of providing adequate transport facilities for the needs of our Second Five Year Plan assumes greater urgency as each day passes. The latest body to focus attention on this subject is the Export Promotion Committee whose report was published a few weeks ago. There have often been complaints from exporters, says the Committee, that on account of export consignments having to take their turn for movement from inland centres to the ports, shipping space has been lost and contracts cancelled. Further, referring to the two principal metallic ores that India is in a position to export freely, namely iron and manganese ores, "the only limitation on our ability to export these items" remarks the Committee "is that set by transport facilities within the country".

What is the magnitude of the gap between our transport needs and their availability? The Railway Administration some time ago assessed the total volume of internal long distance transport needed by the country by the end of the Second Plan at 200 million tons but unofficial estimates place the figure at anything up to 270 million tons. In view of the additional imports of foodgrains and of certain other goods decided upon since the framing of the Second Plan, the increases effected in production targets for various items, the drive for additional food production and lastly the transport needs involved in carrying food to scarcity areas because of the failure of crops in parts of the country, a realistic estimate of our needs will perhaps be around 215 to 220 million tons per annum. Of this traffic, if railways are able to carry 180 million tons as they are now attempting to do, there will still be a deficit of 35 to 40 million tons to be carried by alternative modes of transport.

It is acknowledged on all hands that of the two alternative modes of transport to be considered, namely, water transport and roads, the relief that can be expected from the former is very limited. With a total capacity to carry no more than 8 million tons at the beginning of the Second Plan the optimum development in water transport in the plan period cannot increase its capacity by more than 5 million tons. The net result is that the Second Plan depends for its success on increasing the capacity of road transport to carry 30 to 35 million tons of long distance traffic.

It is pertinent to note here that according to the Planning Commission we had a transport shortage of only 5 million tons in 1955-56. Because of this shortage there was continuous dislocation of transport throughout the First Plan. Goods used to lie accumulated in factory yards and godowns while the markets were running short of goods, supply dates could

not be kept up, and our export trade reputation was adversely affected. Many industries in the country had to go slow with production because of inability to transport raw materials. Almost pathetic were the appeals from the sugar mills, paper mills, coal mines, manganese mines and also from the many industries which could not get the coal they needed in time. Road construction was also affected by this transport shortage. If all this could result from a deficit of 5 million tons in the country's transport capacity how much worse will be the situation arising from a shortage of 30 or 35 million tons during the Second Plan? Unless road transport is expanded, and that too rapidly, we shall be up against a situation which will affect the entire structure of our economy.

About the ability of road transport to meet the country's needs, there need be no doubts. One fact will bear this out. Per mile of road in existence, the number of motor vehicles in use varies from 6 to 25 in western countries. Against this we have one motor vehicle per mile of road in India. Therefore our roads can safely carry six times the present intensity of traffic. What is necessary to bring this about is to remove the artificial curbs imposed on road transport and to meet its needs with the same sympathetic care and attention as is now bestowed on railways. If this is done the cost of haulage by road can be brought down to the same level as that of railways and the consumer will be able to use the road as freely as he has been using the rail hitherto.

It is pleasing to record here that the Government of India in the past few months have shown a most welcome awareness of the needs of the present situation and have set in motion certain steps which if whole-heartedly supported by State Governments can solve the transport shortage before its pinch becomes very severe. Much however remains to be done. We shall review briefly some of the steps already taken and suggest how, to be successful, they need to be supplemented by additional measures.

Among changes of a noteworthy nature which have taken place this year in the Government of India's road transport policy is that the former Railway and Transport Ministry has been split up into two, one in charge of the Railway Minister, and the other in charge of the Transport Minister who deals with road, sea, air, and water transport. The Transport Ministry also deals with communications like posts and telegraphs etc. The bifurcation is calculated to free road and other transport systems from the domination of the railways which are a Government monopoly. With the bifurca-

tion, road and other forms of transport will get an equal hearing at the highest level in cabinet discussions. It will inevitably contribute to expansion of the road transport industry in which the private sector will now have a rapidly increasing scope for investment.

Another indication of the change in the policy of the Government of India towards road transport is the amendment of the Motor Vehicles Act of 1939. The original Motor Vehicles Act was meant to prevent road transport competing with railways, check its expansion and put an end to inter-State transport altogether. The amended Act is meant to serve exactly the opposite purpose. It is meant to foster development of inter-State transport and put on the road as many trucks as possible so that they can cope with the transport shortage under the Second Plan. The amended Act provides for the appointment of an Inter-State Transport Commission whose responsibility it will be to devise ways and means to expand road transport. It is time, however, that the Transport Ministry announced the personnel of the Transport Commission. The Regional and State Transport Authorities, appointed under the original Act, have not still imbibed the spirit of the Central Government's new policy. Some of them still operate as if it is their duty to restrict the number of public and private carrier permits and they refuse to give them to new applicants. The Regional Transport Authorities should be corrected in this matter, and urgently. It is also necessary that the Transport Ministry should withdraw the Code of Principles and Practice framed under the Motor Vehicles Act prohibiting long distance services. The entire tone of the Code is inconsistent with the changed road transport policy. It was meant to restrict the growth of the road transport industry and now the policy is to expand it.

Yet another step taken by the Central Government to encourage the road transport industry is the passage of the State Bank of India (Amendment) Bill. The amended Act enables the State Bank to grant loans for purchasing new vehicles. This is very necessary in view of the fact that private investors engaged in the industry do not have the financial resources to meet the increasing cost of motor vehicles. Before the last War a goods truck could be purchased for Rs 10,000 and now it costs Rs 20,000 to Rs 30,000. An average operator owns about two or three vehicles and cannot buy new ones because of their high cost. The loans from the State Bank will enable him to do so. An owner of two or three trucks cannot command adequate workshop and technical resources. It is therefore the Government's

policy to encourage the operators to pool their resources and form co-operatives. All this should be most heartily welcome to the road transport industry. A major handicap on road transport today is the absence of 56 major bridges and a large number of minor bridges on our National Highways. The lack of these bridges severely limits the use of the highways. Even as the situation stands today our roads are not put to even a fraction of the use made of them in Western countries. With so many bridges missing, our highways cease to be efficient carriers of inter-state transport.

These bridges must be built as soon as possible in the interest not only of road transport but of the second Five Year Plan itself. However, development of road transport need not wait till all these bridges are completed. Wherever there are missing bridges arrangements can be made at the nearest railway station for hauling loaded trucks in railway wagons and transporting them beyond the bridges from where they could again travel by road. This system, known as the piggy-back system, is quite common in Western countries. Even in India it is prevalent at two or three places and its use should be extended to all spots where the bridges are missing today. Such an arrangement would increase the efficiency of road transport and thus help its expansion.

Some other measures are necessary to encourage vehicular traffic. For example, at present there is no uniformity in the amount of load that a particular vehicle can carry. It differs from state to state and in some cases from district to district. Experts have shown that most of these roads can bear 50 to 100 per cent more of laden weight than is permitted. There is little sense in being overcautious at the cost of a perpetual loss to the industry and the nation, and a standard increase of 50 per cent of the present laden weight should be effected immediately and the limit fixed at 27,000 lbs. for a 2-axled vehicle. The transport cost can be further brought down by the use of truck-trailers, which is quite common in the United States and many European countries. This will bring down the cost of transport by as much as 30 to 35 per cent.

The high level of taxation which motor transport in India has to pay has been largely responsible for cramping its expansion. Taxation on road transport is levied today by everyone who has the authority to do so, namely the Central Government, the State Government and local bodies and Municipalities. Figures prove that nowhere in the world is road transport taxed so heavily as in India. The average incidence of tax on a motor vehicle, inclusive of

tax on petrol, tyres etc. works out to Rs 2,070 in India against Rs 800 to Rs 1,500 in European countries. The tax incidence per ton-mile by road is more than the average freight rate charged by railways.

What is worse, the whole tax structure is chaotic and in some States it has reached the stage of diminishing returns. The Central Ministry has now laid down that there should be no further increase in taxation in the States and that it should be brought down to 3/5ths of the present level of taxation in Madras. It is to be hoped that the Central Ministry will persuade the States to carry out this directive. But frankly this is not the best way to go about it. There should be an all-India policy on taxation of motor transport as there is for railways, shipping and air services. This will establish uniformity and end the present chaos. The various States may then be allotted their shares ac-

cording to the number of vehicles registered and the petrol consumed in the States.

The threat of nationalisation of road transport has for some years past scared away fresh investment in the industry. The Central Transport Ministry has now issued a directive to the States that there should be no further nationalisation of goods transport till 1961. This is quite welcome but the period is still too short for attracting large-scale investments. I would therefore suggest that Government should leave goods transport permanently for the private sector, or at any rate postpone nationalisation for a couple of decades.

Now that the Central Government has made it its declared policy to encourage expansion of automobile transport and for this purpose separated the Railway portfolio from that of other transport system, it is necessary that similar road and road transport

Ministries should be set up at State level so that they may be able to devote themselves exclusively to the task of bringing about rapid expansion of the road transport industry. Every transport system in India has its policy body. The railways have the Railway Board, shipping has the Director General of Shipping and road transport is going to have its Inter-State Transport Commission. It is now highly desirable that there should be an independent set up that can co-ordinate and correlate the growth and expansion of all the transport systems. In the absence of such a body the railways which are a State monopoly will always come in the way of other means of transport. Above all the Government of India should accept the declaration made by the International Chamber of Commerce on giving equal opportunities for expansion of all means of transport. This declaration has been accepted

by all the progressive European nations and should be adopted as a permanent policy of the Government of India. This will prevent the interest of the transport users being sacrificed to serve a particular transport system.

Before concluding it is useful to remember that expansion of road transport will also help in mitigating the problem of unemployment. By the end of the Second Plan India will need roughly two lakhs of additional commercial vehicles to cope up with our transport needs. These vehicles can provide employment for nearly 12 lakhs of extra hands. All the railways in India today combined have on their payroll 10.27 lakhs of workers. Road transport, carrying only a fraction of the freight that the railways do, thus gives more employment than the railways. This is an aspect which should receive serious consideration in deciding our future transport policy.

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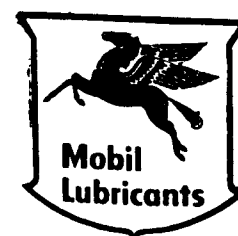
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V. 4900 (6)

The Transition from the ICS to the IAS

By Dr. N. DAS, I.C.S.

NEARLY eleven years ago, on the eve of India's independence, the fear was expressed—at least in certain quarters—that the attenuated administrative personnel, particularly in the civil services, would not be able to cope with the diverse and complex problems facing the country. Firstly, there were the problems caused by the partition of the sub-continent and the movement of displaced persons from across the border. Secondly, there were the problems of shortage of food, clothing and other necessities of life, created mostly by World War II. Thirdly and finally, there were the problems posed by the desire of the people to develop their country as rapidly as possible and to make at least a beginning with a Welfare State.

Aware of the magnitude and complexity of the situation, the new Government took early steps to assure the members of the Indian Civil Service who had chosen to stay on (almost all Indian members had opted to continue under the new scheme of things and a few European members had also stayed on) that the safeguards and special rights they had prior to August, 1947, would be continued and that their salaries and emoluments, both during actual service and after retirement, would be protected. The late Sardar Patel was the great champion of the I.C.S. and when the article in the Indian Constitution relating to special safeguards for this service was being hotly debated in the Constituent Assembly, he stood up and said that if the safeguards were not accepted, he would walk out of the House. The Assembly eventually ratified the article.

CREATION OF IAS

Yet, it was obvious that these special privileges could not continue indefinitely. Moreover, the I.C.S. cadre was being depleted by retirement, death or resignation. On the other hand, the demand for additional administrative personnel was increasing by leaps and bounds every year. Government, therefore, created the Indian Administrative Service, patterned more or less on the Indian Civil Service at least in so far as the methods of recruitment and training were concerned, but with lesser pay and minus some of the 'safeguards' enjoyed by members of the I.C.S. To remove the artificial distinction between the two wings (I.C.S. and I.A.S.) and to promote a sense of unity and brotherhood, however, the combined cadre was called the Indian Administrative Cadre. Recruitment to the I.A.S. was, and still is being, done by three methods—(a) open competitive examination conducted by the Union Public Service Com-

mission, (b) selection of officers of a higher age group by Special Recruitment Boards, and (c) promotion from the State Civil Services.

After a decade of inauguration of the I.A.S. as a cadre to supplement, and ultimately to supplant, the I.C.S., the question is naturally asked whether the transition has been a smooth one. A further question is whether the "traditions" of efficiency and incorruptibility which the I.C.S. was said to have are being maintained by the I.A.S.

The reply to both the questions is definitely in the affirmative. The very fact that the country has successfully solved the problems created by partition and World War II, has completed one Five Year Plan and launched a second one and is now recognised as the most stable democracy in the whole of Asia, proves that the administration has done well. Of course, this "success", if it can be so called, has been due no less to the dynamic political leadership of Mr Jawaharlal Nehru and his able colleagues, both inside the Cabinet and outside it. But, silently and behind the scenes, an increasing number of I.A.S. personnel have stepped in to perform difficult assignments and translate into the details of administration the policies laid down by a democratic Government, viz., to step up production, eradicate unemployment and create a more egalitarian society.

THE POWER OF THE ICS

There is, however, an important distinction. Prior to independence, members of the I.C.S. had to work in an entirely different environment. The entire Government was bureaucratic in character, tempered at best by a kind of paternal benevolence, and the civil servant functioned, as it were, from inside a glass house. Even as late as 1937 (by then a considerable devolution of power had taken place under the Government of India Acts of 1919 and 1935), Lionel Curtis observed that the I.C.S. was still the real Government. The members of this body held and occupied all key administrative positions under Government and, even in the Provinces, they had the power, with the assistance and support of the Governor, to determine the policy of Government. Although the number of Indians admitted into the Service increased gradually until it reached a 50:50 ratio with the British membership, most of the positions of trust and authority were held by the British element. Moreover, the "system" was such that it was not possible for the average Indian member to behave differently. "Traditions of irresponsible power associated with the I.C.S., the great emolu-

ments it offered, out of all proportion to the general income of the people from among whom the Indian members were recruited, and the artificial life which these Indian Officers were expected to live, cut them away almost entirely from their old social moorings and separated them almost wholly from their own people."

World War II and the ever increasing tempo of the struggle for independence, however, brought about a certain measure of change among the Indian personnel of the I.C.S. even before 1947. They became acutely aware of the divided loyalties gnawing at their conscience and, during this period, some of them came into open conflict with the Government of the day. It was, therefore, with a sigh of relief that they welcomed a popular Government installed at the Centre even before the formal transfer of power.

FUNCTIONS OF THE CIVIL SERVANT

It may be recalled that until the twenties of the present century, the main functions of the civil servant in India were the maintenance of law and order and the collection of land revenue. To

these were gradually added the supervision of local bodies (panchayats, union boards and district boards), the co-ordination of certain developmental activities which were being undertaken by Government almost by the inexorable logic of events, and the initiation of rural uplift programmes. The District officer, generally a member of the I.C.S. and occasionally a promotee from the Provincial Service, was the pivot of the administration and it was through him that the prestige and authority of Government were transmitted. The common people looked up to him not merely as the custodian of law and order, but as the dispenser of favours of various kinds. If, in these circumstances, members of the I.C.S. developed a kind of arrogance and became self-complacent, it was unfortunate, but perfectly understandable.

The attainment of independence, however, brought about a revolutionary change in the entire situation. Although the District Officer still continued to be the linchpin in the administrative system, he could no longer function as a bureaucrat standing aloof from the people. It was through him that the ideals and

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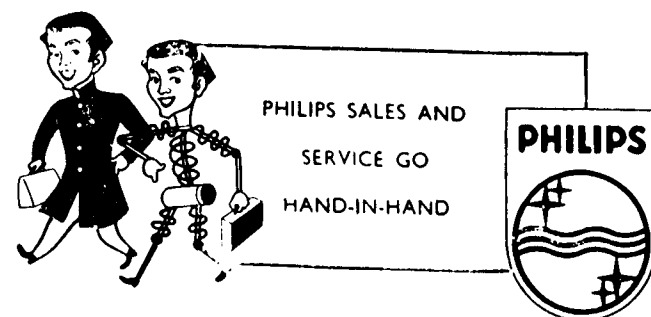
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aspirations of a democratic Government had to be transmitted in the various fields of economic and social development and, in the process, his angularities and idiosyncracies, if any, were inevitably rounded off.

INITIAL ADVANTAGES OF IAS

In so far as the members of the I.A.S. are concerned, they have had some initial advantages over their colleagues in the I.C.S. They have not been "suspect" in the eyes of either the political leaders or the people; they have been drawn to a much larger extent from the lower middle classes than their predecessors; and they have had the opportunity of starting their career in an atmosphere surcharged with faith, hope and courage.

On the other hand, they have had some handicaps also. The I.C.S. was still being considered the epitome of efficiency and many people were sceptical about the administrative ability of the new recruits. Secondly, it was even whispered that, with their lower salaries and emoluments, they might succumb to temptations of various kinds. Finally, it was assumed that, lacking the safeguards which the I.C.S. had, members of the I.A.S. might not be able to maintain that independence of outlook and thought which was essential for good administration.

We now know that most of these fears have been belied by the march of events. While it is true that tradition does influence human attitude and behaviour, it is also true that neither efficiency nor integrity rests with a particular cadre as such. If one hears more of corruption these days than, say, fifteen or twenty years ago, the explanation lies in the fact that, with the considerable increase in the sphere of governmental activities, including various forms of control, opportunities for the exercise of corruption, patronage and influence have increased beyond measure at all levels. Moreover, as was pointed out by Mr. A. D. Gorwala in 1951 in his Report on Public Administration, the very structure of the government has undergone a revolutionary change since 1947: having been stripped of its bureaucratic character, it has become amenable to pressure from outside at various points. In the process, it has often been difficult for the civil servant (whether he belongs to the I.C.S. or to the I.A.S.) to remain unaffected.

"AMONG THE BEST"

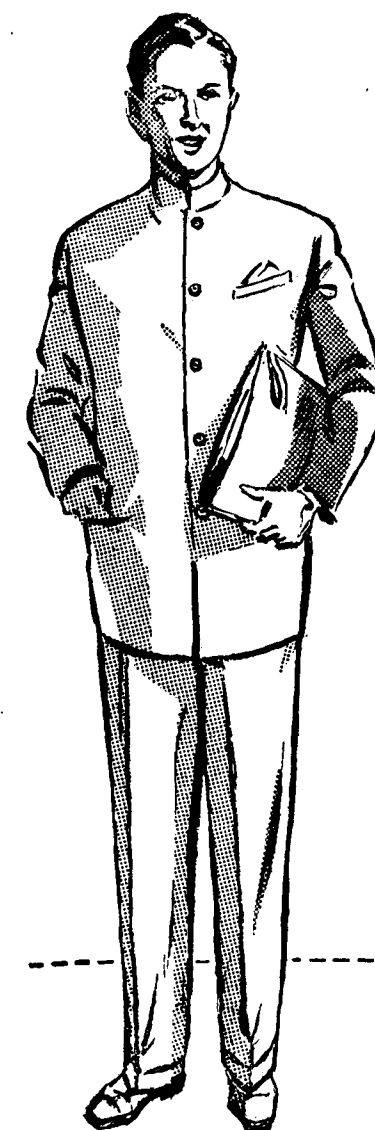
In this connexion, we may recall certain general observations made by Mr Paul H. Appleby, Ford Foundation Consultant, in his Report on Public Administration in India, issued in 1953. In his opinion, while there was room for improvement in many directions, the administrative structure in India was among the dozen or so most advanced in the whole world. Even at that time, the administration consisted of only a few I.C.S. officers at the top; the biggest

brunt was being borne by their successors—members of the I.A.S.

It would be useful to recognise certain fundamental facts. Administrative machinery and methods cannot be considered in isolation of those who use them. The interplay between Government and administration is continuous and unremitting, the quality of the administration being affected, to no small extent, by that of the Government. "Government for its part derives the main features of its strength or weakness from the character of the people, their leaders and the nature of the prevailing political set-up. Since administration has to be considered not merely as a machine but as the vital instrument through which a democracy carries out its policies, its organic connexion with the body politic in general and with the Ministry, parties and legislatures in particular cannot be ignored."

The urge for development, the emphasis on a socialist pattern of society and the need for setting up a Welfare State in the quickest possible time present a challenge to the administrative personnel in India today—a challenge which was almost unknown prior to 1947. The traditional concept of the neutrality of the civil services has to be viewed in this context: the civil servant cannot afford to remain absolutely neutral, as he is vitally concerned with the attainment of these objectives. On the other hand, the growing complexity and variety of problems and the magnitude of the adventure have thrown on the administrators of today a much heavier burden of responsibility than ever before. If, as a result, there have been occasional lapses, these should not lead to nostalgic reminiscences of the "good old days" occasionally indulged in by retired members of the I.C.S. or to the drawing of un-

favourable comparisons between the two sets of civil servants. Instead, there should be a probing into the causes which occasion complaints in regard to alleged deterioration in the level of administrative ability and talent. More often than not, the "deterioration" is due to the shortage of personnel and to certain operational methods inherited by India from the British rulers, and not to any inherent defect in the personnel themselves. As has been pointed out in a report of the U.S. Commission on Organisation of the Executive Branch of the Government, administrative ability, in simple terms, means "the capacity to understand and direct the work of others, to accept responsibility, to exercise good judgment in making difficult decisions and to give confidence to others in trying circumstances." It cannot be said that the I.A.S. has been showing this ability any less than the I.C.S.



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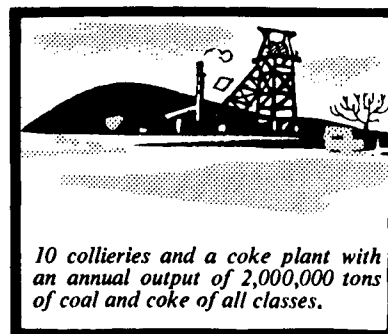
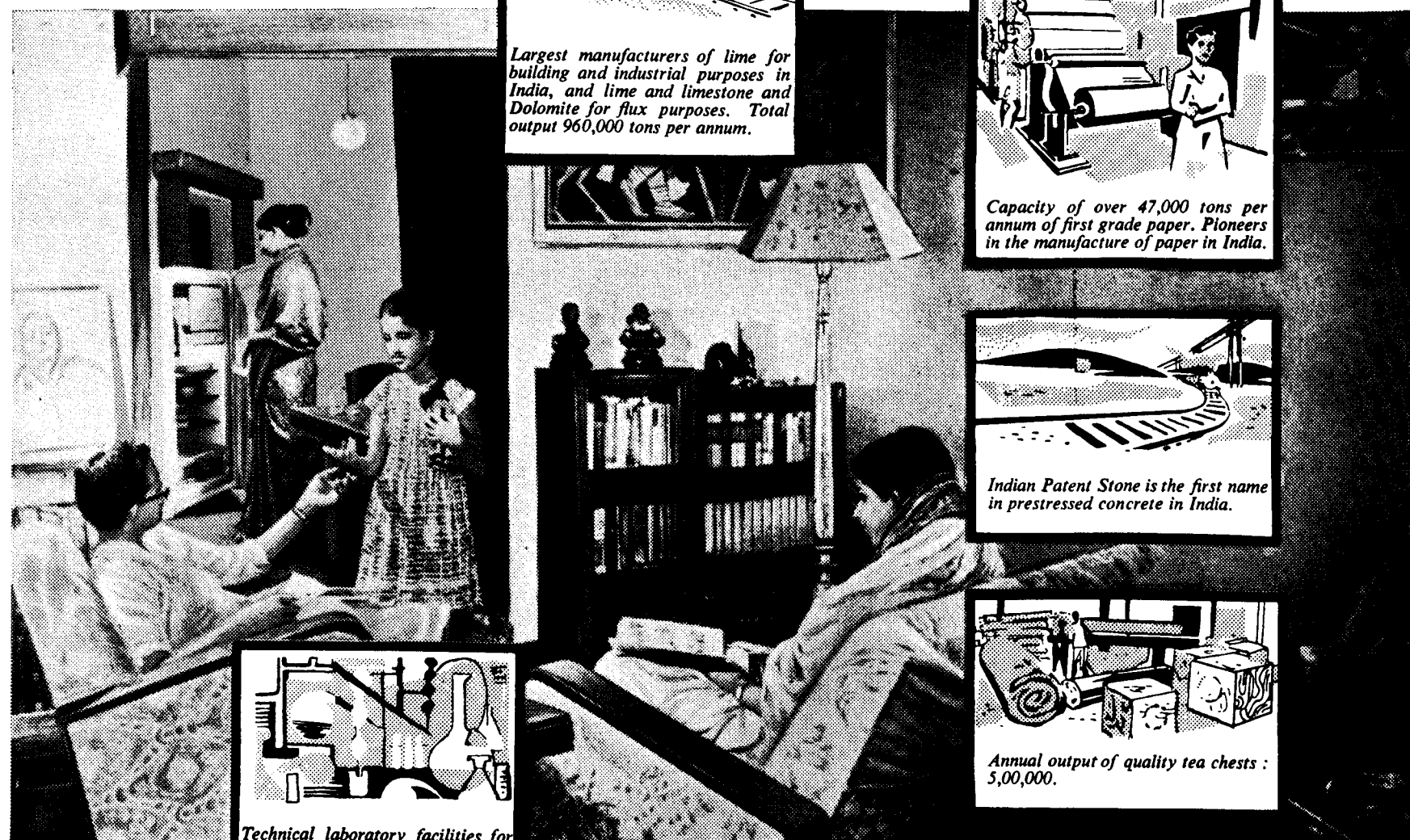
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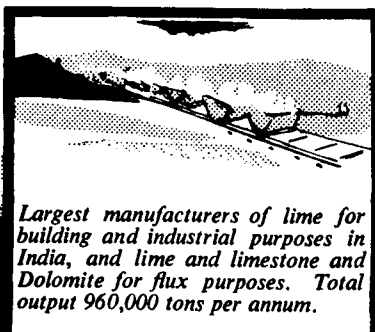
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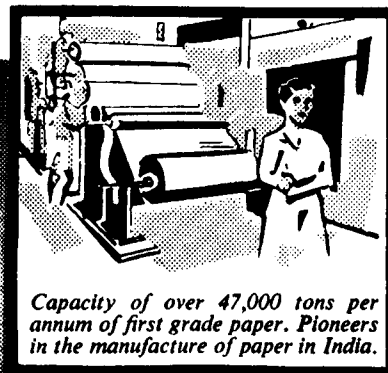
This is not a wealthy family, yet it is happy and contented. Father has a good job, mother has time to relax and entertain friends, and the children are getting a good education. Their comfortable home has amenities which, a generation ago, were privileges of only the rich.



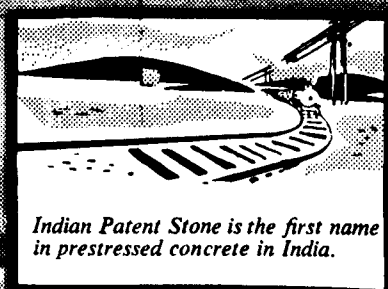
10 collieries and a coke plant with an annual output of 2,000,000 tons of coal and coke of all classes.



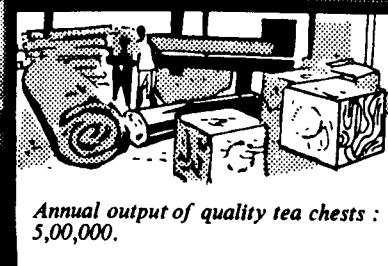
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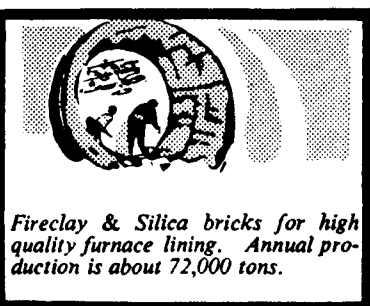


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Land Reforms in Planned Economy: Two Divergent Phases

By Professor S. KESAVA IYENGAR

DIFFERENT CIRCUMSTANCES: DIFFERENT PATTERNS

LAND reforms have been on economic grounds in some countries, on social grounds in some other countries, and on both in still others. The necessity for land reforms depends on the degree of mal-adjustment between the social structure and the pattern of employment in agricultural land. One is reminded of the couplet:

"Let forms of government
fools contest,
What is best administered
is best"

Walchand Nagar is an example for highly productive and humanitarian capitalist farming. At the other end, betel leaf gardens near Nizamabad are instances of peasant farming with a very high standard of intensive cultivation, the average holding consisting of a few guntas (40 guntas=one acre). Tenants and agricultural labourers are generally happy, working in small gardens in the Mysore Malnad. The gross mismanagement and huge unearned incomes of zamindars and jagirdars led to their extinction round about 1950. Malabar Tenancy Legislation has had a long history on account of the tug-of-war between the landholders and the tenants. Communist pressure brought about the universalisation of tenant purchase in Khammam District.

SOME BASIC FACTS

Some basic facts of the agricultural economy in India may first be recapitulated. According to the 1951 Census, rent receivers were 2.1 per cent, cultivators of land wholly or mainly owned 67.2 per cent, cultivators of land wholly or mainly unowned 12.7 per cent and agricultural labourers 18.0 per cent. The full effects of the abolition of zamindari and jagirdari had not yet been realised by March 1951, and if anything, rent receivers must have gone down in numbers, and cultivators of land wholly or mainly owned must have increased by 1957. According to these figures, about 70 per cent of the cultivators till the land they own. They do not need any special attention. Rent receivers are quite insignificant in numbers, and under exceptions provided by land reforms legislation, they cannot be wiped out: leasing on tenancy is allowed in the case of women, minors, employees in the Defence Forces and owners physically or mentally incapable of cultivating their lands. Among the rest, agricultural labourers (18 per cent) demand prior attention compared to cultivators of land wholly or mainly unowned (12.7 per cent). But land reforms implemented so far in India, concentrate on the improvement of tenancy conditions and the upgrading of tenants to the status of cultivating landholders. Here and there, there are a few colonisation and settlement schemes for agricultural labourers, and in the North, for refugees, but these

are not much more than of token value.

SCOPE OF LAND REFORMS

The main issues comprising the land reform problem are regulation of rents, fixity of tenures, tenant purchase, settlement, acquisition and re-distribution of surplus lands, consolidation of holdings, co-operative farming, collectivisation and efficient cultivation. Settlement of the agricultural population on small holdings was the prime objective in Britain and Ireland. Protection of tenants received special attention in the East European countries. Collectivisation was resorted to in the USSR. Consolidation of holdings was effected substantially in Madhya Pradesh, Bombay and the Punjab. Co-operative farming, like the Co-operative Movement in general, is a pet child with little prospect of spreading on competitive lines. The maintenance of efficient standards of cultivation is the main object of the latest legislation in Britain, empowering the Government to take over inefficiently managed land and arrange for proper cultivation.

ZAMINDARI AND RAIYATWARI PHASES

Soon after Independence, zamindaris and jagirdaris were abolished throughout the country with widely varying rates and methods of compensation, and no compensation in Kashmir. Generally speaking, rates of compensation were very liberal, and the total amount for the whole country is estimated at Rs 614 crores out of which less than 12 per cent might have been paid up till now. The process of abolition is complete, the ex-zamindars and jagirdars have adjusted themselves gracefully and successfully, and there is hardly anyone who moans the disappearance of this class. But the question of universalising tenant purchase and acquisition and re-distribution of surplus lands in raiyatwari areas, stand on quite a different footing. The principle of doing away with intermediaries in raiyatwari areas stands on quite accepted by the Planning Commission and is being repeatedly stressed by the National Development Council and other pivotal bodies. It would be certainly relevant to make a few observations on the fact that the tenant problem in raiyatwari areas is fundamentally different from what it was in zamindari and jagir areas. Firstly, zamindars and jagirs were, as a rule, grants: raiyatwari holdings were, as a rule, acquisitions on competitive lines. Secondly, the zamindar or jagirdar was predominantly a non-cultivator: the raiyatwari occupant was predominantly a cultivator. Figures are not available for the whole country, but a Land Census conducted in the Hyderabad State in 1953-55 has yielded figures which are typical of the whole country. According to this Census, the total number of

landholders was 30.1 lakhs holding 471.8 lakh converted dry acres (wet and garden lands considered as multiples of dry lands, such multiples varying in different areas. Out of this, 24.9 lakh landholders personally cultivated all their lands (351.5 lakh converted dry acres), partly cultivating landholders were 1.8 lakhs (68.9 lakh converted dry acres), while non-cultivating landholders were 3.4 lakhs leasing out 51.3 lakh converted dry acres. The total leased out area was 80.8 lakhs converted dry acres comprising 17.2 per cent of total cultivated area. In other words 390.9 lakhs converted dry acres out of 471.8 lakh converted dry acres total area, were cultivated by the owners themselves, working at 82.8 per cent. The number of holdings larger than 4½ family holdings was 16,791, occupying 47.9 lakh converted dry acres, out of which 17.9 lakh acres were leased out, working at 37.4 per cent. These figures cannot admit of two interpretations: the only possible interpretation is that the bulk of the raiyatwari landholders are cultivators, and the bulk of cultivated land is held by cultivating landowners. Thirdly, it is impossible to distinguish between a cultivating and non-cultivating family among raiyatwari landholders. The caste system is no longer operating, and the choice of professions is quite free. For this reason and on account of several kinds of circumstances, a raiyatwari non-cultivating family might take to cultivation at any time in the future, and provision for resumption of land for personal cultivation, without a time limit, would have to be made. Fourthly, among the non-cultivating landholders a high majority (figures are not available) are resident in the concerned village or nearby, and must be expected to interest themselves in the efficient cultivation of their respective lands by personal supervision, apart from the probability of taking to personal cultivation at any time. Fifthly, while the abolition of zamindaris and jagirs was fully justified on economic grounds, the abolition of intermediaries in the raiyatwari areas is called for mainly on grounds of social justice (which is a political issue) as an economic proposition. It is looked upon with grave doubts in knowledgeable circles.

LANDHOLDERS BIG AND SMALL

Both in the First and in the Second Plan, the Planning Commission have been unequivocal in allotting first priority to agricultural production. With this purpose in view, ceilings on landholdings are not proposed to be enforced in the following cases:

1. Plantations (including sugarcane farms in some cases),
2. Farms on which power and machinery are used,
3. Orchards,
4. Government farms,
5. Co-operatively held farms and
6. Lands under reclamation.

These exceptions are very reasonable and can be calculated to safeguard the level of agricultural production from collapsing. But the transfer of proprietorship to small tenants is fraught with great danger. These tenants have little brains, less enterprise and no funds. So far, the governments concerned or co-operative institutions have not decided on any schemes providing adequate funds, not only for tenant purchase, but also for development work. The village moneylender cannot be expected to come to the rescue of the tenant-purchaser for the simple reason that, under the land reforms, land values have come down steeply on account of restrictions on sales of agricultural land generally, and prohibition of sales or mortgages by tenant purchasers. Mere land has proved a liability. There have been numerous cases of the tenant purchaser reverting to tenancy under his ex-landholder in collusion with him. There have been more cases of protected tenants surrendering their certificates to the landowners or Tahsil Officers. Even under provisions enforced so far in different parts of the country, the legal rent varies from 50 per cent to 16 per cent of gross produce, the actual legal percentage depending on the level of competition among tenants, fertility of land, etc. As a matter of fact, de facto rents continue as before in most cases, except in areas ridden by Communists. Landholders have not been slow in evading legislation in several ways, typical among them being:

1. Private sale of land at higher rates than fixed by Government, to parties other than permitted by Government.
2. Execution of formal nokar-namas (labour contracts) by de facto tenants, and
3. Pseudo-partitions.

ECONOMIC HOLDING & FAMILY HOLDING

At the beginning, the yardstick of "economic holding" was attempted, which was defined as:

"The minimum area capable, in the opinion of the Government, of yielding sufficient produce to enable the holder to maintain a normal family (that is to say, a family of five persons, including the holder himself), in reasonable comfort according to prevailing standards, after meeting all necessary expenses and without resort, save in exceptional circumstances, to raising loans".

Practical difficulties arose. "Economic holding" was dropped, and the unit of "family holding" was adopted, defined as:

"The holding which a family of five persons, including the agriculturist himself, cultivates personally according to local conditions and practices, and with such assistance as is customary to agricultural operations, and which area will yield annually a

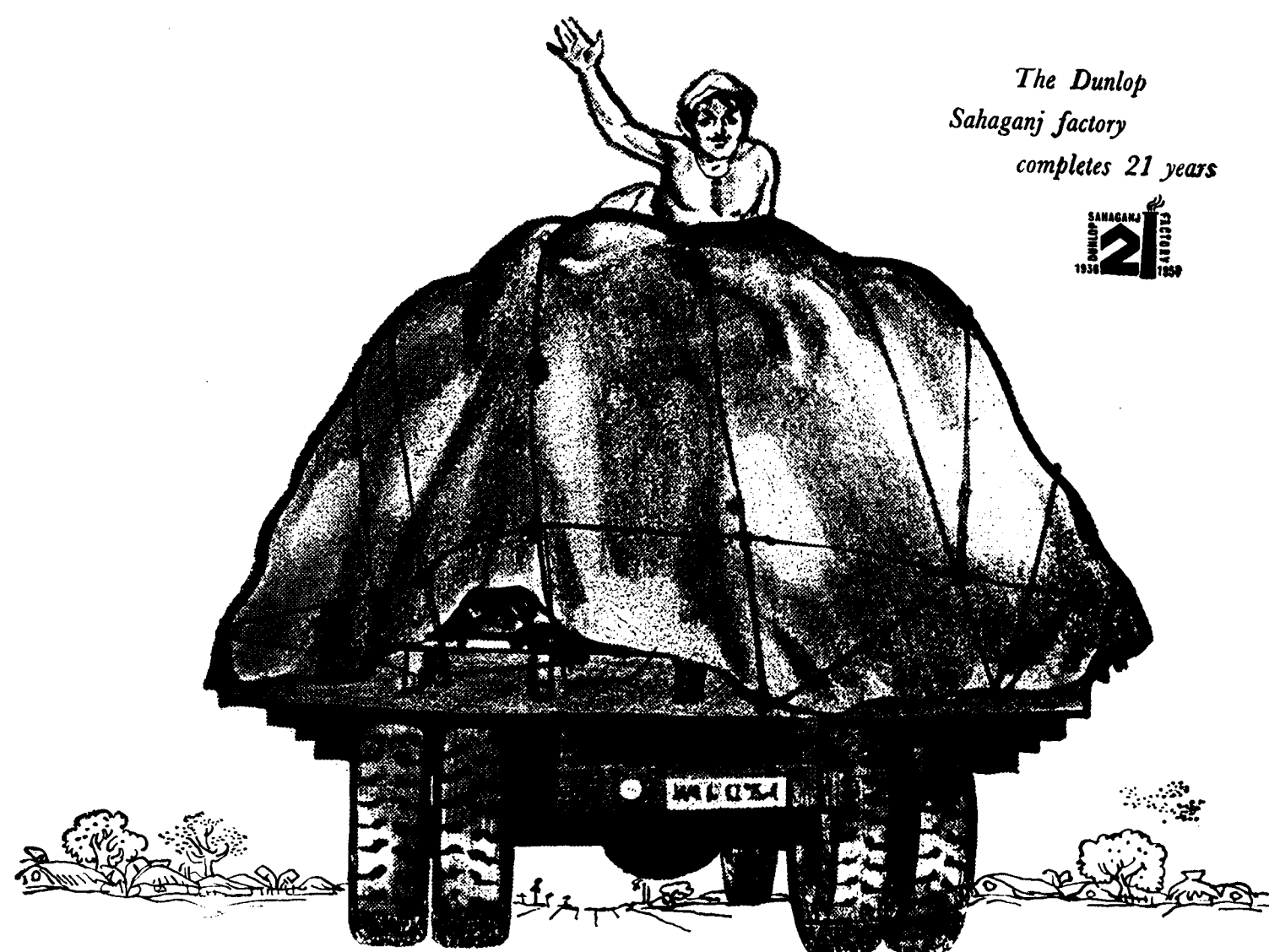
going to town

THE road ends at the pumping station. You hear the ceaseless drone of motors feeding water through a network of canals. Wherever you look, the fields are a dense rich green promising a fine harvest. Taking crops to the market town has always been a problem, for the railway is far off. When water became plentiful and crops more abundant a road just had to be built. At night the darkness is pierced by the headlights of a long convoy of lorries carrying produce to the great city which will awake, hungry.

More goods from farms, mines and factories have set motor transport a big task

under the Second Plan. Rs. 269 crores have been allocated for road development in the next five years; at the end of the Plan, no well-developed village will be more than 5 miles from a main road; the present goods fleet of about 116,000 trucks will rise at the rate of 10,000 a year.

The Dunlop factory at Sahaganj, the largest rubber manufacturing plant in Asia, has taken in hand active measures to expand output to meet the growing requirements of road transport. A new Dunlop factory is being set up at Ambattur, near Madras, and will commence production in the near future.



The Dunlop
Sahaganj factory
completes 21 years



The Dunlop Rubber Co. (India) Ltd. DC 497

produce the value of which, after deducting 50 per cent therefrom as cost of cultivation, is Rs 800/- according to the price level prevailing at the time of determination".

But even this standard of measurement has proved defective. The practical application of the concept is beset with numerous difficulties, among which are the following:

1. Net income from land depends on ruling prices of agricultural commodities, but such prices vary from year to year, sometimes upward, sometimes downward. For example, this side of 1950, there was a considerable recession till 1954, followed by a phenomenal rise; apart from booms and depressions, world prices of agricultural commodities vary nowadays widely, and Indian prices vary more on account of the influence of non-competitive factors. Therefore, to fix the area of a family holding in perpetuity on the basis of prices prevalent at the time of determination, would amount to a rule of thumb.
2. Net income from land also depends on seasonal conditions year after year. But seasonal conditions vary widely. It is true that land revenue assessment is fixed irrespective of seasons, but even here, postponements and remissions are granted when deserved, and the revenue settlement is revised once in 30 years; in some cases, revision has been made in ten years. Land revenue is a small fragment of income from land, but the net income of a holding is everything for the cultivating landholder: it makes or mars his life according as seasons are good or bad.
3. Net income from land varies widely as between crop and crop, even after allowing for heavy cultivation expenses in the case of commercial crops. It is not clear as to whether the cheapest crop was taken into consideration while fixing the size of a family holding. For example, in the case of wet lands, there is much difference between the income of one acre paddy single crop, one acre paddy double crop and one acre sugarcane. In the case of dry land, the difference is equally wide as among jowar, oilseeds, cotton, potato and tobacco.
4. The fixture of Rs 800/- net income per annum for a family holding presupposes that the standard of life among all cultivating families, is more or less the same. This is not true. The standard of life of a family depends, not on the size of the holding, but on factors like traditions and upbringing which vary widely as among even cultivating families.
5. The fixture of Rs 800/- per annum net income is obviously for all time, at any rate till the Act is amended, but amendments are difficult, and

it is not wise to have a law requiring frequent amendments. The fixture evidently foreshadows that a rise in the standard of life cannot be considered probable, and what is more, should not be considered desirable. This psychology is diametrically opposed to the prime objective of the Indian Constitution that everything should be done to raise the standard of life of the masses.

6. Even in Indian agriculture, life is dynamic, and non-agricultural incomes are bound to play a larger part in the Indian village economy, in the future. But, the normal income for a family holding, according to the Hyderabad Act does not take into account incomes other than by cultivation. Under the Act, a mill owner may retain $4\frac{1}{2}$ times the family holding under the garb of personal cultivation, while another person entirely depending on cultivation, and holding six times the family holding, would have to give up 14 family holding even though he was a bona fide cultivator.
7. The Act does not provide for changes in the productivity of land upward on account of factors like new river irrigation facilities, floods or earthquakes. The second and third factors may be rare, but more than 22 million acres are expected to become irrigable under the big irrigation projects during the Second Five-Year Plan.
8. The net income from land, even at prices prevalent at the time of fixing the area of family holding, must vary widely either for the better or for the worse according as means of communications and transport improve, or the area becomes malarious and depopulated. But there is no elasticity in the Act to cover such contingencies.

REVOLUTIONARY CONSEQUENCES

It would require a thick volume to deal adequately with land reform anomalies in the 'fifties. Reducing the sphere of competition on land is bound to reduce production per acre, not accompanied by any corresponding gain in social welfare. We in India are accustomed to imagine non-existent problems as grave, ignoring items that demand first priority. The density of population in the United Kingdom is 750 per sq. mile, in Japan 588 and in India 305. Nobody speaks of over-population or over-pressure on land either in Britain or in Japan, but over-population has been heralded in India as a national calamity, and family planning has received quite a liberal grant in the Second Plan while rural housing has got none. If the net sown area in India is divided by all the agricultural families, we get an average of 6.4 acres per family. In Japan, the size of the average holding is 2.5 acres: 34 per cent of the landholders have less than 1.2 acres each, but intensive cultivation has

much more than counter-balanced fragmentation in that country. In a nutshell, universalisation of tenant purchase, and acquisition and redistribution of surplus lands in raiyatwari areas, have no justification whatsoever collectively speaking (unlike zamindari areas): individual cases of hardship are there and are bound to be there under any system.

PRESENT AND POTENTIAL PROBLEMS

This note may be concluded with some specimens among them:

1. In one State, large-scale farms using machinery and power on a particular date, are exempt from the ceiling limit. What about a landholder starting with the use of machinery and power at a later date? Will he be allowed to resume or purchase lands beyond the ceiling?
2. In some States, resumption of lands for personal cultivation is allowed up to a ceiling, provided the principal source of income is from agriculture. Which is the agency to determine whether a landholder's income is mainly agricultural or mainly non-agricultural? How to differentiate between 49 per cent and 51 per cent of agricultural income?
3. There is no provision against neglect of land or misuse or diversion for non-agricultural purposes by the tenant purchaser.
4. Default of instalment payments by the tenant purchasers.
5. Landholders discontinuing cultivation, and non-cultivators resuming land for personal cultivation from time to time in view of different circumstances, and the necessity for reasonable provisions in this respect for guaranteeing freedom of choice of professions under the Indian Constitution (resumption or purchase of land for personal cultivation).
6. Reconsideration of the size and manner of compensation to the retiring landholders, bearing in mind the very liberal terms of compensation granted to zamindars and jagirdars (Rs. 614 crores).
7. Agricultural labourers are outside the picture: the sin is that they are landless, but whose fault is it? According to all-India figures (1951), they constitute 18.0 per cent while tenants constitute 12.7 per cent (including dependents). On this point, Shri Vinoba Bhave's approach is more realistic because he gives first preference to agricultural labourers, in addition to basing the bhoodan and gramdan movements on voluntary donations.
8. Land reforms follow prohibition in reducing, if not wiping out, agricultural income tax: with no substantial landholders there cannot be any prospect of any landholder exceeding the exemption level. Receipts from agricultural income tax are not large, but they are important in as much as they are one item among state

revenues. While at the one end, there is a proposal to cancel land revenue on all holdings assessed at less than Rs. 10 (a high per cent of tenant purchasers would be in this class), there is a suggestion at the other end that land revenue should be subjected to a progressive surcharge (with practically zero levies on account of the retirement of substantial holders).

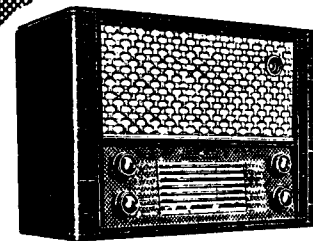
9. During the Second Plan period, more than 22 million acres are expected to be irrigated by the new irrigation projects completed during the period. Private enterprise excluded, State farms not contemplated, the question arises as to whether the entire area can be sufficiently covered by the present tenants and labourers on their own initiative. There have already been several instances of maximum capacity for irrigation not utilised even after ten or twenty years. Development programmes are still below the horizon.
10. Land reforms legislation in different States confuse the student, even the Administrator on account of vague and varying definitions of important terms: the term 'tenant' has been promiscuously used to mean anything between the landholder from Government and the tenant or sub-tenant at will. Legislation must not vary with regard to pace from state to state, and definitions of important terms and phrases should be decided on an all-India basis.
11. Land reforms are a state subject, and the result has been a veritable zoo with regard to policies and programmes, apart from variations on account of local circumstances. If land reforms in raiyatwari areas should proceed constructively and cumulatively, a basic condition would be the acceptance and announcement of a general policy and programme with regard to land reforms, by the Planning Commission, and it should be made obligatory on all States to follow the model, of course, subject to minor differences due to historical or local conditions.
12. The acceptance of a schedule of preferences for extending ceilings to other sectors of the national economy. Tenant purchase and re-distribution of surplus land in raiyatwari areas may not be avoidable on account of adult franchise, but in order to make them successful economically and socially, a much higher level of elasticity and magnanimity should be introduced in the definition of phrases like 'personal cultivation', 'resumption', 'family holding' and 'ceiling on holdings' in order to allow good margins for various kinds of circumstances and future developments. This is the only way to push on land reforms under a capitalist umbrella: Communist land reforms would be much simpler, but they are not consistent with the Indian democratic psychology.

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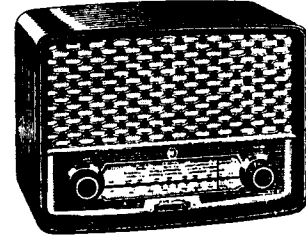
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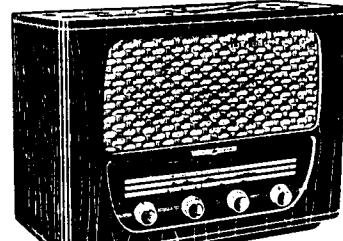
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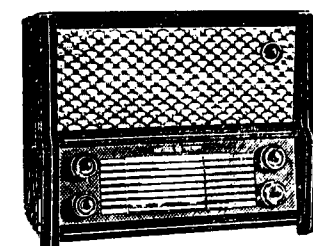
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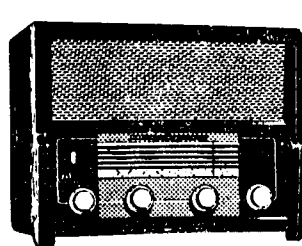
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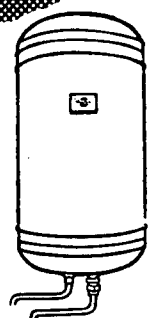


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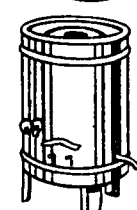
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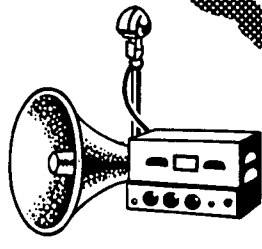
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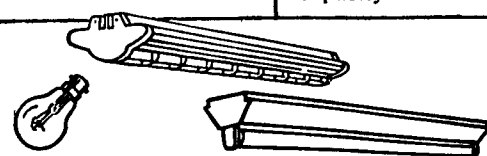
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Food: Rising Production Vs. Rising Consumption

By Professor V. G. RAMAKRISHNA AIYER, M.A. AND A. V. RANGACHARI, M.A.

ONE of the basic problems and most important facts of the Indian economy is the tremendous pressure of population on land. There was a time when this fact was not perhaps serious enough, but, today, especially after the publication of the results of the last two or three censuses, there is hardly anyone in India who questions the seriousness of the problem. The following table gives the trend during the last 50 years.

Year.	Population (in Millions).	Inc. (+) or dec. (—) over the previous decade (in Millions).	Percentage inc. (+) or dec. (—).
1901	235.50	...	...
1911	249.05	+13.55	+ 5.80
1921	248.18	— 0.87	— 0.35
1931	275.52	+27.34	+11.00
1941	314.88	+39.36	+14.30
1951	356.83	+41.95	+13.30

It is not the percentage increase ratio that is really so very alarming. It is, in fact, quite close to the world's average. There have been comparable periods in recent British, American and Japanese history when the growth of population was much faster. What is really disturbing is the huge absolute increment on the top of the very massive existing population. The addition of about 109 million mouths during the last 30 years and the prospect of even greater increment in the future cannot but cause serious misgivings.

The death rate on the other hand is gradually decreasing from 44 per thousand to about thirty two. If the birth rate continues at the present level, and the death rate is reduced to, say, 22 per thousand, the resultant increase in population will be two per cent per year, and the population would double itself in 35 years: with every increase in the use of prophylactic and curative measures by Government like protected water supply, DDT Spraying, vaccination, better hospital facilities, employment of more trained midwives and the like, the death rate is bound to go down. A corresponding reduction of birth rate does not occur at the same time, as the desire for family limitation is the product of altered social and psychological viewpoints that take time to permeate among the people. Historically, family limitation has gone hand in hand with industrial development and the urge for preserving certain minimum standards of life. India stands today where Europe stood toward the middle of the nineteenth century. Government always start with not allowing the people to die; to enable them to live well is a complicated problem in which the individual, more than the Government, has to take the initiative.

The inevitable consequence of this prolific increase in population has worked itself out on the land economy of the country with relentless pressure. Land became increasingly chopped up into smaller fragments. The law of diminishing returns tended to manifest itself more and more strongly, and the class of landless labourers swelled in number. The density of population today amounts to as much as 281 persons per square mile, which may be lower than the density in some of the industrialised countries like Japan, but is certainly very high relative to the present state of Indian economic development. The following table gives a comparative picture about the position.

Area and population of India as compared to Select Countries of the world (1951).

Country.	Geographical Area (1000 sq. miles).	Population (thousand persons).	Density of population per sq. mile (persons).
India	1,270	361,239	285
United Kingdom	95	50,545	532
USSR	8,598	193,000	22
USA	8,022	154,353	51
Burma	262	18,674	71
China	3,759	463,493	122
Japan	142	84,600	596
Pakistan	377	75,687	201
Canada	3,690	14,009	4

An interesting point in this connection would be to study what has been the proportion of the population dependent on agriculture for livelihood during the last five decades. Unfortunately, it is not possible to provide a straight answer on this question, because the basis of classification adopted at various censuses has not been uniform. But, during the first two decades, i.e., 1901 to 1921, the proportion of total workers dependent on agriculture increased from 70.82 per cent to 71.67 per cent. The 1931 figures are not strictly comparable because of a different classification, while the 1941 census did not give the occupational distribution of population. According to the 1951 census, 70 per cent of the total population still depend upon agriculture for livelihood. This shows a rather alarming trend because, although, in 1951, the percentage may be almost the same as it was in 1901, the total number dependent on agriculture is now much larger.

This only proves that all the industrialisation and urbanisation during the last 50 years have not really been able to reduce the pressure on our land in the slightest degree, although it must be admitted that the situation might have been worse but for the secondary and tertiary employment which was thus created. In fact, a study based on the comparable

figures available for 8 major states shows that net area sown per capita of population dependent on agriculture has declined from 1.1 acres to 1 acre in 1951. This compares very unfavourably with some of the countries as shown below:—

Country.	Year.	Per capita cultivated land (in acres).
Burma	1947	1.16
China	1947	0.49
India	1947	0.71
Indonesia	1947	0.37
Iran	1943	2.97
Iraq	1930	4.00
Israel	1951	0.50
Japan	1948	0.17
Pakistan	1948	0.69
Turkey	1948	2.35
Venezuela	1944	0.65
Ecuador	1942	0.86
Colombia	1946	0.47

On the other hand, agriculture in India has been worked under even more stringent conditions than in industry. It is no wonder that, as the Fiscal Commission have remarked, "in the last few decades, it has remained more or less stagnant, and at points there is a tendency towards deterioration". In the forty years 1901—1941, the total sown area increased only from 220.4 million acres to 244.7 million acres, and part of this increase is really due to improved reporting. The distribution between food and non food crops has changed slightly from 85 and 15 per cent in 1901-02 to 80 and 20 per cent in 1940-41. The acreages under rice and wheat, the two principal food crops, which stood at 69.4 million and 29.6 million respectively in 1920-25 increased to 72.7 and 34.4 million respectively in 1935-40.

Partition worsened this position from India's point of view. With 82 per cent of the population of undivided India, the union produces only 68 per cent and 65 per cent of the rice and wheat crops. In other words, while the Indian Union received 82 per cent of the total population of undivided India, it gets only 75 per cent of the total cereal production as shown in the following table:—

Effect of Partition on Indian Agriculture.			
	Per cent share of Indian Union	Per cent share of Pakistan	Per cent share of Union
Population	82	18	
Net Area Sown	84	16	
Net Irrigated Area	69	31	
Production of principal foodgrains	75	25	

The war and the exigencies of the war period and the complications and the involutions of public policies in the years since the war have worsened the position. The

war created a severe shortage of food, but provided some relief from the severity by reducing the demand for raw materials like cotton and oilseeds. At any rate, it was possible to increase the acreage under food crops by cutting the land under commercial crops. But partition brought on a simultaneous shortage of food and of industrial raw materials.

This was the dismal position which faced the country when it attained independence in 1947. The increase in population was so frighteningly high, the poverty of the people so endemic and the production trends so discouraging that even to preserve the status quo was a colossal problem. The Government immediately put into effect a stop gap plan for stimulating food production. This plan consisted of a series of short-term projects such as works schemes like land reclamation, minor irrigation etc., and supply schemes like distribution of improved seeds, manures, etc. It is estimated that the total "production potential" created by these various schemes between 1947-48 and 1950-51 would be about 3.2 million tons. But all that this campaign has been able to do is merely to prevent the food position from becoming worse than what it has so far been. The main difficulty has been that the shortage of finance put a limit on the size of the plan and the food production schemes sponsored by Government have so far covered only a very small fraction of the cultivated area and their effect has naturally been too small to make a real impression on the total food production. Moreover, there was also a considerable shortage of cotton and jute in the country, and land had to be diverted for the production of these very vital raw materials. Thus, as seen above, while the population has increased by about 39 per cent during the last four decades, the production of foodgrains has not kept pace with it. This indicates an appreciable decrease in per capita availability of foodgrains from internal resources. For more than three decades, India has been getting a much larger quantity of food grains (mainly rice) from Burma than what it was exporting to other countries. The separation of Burma in 1936 has reduced internal supplies by about 1.3 million tons, and the partition in 1947 by a further 0.77 million tons. Since 1948, we have been importing large quantities of foodgrains: 2.8 million tons in 1948, 3.7 million tons in 1949, 2.1 million tons in 1950, 4.7 million tons in 1951, 3.9 million tons in 1952, 2.0 million tons in 1953, 0.8 million tons in 1954, 0.7 million tons in 1955. India has, in recent times, always been an importer of foodgrains.

It was, therefore, felt that the problem of population and agri-



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cultural production in the country had to be tackled on a much more comprehensive and long term basis. The First Plan, therefore, gave top priority to the solution of this problem, the accent being on increased production. This will be seen from the following distribution of the outlay which the Plan proposed.

First Five-Year Plan Outlay by Major Head of Development.		
Head	Total Provision (Rs. crores)	Per cent
Agriculture & Community Development	374	16
Irrigation & Power	656	28
Transport & Communications	558	24
Industries & Minerals	179	8
Social Services, Housing & Rehabilitation	509	22
Miscellaneous	55	2
Total	2331	100

The Government initiated vigorous campaigns for increasing agricultural output, supplemented by schemes for bringing a large area under irrigation. The First Plan envisaged the following increases in agricultural production.

Commodity	Unit	Production in base year	Target of additional production	Percentage Increase
Foodgrains	Million tons	54.0	7.6	14
Major oilseeds	Million tons	5.1	0.4	8
Sugarcane (gur)	Million tons	5.6	0.7	13
Cotton	Million bales	2.9	1.3	45
Jute	Million bales	3.3	2.1	64

It was expected that, by the end of 1955-56, an additional production of about 7.6 million tons of foodgrains would be achieved directly by the various schemes included in the First Plan.

Thanks to these measures, the index number of agricultural production (Base 1949-50), which stood at 99.2 in 1947-48, has increased to 123.0 in 1956-57. The index of foodgrains output has advanced from 98.1 to 119.6. Nearly 14 million acres of land are estimated to have benefited by major and minor irrigation schemes during the First Plan.

Thus, as shown above, a substantial measure of success has been achieved in stepping up agricultural production. As a matter of fact, the total output of food grains in the last year of the Plan (1955-56) exceeded the target by 3.3 million tons, the quantity actually produced being 64.9 million tons as against 54.0 million tons in 1950-51. But this figure compares unfavourably with the peak production of 68.8 million tons touched in 1953-54. From such estimates of the actual per-

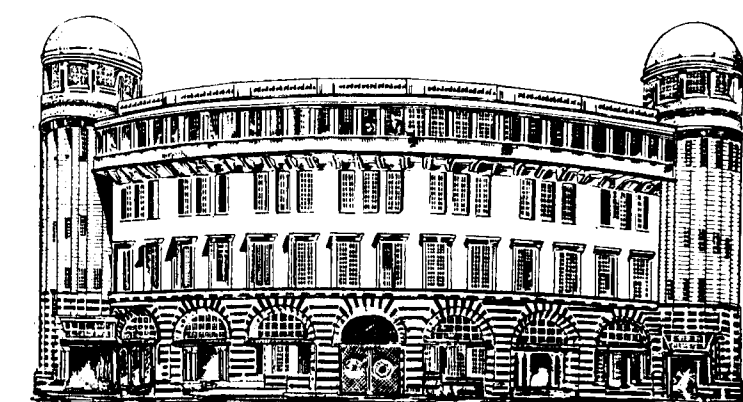
formance, however, it appears that the food production potential added on account of the different programmes—irrigation, land reclamation, fertilisers and improved seeds—fell short of 6 million tons as against the figure of 7.6 million tons set out in the Plan. The shortage of food and the rising index of prices have upset previous calculations of the Plan, and the government have had to assign top priority to the programme of food production and making the country self sufficient in food, which they had mistakenly thought as having been already achieved during the First Plan. This realisation seems to have shifted the emphasis of the Plan from an industrial to an agricultural basis once again, which is yet weak and needs to be strengthened.

According to the targets originally set out in the Second Plan, the increase in agricultural production as a whole was to be of the order of 17 per cent and that of food grains production around 15 per cent. It was, however, felt that these targets might not be adequate to meet the increasing demand for food and raw materials expected to be generated by the implementation of the Second Plan. The Planning Commission, in consultation with the Union and State governments, therefore, raised the targets substantially and decided to maximise efforts to achieve these targets, within the resources originally allotted under the Plan, namely, Rs 568 crores. The revised target of agricultural production as compared to the targets originally proposed are given in the following table:—

Commodity	Unit	Estimated production 1955-56 (as given in the Plan)	Tentative targets of Production as in the Plan	Revised targets of Production	Percentage increase in Planned Production	
					as in the Plan (4 over 3)	as revised (5 over 3)
Foodgrains	Million tons	65.0	75.0	80.5	15	23.8
Oilseeds	Million tons	5.5	7.0	7.6	27	38.2
Sugarcane	Million tons	5.8	7.1	7.8	22	34.5
Cotton	Million bales	4.2	5.5	6.5	31	54.8
Jute	Million bales	4.0	5.0	5.5	25	37.5
Other Crops	...	...	...	...	9	22.4
All Commodities	...	...	...	...	7	27.1

Increased food production thus holds top priority during the Second Plan Period. Lately, while addressing the staff of the Central

Food Technological Research Institute in Mysore, the Prime Minister expressed his complete confidence in the ability to increase food pro-



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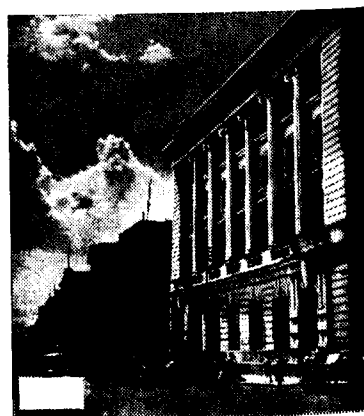
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duction by 30 or 40 per cent in the next five years, and said, "we are not going to take 30 years to achieve a 30 per cent increase in food production. We are going to do it in five years' time. We need not be pessimistic about it".

Coming as it does from the Prime Minister, these are brave words indeed and are entitled to the people's attention. But their import needs to be examined by the cold logic of facts before they are made acceptable to enlightened public opinion.

None would be happier than ourselves if the Prime Minister's optimism is corroborated by the facts of the past experiences of the grow more food campaigns and the First Plan, which had all concentratedly aimed at increasing the production of food in the country. If the problem of shortage of food still persists in spite of the very best efforts of the Government and the people during the last 10 years since Independence, it should obviously be accepted as a difficult and complicated problem and is not so easy of solution as the Prime Minister optimistically believes.

There are only three years and odd remaining to complete the Second Plan. Nothing much could be done to intensify the food production campaign during the current year, 1957-58, as the sowing season is practically drawing to a close in the greater part of this country. If food output is to be increased by 30 per cent by the special efforts of the Government and the people, it implies a continuous increase of 10 per cent every year during the next three years. Such a possibility, on the very face of it, appears to be rather difficult of achievement.

Hence, it has been suggested by Mr K. M. Munshi that, in order to meet the food problem, a long term plan of food imports from the wheat producing countries and for regular rise supplies from Burma is essential till our agricultural production programme is completed. Moreover, the problem of securing for the whole country food supplies on the basis of proper nutritional standards has to be considered in relation to an increasing population. According to nutritional experts, the calorific value of a balanced diet should not fall below 2000 per head per day. Unfortunately for India, the average Indian diet is far below this standard and compares very unfavourably with the diet in most other countries. The following table will bear this out.

Daily per capita consumption of food (In terms of calories)			
Country	Prewar Average	Postwar 1948-49	
USA	3164	3128	
Canada	3067	3052	
Japan	2175	2050	
Burma	2080	1986	
India	1968	1621	

An analysis of the diet structure in the industrially advanced countries of the west, especially the USA and Canada, shows that it has a comparatively low proportion of cereals and huge content of protective foods. In Asian countries, on the other hand, the main emphasis is our cereals, and protective foods form a disproportionately small share of the diet. Even in India, the per capita intake of cereals is much larger than that in USA or Canada. The following table will make this clear.

Daily per capita food consumption 1948-49 (In terms of calories)						
	USA	Canada	Burma	Japan	India	
Cereals	779	713	1443	1438	1064	
Roots and Tubers	98	180	20	152	15	
Sugar and Syrups	481	529	63	60	125	
Pulses and Nuts	82	80	103	9	178	
Vegetables	83	41	29	47	10	
Fruits	119	70	65	12	39	
Meat	483	469	21	7	10	
Eggs	84	67	9	2	...	
Fish and shell fish	20	23	152	48	2	
Milk and Cheese	431	440	14	5	106	
Oil and Fats	468	441	67	12	72	
Miscellaneous	...	...	...	42	...	
Total	3128	3062	1986	1834	1621	

The Nutrition Advisory Committee in India has drawn up a table of requirements in terms of requirements for a balanced diet in

this country. The statement below compares these requirements with the actual availabilities for consumption in the country before and after the war.

	Composition of a balanced diet (per consumption unit)	Estimated availability for consumption in India (oz per adult per day)		
		Prewar Average 1934-35	1949-50	Postwar 1950-51
Cereals	14	16.3	13.7	13.0
Pulses	3	1.9	1.9	1.9
Leafy vegetables	4	3.7	2.0	1.6
Other vegetables	6	0.25	0.35	0.36
Ghee and veg. table oil	2	7.3	4.9	4.8
Milk and Milk products	10	0.6	0.4	0.4
Meat fish and eggs	4	3.3	1.9	1.9
Fruits and Nuts	3	1.6	1.4	1.5
Sugar and Jaggery	2			

The First Plan expected that, by the end of 1955-56, an amount of 13.71 ozs per adult per day would be available, as against the mini-

mum requirement of 14 ozs for a balanced diet as noted in the above table. Hence, in the Second Plan, it has been estimated that

India's population is likely to be about 450 million persons in 1971. The total food requirement in 1960-61 at the present rate of consumption will be 70.5 million tons. By the end of the Second Plan, the rate of consumption is estimated to rise to 18.3 ounces per adult (cereals 15.5 ozs and gram and pulses 2.8 ozs) so that the total requirements will be 75 million tons. The Second Plan provides for increase in food production of 10 million tons over the five years. In terms of calories,

the per adult consumption of food per day, which at present amounts to 2200, is expected to increase by 1960-61 to 2450 as against the minimum of 3000 calories recommended by nutrition experts.

In India about 70 to 80 per cent of the energy requirements of the people are derived from cereals; and rice from among the major cereals rightly occupies the first place in the food economy of India. The table below shows the place of rice in the area and production statistics of the country.

Rice Statistics for All India									
Year	Area			Production					
	Net sown area	Area under cereals	Area under rice	% of 3 to 2	Total cereals	Rice	% of 6 to 5		
	1	2	3	4	5	6	7		
1947-48	245.5	169.0	63.2	37.4	43.7	21.2	48.5		
1948-49	244.0	167.0	63.5	38.0	42.3	22.6	52.2		
1949-50	283.2	164.3	75.5	38.9	46.0	23.2	50.4		
1950-51	293.4	199.3	76.6	38.5	41.7	20.3	48.7		
1951-52	296.4	200.6	75.6	37.7	42.9	20.7	48.3		
1952-53	309.8	203.2	74.2	36.5	49.2	22.5	45.7		
1953-54	314.0	210.4	76.6	35.4	56.1	27.1	48.3		

It will be seen from the above table that about 26 to 28 per cent of the area under cereals is accounted for by rice alone. Nearly 50 per cent of the total cereal production is also shared by rice. This, in other words, means that about half the population of India depend for their energy requirements on rice. Notwithstanding all this, existing yields though by no means uniform throughout the country, are, perhaps, the lowest in the world. The table in this connection will be of interest.

Average per acre yield of Paddy in India as compared to selected countries (Lbs per acre)

Country	Average	Yield
India	961	1.0
Pakistan	1216	1.3
Burma	1240	1.3
China	2141	2.2
Japan	3533	3.7
Indonesia	1945	2.1
Turkey	3167	3.3
Egypt	3333	3.5
USA	2311	2.4
USSR	1918	2.0

Now, the solution of the food problem can be examined from the standpoint of (a) import from abroad and (b) producing more ourselves. There are several persons who feel that the attempt to be self sufficient in food at all costs is misguided and expensive, and that a policy of adjustment of agriculture in such a way as to provide for industrial raw materials like cotton, jute and oilseeds, which in turn will lead to increased exports and imports of cheap food from abroad, should be followed. This suggestion, generally welcomed by industrialists, assures that the export market will not shrink by the development of national plans in respective coun-

tries that now rely on imports from abroad, and that the food exporting countries will not, for fiscal if not economic reasons, sell food dear. The last war has upset several theories of economics, one of them being that industrialised countries are in a better bargaining position in the international sphere than countries that produce raw materials. Argentina, Canada and Australia were able to dictate terms during the last war for the food they exported. The "finished product" countries yielded. Several political ideologies had to be invoked to help the latter. So will it be in the future. It is hardly proper for a vast country with millions of acres of arable land and a small deficit to think of import except as a "salvation" expedient in an unforeseen crisis.

The land in India can certainly be made to yield much more than it is doing at present. For increasing the output of food from land, two types of measures are usually suggested: increase in the extent of land under cultivation and increase in the output per acre of land. It must be admitted that there is much less scope in this country for extending cultivation to new lands than is popularly believed. Out of an area of 719.5 million acres for which statistics relating to land utilisation are available for 1955-56, the total area under cultivated holdings is 379.5 million acres comprising 319.8 million acres of net area actually sown and 59.7 million acres of fallow lands. On the other hand, about 211.1 million acres consisting of forests and hilly and barren lands are absolutely uncultivable. About 32.5 million acres of land are put to non agricultural uses. The residual area of about 96.4 million acres has been reported under the head "other uncultivated

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land excluding current fallows." This indicates that in India the scope for extension of cultivation to new lands is rather limited. The following table may illustrate the above position.

Classification of Area, Gross Area Sown in India 1955-56

Heading	(Million Acres) Area
1. Geographical Area according to Surveyor General of India	805.3
2. Geographical Area according to village papers. (i to v) ...	719.5
(i) Forests ...	125.4
(ii) Not available for cultivation (a plus b) ...	118.2
(a) Land put to non-agricultural uses ...	32.5
(b) Barren and uncultivable land ...	85.7
(iii) Other uncultivated land excluding fallow land (a plus b plus c) ...	96.4
(a) Permanent pastures and other grazing lands ...	28.3
(b) Land under miscellaneous trees, crops & groves not included in net sown area ...	13.9
(c) Cultivable waste ...	54.2
(iv) Fallow lands—(a plus b):	59.7
(a) Fallow lands other than current fallows ...	30.3
(b) Current fallows ...	29.4
(v) Net area sown ...	319.8

In these circumstances, the main source of increase in agricultural production must be increase in yields from more intensive, more efficient and more profitable agricultural production. Here, there is justification for optimism because not only are the average yields in India very much lower than the corresponding yields in many other countries; it has been demonstrated both by experiments in the various research stations and actual cultivation on private farms, that, properly cultivated, the Indian soils are capable of yielding results as good as those being realised in many foreign countries. To mention only one instance, as high a yield as 9000 lbs of rice has been reported under crop competitions in India. This is more than ten times the average yield per acre in India. Of course, this does not mean that every field in India can be made to yield such a high outturn but this certainly does indicate that the scope is there for a very large increase in yields per acre.

The steps that need to be taken for increasing the yields per acre have been included in the Second Five Year Plan. As a matter of fact, the Plan has set a programme for reclamation and development of an area of 3.5 million acres by the Central Tractor Organisation. But the emphasis is on intensive cultivation, to encourage which the Plan has made provision to increase the supply of water, fertilizers and improved seeds. As regards irrigation, a total outlay of Rs 486 crores has been provided, the expected increase in the area irrigated at the end of the Plan being 21 million acres i.e., from 67 million acres in 1955-56 to 88 million acres in 1960-61. As regards the supply of fertilizers, the Government have a programme for increasing the consumption of nitrogenous fertilizers from 610,000 tons in 1955 to 1.8 million tons in 1960, and, in the matter of improved seeds, seed multiplication farms numbering about 3,000 and covering an area of about 93,000 acres are sought to be established. The most important scheme for raising food production is the contemplated extension of the Japanese method of cultivation to areas not covered by it now.

Besides the problem of production of food in adequate quantities, the country has to face the problems of satisfactory distribution to different parts of the country as also to the different individuals in each part of the country. Whether each part of the country can have its due share of the food produced will naturally depend on the per capita purchasing power of the different parts of the country. This problem, of course, is part of the larger problem of a balanced economy for the country, which the Second Plan envisages, so that the purchasing power in all parts of the country may be uniformly developed in relation to the population of each part.

The problem of satisfactory distribution of food is also intimately linked up with the distribution of the national income, because, unless the purchasing power of the masses is fairly high, malnutrition may persist even though considerable increase may be effected in the total available supplies. In this connection, the sale of subsidised food articles through Government agencies assumes greater importance, especially in times of high prices.

Rice Targets Reached under crop competitions (yield in Maunds per acre)

State	1951-52				1952-53			
	Average yield	Highest due to crop competition	% increase		Average yield	Highest due to crop competition	% increase	
Bombay	7.01	72	927.0	8.19	...	...	...	...
Travancore Cochin	9.28	57	514.2	10.23	56	447.4	...	...
Uttar Pradesh	4.81	53	1001.9	5.70	39	594.2	...	...
Madras	7.60	64	742.1	6.64	66	894.0	...	...
Bihar	5.85	64	994.0	7.22	79	994.2	...	...
Mysore	12.80	60	368.7	7.24	71	880.7	...	...

cially in times of high prices. Certain shifts in the relative incomes of different sections of the Indian population during the last decade have also gone in favour of certain lower income groups. It is believed that, in India, the purchasing power of the agriculturists and the urban industrial worker has gone up and that there has been a general tendency for the percentage of expenditure on food to increase rather than decrease with an increase in incomes of these classes. These facts may be taken to indicate that, generally, there has been some improvement in food consumption of the agriculturists.

But it is also obvious that, with all the efforts at increasing agricultural production, India may not be able to solve the problem of population and food supply in the long run and permanently unless it is able to put a curb to its increasing population. Every increase in its national wealth will soon be absorbed by the increase in population, putting India back where it originally was. Hence, it is said that unless steps are taken deliberately to reduce the birth rate the upward trend of population will continue, since improvement in medical facilities and better control of epidemic together with the measures taken to provide a certain minimum of food for the poor sections of the community, should help to lower the death rate further. Family planning is, therefore, prescribed as "a vital step in economic and social planning."

It is no use relying solely on the use of contraceptives to limit the growth of population in a vast country of such a low literacy as India. But state policy is always inclined to make a grudging concession to voluntary birth control. The weak point of birth control is that it is likely to be effective only in the case of those classes which ought to practise it least. Propaganda for birth control is likely to be effective only among the educated middle and upper classes, who view birth control with favour both from the individual and from the national points of view. The lower classes give no thought to it from either standpoint. If the better sections of the people practise birth control while the lower classes continue to multiply at the old rate, then we get the worst of both, a higher quantity and a lower average quality. Propaganda for birth control should not be instituted unless we can be sure of its being effective among all classes. But in the best of conditions, it would be wrong to expect limitation of number through voluntary control.

Moreover, there is another aspect of the pressing problem of surplus labour. It is estimated that, even on the basis of the existing antiquated technique of agriculture, there are about 15 to 20 million surplus agricultural workers in the country. If there

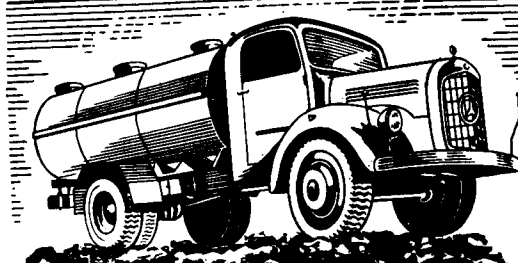
is an improvement in the technique of cultivation, there will be a further increase in this number. In advanced countries, land and labour are relatively plentiful, it is capital which is the scarce factor. But, in India, it is only labour which is plentiful, both land and capital are very scarce factors. Therefore, the systems of farming and techniques of cultivation, which have been evolved in advanced countries, would not suit India's requirements. India will have to develop its own systems and techniques which will suit its conditions best. The techniques will have necessarily to be of the labour intensive type atleast for some time to come.

The solution of employment diversification in India, i.e., diversion from agriculture to other industries, is a necessary step; but this step will, by itself, be totally inadequate to solve the problem. Modern industries are run by machines that are mostly "automatic". The number of men necessary to supervise a machine unit is decreasing. It will be absurd to buy antiquated machinery for the sake of employing men. It is difficult to see how more than five or ten million can be absorbed directly or indirectly in industries in the foreseeable future. It is not often recognised that several millions are already so employed. A study of these problems by percentages rather than by actual numbers marks the real nature and magnitude of the problem.

Hence, it is only rapid industrialisation which, by creating more capital and pumping a part of it into agriculture, creating markets for agricultural products, secondary, and what is more important, tertiary sources of employment, can ultimately reduce the pressure on land, increase the national income and make increased investment in and higher productivity of agriculture possible. In fact, for an underdeveloped country like India, industrialisation has a very important role to play as a catalytic agent for the improvement of agriculture. In this connection, it is gratifying to note that the objective of the Second Plan is precisely to ensure this balanced development.

To sum up, the food problem of India is first of all a quantitative problem of increasing the food required for India's growing population. Secondly, it is also the qualitative problem of not merely increasing the supply of food so as to satisfy the nutritional requirements of a balanced diet for maintaining the physique of the people in a state of efficiency. Thirdly it is an administrative problem of devising ways and means of effective distribution of food. Finally, the food problem in a poor country like India is an economic problem of increasing the purchasing power of the masses so as to enable them to ensure adequacy in quantity and quality.

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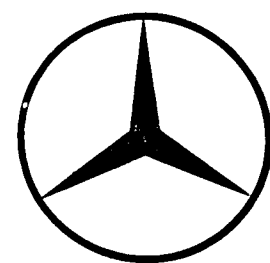
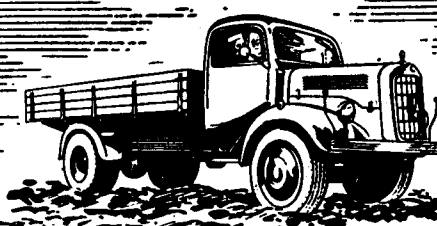


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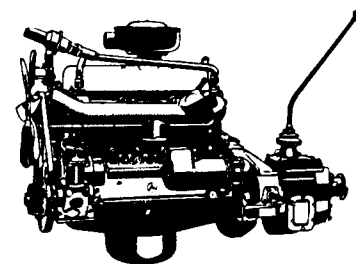


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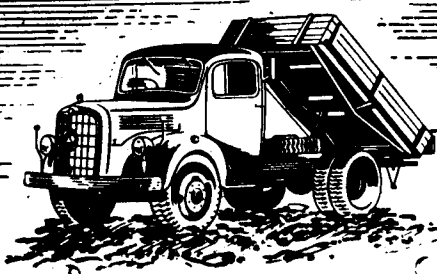
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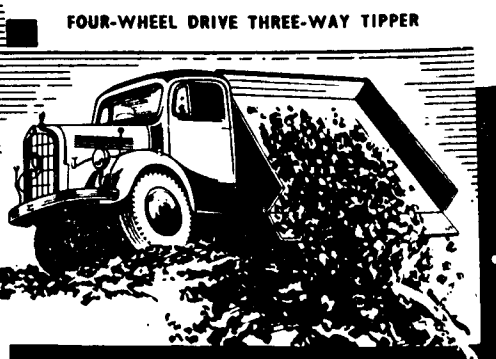
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The Vanaspati Industry and Its Future

By Rai Bahadur G. V. SWAIKA

THE Vanaspati Industry is the second largest food processing industry in India, next only to the sugar industry. It is the largest of its kind in Asia and fifth largest in the world. There are at present 52 Vanaspati factories in India with a capital investment of about Rs 25 crores, employing more than 12000-15000 persons and an annual rated capacity exceeding 5 lakh tons. Moreover the number of persons engaged in the industry from raw material to finished product is equally large. The industry is contributing about 6 crores of rupees by way of Central Excise duty while its contribution to the State exchequer by way of sales tax and octroi duties is equally substantial.

HISTORY OF ITS ORIGIN

The origin and history of Vanaspati dates back to the 19th century when rapid increase in population in Europe developed an increasing demand for butter which the dairy industry failed to cope with. To meet the intensified demand for butter and lard, a desperate search was made for some alternative and ultimately margarine was found to be a substitute for butter from animal body fats by a French Scientist in 1869. Margarine was widely used but the industry was faced with an acute shortage of raw materials as animal fats were also used by the fast-growing soap industry. The ingenuity of the Scientists came to the rescue of the industry. It was found out that liquid vegetable oils could be profitably utilised for use by these industries due to the presence of a large proportion of unsaturated fatty acids. As the price ratio between butter and margarine moved even more sharply in favour of the latter, the consumption demand for it increased in all countries particularly those in Western Europe.

Vanaspati was first imported into India from Holland after world War I due to insufficient supplies and soaring prices of ghee and in 1928 about 23,000 tons were imported. The first Vanaspati factory was established in India in 1930 with a production of only 298 tons. Soon after an import duty was levied on imports of Vanaspati from abroad, and this gave an impetus to the growth of this new industry which produced 2394 tons in 1931, 3296 tons in 1932, 6199 tons in 1933 and 15,345 tons in 1934. Imports became negligible in 1935 when two factories produced 17,090 tons for home consumption. During the second World War, demand for Vanaspati increased substantially through

increased consumption by the Armed Forces and the middle and lower income groups of the civil population who could ill-afford to pay the high prices of ghee. The increase in internal demand provided the necessary fillip to the development of the industry and from a total manufacture of 52,031 tons during 1939, the production of Vanaspati rose to 1.43 lakh tons in 1946. There was also an increase in the number of factories from 10 in 1939 to 21 in 1945 and 46 in 1950. Although the industry received a small setback in 1947, the progress of the industry thereafter was remarkable. The war-time prosperity of the industry attracted sufficient capital for its expansion and in 1951 there were 48 factories with an annual production capacity of 338,000 tons though the actual production was only 172,320 tons. The hydrogenated oil industry has made tremendous progress as will be evident from the per capita consumption of hydrogenated oil in different countries e.g. 51.6 lbs in Norway, 40.8 lbs in Netherlands, 40.1 lbs in Denmark, 28.1 lbs in West Germany, 27.8 lbs in Sweden, 26.9 lbs in UK, 18.4 lbs in USA, 16.8 lbs in Canada, 7.1 lbs in Australia and 1.7 lbs in India.

ITS COMPOSITION

Vanaspati is the Indian name for hydrogenated vegetable oil or vegetable ghee used as a cooking medium all over India. Crude or raw vegetable oils which are used in the manufacture of Vanaspati are mainly groundnut and sesame oil. It has lately been announced by the Government of India that 10 per cent cotton seed oil should be used in the manufacture of Vanaspati. These raw oils contain valuable constituents like tocopherols (Vitamin E), sterols, Vitamins A and D with accessory food values which are useful from the nutrition point of view. The basic ingredients of Vanaspati are refined to remove slime, dirt, free fatty acids and colour. These are again subjected to deodorisation process which removes the bad smell and unpalatable ingredients in the crude vegetable oils. It is then enriched with vitamin A potency as prescribed by the Government of India with 700 mlu per ounce of the hydrogenated product. The melting at a uniform body temperature closely approaching 37°-38°C facilitates a favourable intestinal absorption.

VANASPATI UNDER THE PLAN

The targets and achievements of Vanaspati industry during the First and Second Five Year Plan periods are shown as under:

	1951-52	1955-56	1960-61
Number of Factories	48	48	58
Installed capacity (tons)	3,33,000	4,12,100	4,46,100
Production (tons)	1,80,220	2,75,579	4,00,000
Exports (tons)	3,060	12,989	25,000
Domestic consumption (tons)	1,77,160	2,62,701	3,80,000

Though the First Five Year Plan envisaged fuller utilisation of the idle capacity of the industry, actual production was considerably below the target indicating the existence of a large amount of unused capacity. This was mainly due to very wide fluctuations in the price of groundnut oil besides other factors like reduction of the size of the market due to partition of the country, ill-informed criticism about the nutritive value of Vanaspati, difficulties in transport and raw material procurement and imposition of a price and distribution control without similar control on its main raw material which introduced a certain element of uncertainty in the production of Vanaspati. Besides, some of the factories had been experiencing some financial difficulties and this had decreased production.

In the Second Five Year Plan the production of Vanaspati is expected to increase from 275,500 tons in 1955-56 to 400,000 tons in 1960-61. As the industry has the requisite capacity, no additional capacity is envisaged. To achieve the production of 4 lakh tons of Vanaspati, the

industry would require as the principal raw materials, a little over 4 lakhs tons of groundnut oil, about 24,000 tons of sesame oil, about 4000 tons of bleaching earth some caustic soda and other ingredients. At present, the indigenous supply of the constituent raw materials is sufficient for the requirement of the industry.

PUBLIC MISGIVINGS ALLAYED

Certain ill-informed criticisms about the nutritive value of Vanaspati were set at rest in 1951 by the publication of results of a detailed research programme undertaken on behalf of the Government by eminent scientists of the country at various research institutes. The Government of India also included the Vanaspati industry in the Industry (Development and Regulation) Act as an important industry to be developed in future on a planned basis. The nutritive value of Vanaspati had been recognised by Pandit Nehru when he stated in the Lok Sabha on the 10th June 1952 that three-fourths of the population of the world consumed Vanaspati or similar products and there

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STANDARD MOTOR PRODUCTS
OF INDIA LTD.,
MADRAS

SMZ-35



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was no reason to believe that they were injurious to health. Then again one of the six factories in Madras State is the Government Hydrogenation Factory, Kozhikode which is the only Vanaspati factory in the public sector.

There were also some clamourings that Vanaspati should be coloured to prevent its misuse in ghee adulteration. It may be observed that ghee was adulterated long before Vanaspati was discovered. Secondly, ghee is still being widely adulterated with vegetable oils like coconut and groundnut and even with charbi. Thirdly, the compulsory administration of sesame oil in the vegetable product is responsible for giving a colour reaction commonly known as Bau-douin test whereby the admixture of any hydrogenated product in genuine ghee can be easily detected. Fourthly, a colour which is irremovable, harmless to the human system and acceptable to Vanaspati consumers has not been as yet found out. It is therefore proper that the only way to prevent such adulteration is to enforce the Prevention of Food Adulteration Act vigorously.

PROBLEMS OF THE INDUSTRY

The industry has two major problems to face, e.g. adequate supplies of raw materials and Central Excise Duty on oils purchased for making Vanaspati. In 1953 the smaller groundnut crop seriously impaired the progress of the industry. In 1956 again there was an acute shortage of groundnut oil but the timely restriction on the export of edible oils in general helped to ensure that the indigenous supply was not much less than in the previous year. It is however a happy augury that the recommendations of the Oilseeds Crushing Industry Enquiry Committee for giving encouragement to the crushing of cotton seed and use of cotton seed oil have been implemented by the Government and it has been lately announced that 10 per cent of the cotton seed oil should be used in the manufacture of Vanaspati. Secondly, the demand of the Central Board of Revenue on the industrial consumers to produce evidence of payment of duty on oils purchased by them or to pay the duty again, is unreasonable and unjust. The present measures taken by the Excise Authorities have imposed a heavy financial liability on the Vanaspati industry, besides subjecting it to serious inconveniences in purchasing its oil requirements.

IMPORTANCE OF THE INDUSTRY

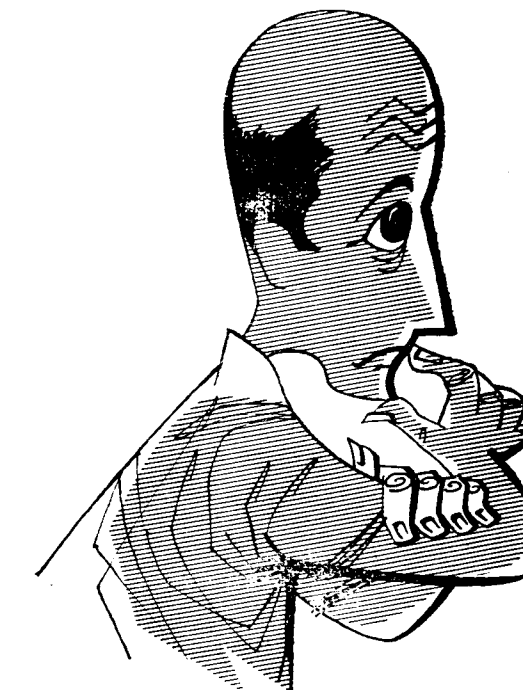
The use of Vanaspati as a substitute for natural ghee, butter etc. as nutritional fatty food is quite common. It has not only supplemented deficient supplies of butter but it has also proved a very profitable enterprise in butter-producing countries like Denmark and Holland. Even in the USA, the land of surplus butter, margarine and shortening consumption is twice as large as that of butter. The home consumption of Vanaspati in India increased from 194,178 tons in 1952 to 215,717 tons in 1954 and 248,700 tons in 1955. With increase in population and rapid rise in the living standard, the internal consumption of Vanaspati is bound to go up year by year. The Planning Commission have estimated that under the Second Five Year Plan the internal consumption of Vanaspati in India would be about 380,000 tons in 1960-61. There are, therefore, great possibilities for further expansion of the Vanaspati industry.

Since Vanaspati can be made from all kinds of edible oils, it can help to mitigate regional shortages of edible oils. It has also enabled the middle and lower income groups to obtain a nutritionally excellent fat in a hygienic and attractive form at an economical price with exactly the same advantages as milk fats.

FOREIGN EXCHANGE EARNER

Vanaspati can be conveniently employed as a substitute for 'grainy' natural ghee or pasty butter fat, as a cooking and frying fat, as a confectionary medium, as a source of energy providing fat, spreading medium, in the form of shortenings and can thus very well satisfy the consumers of oils, fats butter, ghee, etc. The digestibility of Vanaspati has been accepted as quite favourable by the eminent nutrition research workers.

Vanaspati is also a good foreign exchange earner for the country. Export of Vanaspati took place for the first time in 1951-52 when India exported 61,231 cwts and in the two succeeding years it amounted to 35,784 cwts and 17,980 cwts. The fall in export was due mainly to the high prices of Indian oil. Exports increased during 1954-55 when they rose to 196,080 cwts. In the following year 1955-56, exports reached the high figure of 257,963 cwts and this was due partly to increased production leading to increased capacity to export and partly to reduction in prices. The UK had been the leading consumer of this commodity and out of the total export during 1954-55 and 1955-56, the UK was responsible for 73 per cent and 60 per cent respectively. Vanaspati is being also exported to Aden, Bahrain Islands, Kuwait, Irish Republic, Singapore, Malaya, Sweden, Italy, Netherlands, Tric'ial Coast, Saudi Arabia, Ceylon, Burma, Hongkong, Egypt, Jeddah, Mauritius, Suva, Fiji, Australia and many other overseas countries. But India has of late lost grounds in some of the markets like Pakistan, Irish Republic, Egypt, Italy and Sweden. The success of Vanaspati in the internal field depends to a large extent upon its success in competition against margarine. Vanaspati, however, enjoys superiority over margarine being free from moisture, which is present both in butter and margarine. With a comparatively stable market in vegetable oil and the reduction in overheads due to fuller utilisation of existing capacity, the cost of production is sure to come down in the near future, which will provide greater scope for development of its export markets. With increasing contacts and better knowledge of market conditions the industry is expected to do much better in future.

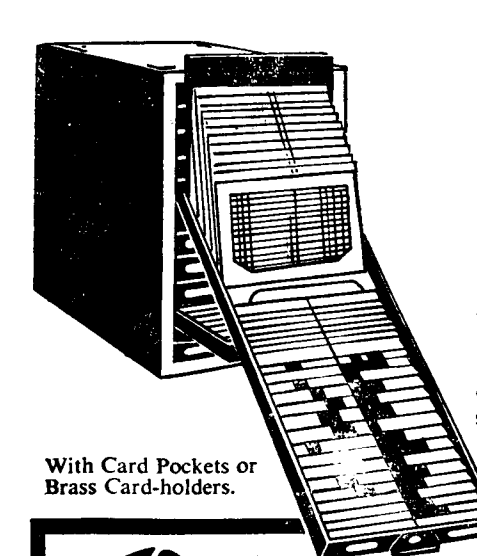


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Head Office :
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Authorised Capital	-	Rs. 8,00,00,000
Issued and Subscribed Capital	Rs. 4,00,00,000	
Paid-up Capital	-	Rs. 2,00,00,000
Reserve Fund	-	Rs. 1.15,00,000
Total Working Funds		
(as on 31-12-56) over	Rs. 91,00,00,000	

BRANCHES:

In India:	In all cities and towns of commercial importance including those at Ahmedabad, Bombay, Poona, New Delhi, Lucknow, Patna, Allahabad, Calcutta and Madras.
In Pakistan:	Chittagong and Karachi.
In Burma:	Rangoon, Moulmein, Akyab, Mandalay and Bassein.
In Malaya:	Singapore, Penang and Kuala Lumpur.
In United Kingdom:	London.
Other Foreign Branch:	Hongkong.

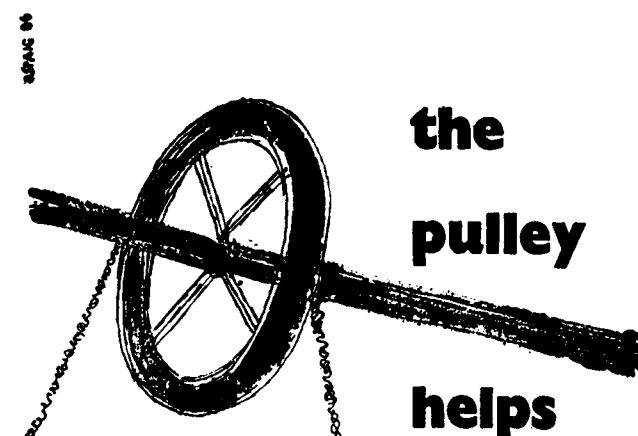
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The pulley is a miracle. An astonishingly effective device which allows a larger weight to be moved with smaller effort.

Finance is something like a pulley. It gives a new dimension to national effort. Today our country needs finance as urgently as it has ever done.

The Life Insurance Corporation provides a pulley between the national effort and the ultimate goal—that of a Welfare State.

Crores of rupees are yearly invested by the Corporation both in the private and the public sectors—in industries and indirectly in development projects.

The Corporation is thus drawing closer, our dreams for a better way of life.



Life Insurance Corporation of India
Central Office: "Jeevan Kendra", Jamshedji Tata Road, Bombay 1.

The Role of Advertising in a Planned Economy

By SHIVARAM NAIR

"The task (of the Five Year Plans) is not merely one of reaching any fixed or static point, such as doubling of living standards, but of generating a dynamism in the economy which will lift it to continuously higher levels of material well-being and of intellectual and cultural achievements."

—Second Five Year Plan, 1956, Chapter II, para 1.

INDIA's adoption of a mixed economy—State planning combined with a vigorous and active private sector—seeks to achieve the good points of the two present dominant economic systems, viz. democratic capitalism of the West and the State capitalism of the Soviet pattern.

Our planners have made it clear that "in a growing economy which gets increasingly diversified, there is scope for both public and private sectors to expand simultaneously." Only then will the triple objectives of the Five Year Plans, viz:

- higher standards of living;
 - rapid industrialisation and expansion of employment; and
 - equitable distribution of wealth and opportunities
- be achieved in a reasonable period of time.

THE PROBLEMS BEFORE GOVERNMENT AND THE PUBLIC

This two-fold approach poses a number of problems for the Government and the influential section of the public to solve. The more important of these are:

For Government

- Raising national and per capita incomes.
- Restraining population growth.
- Removing unemployment and under-employment.
- Diversifying location of industries.
- Promoting labour-intensive schemes, using local raw materials.
- Fostering cottage and small scale industries.
- Extending vocational education.
- Promoting investment in Small Savings and Government Loans.
- Reducing dependence on land and agriculture.
- Export promotion.
- Establishing heavy industries.
- Promoting life insurance.

For the Public (Industrialists & Businessmen)

- Increasing production and employment.
- Promoting new consumer and other industries.
- Diffusion of industries and business.
- Providing better wages and amenities to employees.
- Promoting greater consumption of consumer goods.
- Export promotion.
- Intensifying distribution, advertising and sales promotion.

While both the Government and businessmen seem to appreciate the role of advertising in tackling the above problems by participating in

limited advertising campaigns, both parties, we feel, are not fully aware of the value and power of advertising when correctly and scientifically applied.

We shall therefore now deal with some of the more important points to be understood about modern, scientific advertising.

SCOPE & POWER OF ADVERTISING

Advertising is otherwise known as "mass persuasion". No manufacturer or Government department can afford to interview several thousands of members of the public individually on any given day. This will be most costly and time-consuming. An advertising message published in a selection of newspapers, can be seen by lakhs of persons simultaneously, the same day. This applies to other mass media, like posters, cinema slides, etc. as well.

The power of advertising can be easily demonstrated. In 1948 no home in the United States had a television set. By 1957, i.e. within 9 years, 82 per cent of all US homes had television sets—a total of 39,300,000! Within less than a decade a great new industry was created, employing tens of thousands in manufacturing, distribution and servicing. This is an object lesson for us too.

MASS PRODUCTION DEMANDS MASS DISTRIBUTION AND MASS SELLING

We are rapidly changing over from a village economy with its handicrafts, cottage industries, and slow-moving bullock carts to great manufacturing industries, and speedy transport by trucks, trains and aircraft.

When goods are mass produced for popular consumption they must be distributed widely at first to every one of our 3000 towns, and subsequently to the majority of our 5,58,000 villages. If any one of our manufacturers can confidently say that his product has achieved such a wide distribution, his achievement is indeed creditable.

There are a few—very few—factories who have done this; a popular brand of tea and a popular brand of toilet soap are outstanding examples. Both of them have extensive distributing systems; they advertise very widely and are leaders in their respective fields. Both their distribution arrangements and advertising programmes may be studied with great benefit by other manufacturers.

In the United States distribution occupies an extremely important

place in the nation's economy. In some cases as much as 50 per cent of the retail price of a product consists of distribution costs, which include:

- factory salesman's emoluments
- freight, insurance & despatch charges
- wholesaler's commission or profit margin
- warehousing charges of wholesaler
- retailer's warehousing charges
- retailer's expenses and profit
- retailer's packing and delivery charges
- interests on credit allowed by manufacturer, wholesaler and retailer
- advertising and sales promotion charges.

It will thus be seen that a fully organised distribution programme, besides giving the product the widest scope for sales, creates a large number of employment opportunities for middlemen and service agencies. This is a point which our manufacturers should especially bear in mind in view of the poor distribution of consumer goods and the large volume of unemployment in the country.

HOW ADVERTISING HELPS BUSINESS

Properly used, advertising can perform these important functions:

- It can bring down your selling expenses by reaching a large number of prospects at the same time and at low cost;
- It will go to prospects who usually refuse to see a salesman;
- It will make your product known widely, establish your name among buyers and safeguard you against imitation by competitors;
- It will help you to create new markets, find new customers, make introduction of new products easier, and increase your employment potential;
- Advertising helps to keep up a steady demand for your products, and is the best insurance against accumulation of stocks, fluctuating sales and inability to use the full installed capacity of your plant.
- By helping to build up your company's reputation and the product's goodwill, advertising can help you to recruit the best available talent in the country; increase the capital value of your investment, and raise your and your company's standing in your community and State.
- Advertising is a powerful weapon in the hands of a new manufacturer to establish himself in a market dominated by large, long-established

firms, who are too complacent to undertake systematic advertising.

Two recent examples may illustrate the case: An Indian manufacturer of an essential automobile component, who has a first class product, has built up a commanding position for his business through systematic and scientific advertising, against the competition of internationally known and long established brands.

The second instance was in the paint industry, which was going through a recent slump period. A local paint manufacturer walked into his advertising agency and congratulated the Manager on the excellent results of the latter's advertising—his paint business had suffered only a 25 per cent decrease! To the bewildered advertising agent he explained that his competitors had suffered drops from 50 per cent to 80 per cent!

Many more such instances can be quoted.

HOW TO FIX AN ADVERTISING BUDGET

This is a matter which is not properly understood by most advertisers. The methods usually adopted are:

- devoting to advertising a percentage of expected sales during a given period, say 12 months;
- a percentage based on the gross profit or sales during the previous 12 months;
- provision of a fixed amount per unit to be sold in 12 months;
- the task method—i.e. setting apart a fixed amount to do a given job.

The last, viz the task method is the best. The task to be done is determined by finding out:

- What proportion of the potential market is to be covered now?
- What are the nature and extent of competition, and their activities?
- How responsive is the product to advertising?
- What amount could be allocated—based on the gross profit on an anticipated volume?
- Will this amount be adequate to do a minimum job, a satisfactory job, or an effective job?
- How many years will it take to secure a satisfactory share of the market—and what percentage should be the immediate target?

Ultimately the answer will turn out to be a combination of the task method, and a percentage of the anticipated turnover.

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FOR COMPLETE BANKING SERVICE

SUBSCRIBED CAPITAL - Rs. 1,00,00,000
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Connections in all principal
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Manufactured by

Messrs. FARBENFABRIKEN BAYER, A. G. LEVERKUSEN, GERMANY.
(Represented by Messrs. Chika (Private) Ltd., Bombay)

Specialities :

- | | |
|--|------------------------|
| 1. FOLIDOL E. 605 (Conc. & Dust) (Insecticide) | 3. CERSAN (Fungicide) |
| 2. CUPRAVIT (OB. 21) (Fungicide) | 4. AGALLOL (Weedicide) |
| 5. ZELIO PASTE & MURITAN POWDER (Rodenticide) | |

Managing Agents of :

The Highland Produce Co., Ltd.	Ayurvedic Products Co., Ltd.
The Midland Rubber & Produce Co., Ltd.	Brunton & Co., Engineers, Ltd.
The Rajagiri Rubber & Produce Co., Ltd.	The Kalpetta Estates Ltd.
The Nelliampathy Tea & Produce Co. Ltd.	

Agents for :

Isthmian Lines, Inc. New York - Indian Trade & General Insurance Co., Ltd.
The National Insurance Company of New Zealand Ltd.

Exporters of:—TEA, RUBBER, COFFEE, CARDAMOM, AND ALL OTHER MALABAR PRODUCE.

Importers of:—MACHINERY, ACIDS, COPPER SULPHATE AND ALL OTHER ESTATE REQUISITES.

Shipping and Forwarding Agents.

ENQUIRIES SOLICITED.

Annual & Year Book 1957

The following are some examples of amounts budgeted for advertising and sales promotion in USA during 1956 by individual companies:

Product classification	Cost of Advertising & Sales Promotion as a percentage of sales
Toilet preparation	34.0
Cosmetic	29.0
Perfume	19.0
Paint	12.0
Drug	20.0
Soft drink	8.0
Appliance	6.0
Tyre	8.0
Automotive Part	3.5
Baby Food	5.3
Textile product	3.7
Air line	2.9
Petroleum	1.0
Photographic Equipment	2.0

It will be seen that the percentages of spendings vary with different types of products.

WHAT IS "GOOD ADVERTISING"

Is an attractive layout or a bold illustration all that is required to make a good and effective advertisement? The answer is an emphatic "NO".

Great progress has been made in recent years in establishing advertising on a more scientific footing. The leaders in this movement are the United States who invested the colossal sum of \$9,900 million (Rs. 4,750 crores) in advertising during 1956. This represented about 2.7 per cent of their national income.

Whether the purpose is to "sell" a toilet soap, a National Savings Certificate, or the principles of family planning, the following basic questions should be answered to begin with:

- (a) Product—What are its nature and characteristics?
- (b) Market—who are the potential buyers? Where are they? How numerous are they?
- (c) Time—Is it bought seasonally, or throughout the year?
- (d) Territory—in which areas is the product to be sold at present?
- (e) Media—What media, e.g. newspapers, magazines, cinemas, outdoor, etc. are available to carry the selling message?
- (f) Competition—Against what products or forces are we selling?

- (g) Strategy—Are we appealing to people's emotions, or their reason; or a combination of both?
- (h) Method—How do we present our sales message—do we attempt to educate the buyer about the product's uses and advantages? Do we emphasize the superiority of our product over competitive products? Or do we try a combination of both methods?

Detailed answers to all these questions may not be readily available; research is required to find out the missing information.

Even after obtaining all the necessary particulars, it will need an expert to draw the right conclusions and to apply them correctly. This is usually done by an experienced firm of advertising consultants, who can be found in our big cities.

A poorly planned and executed (or an unplanned) advertising campaign fails to produce satisfactory results. It pleases nobody, and is in fact an economic waste.

WHICH MEDIA TO USE

The best means of reaching the largest number of potential customers economically is through the newspapers. This has been proved even in the USA where they have powerful new mediums like radio and television. In 1956 the United States spent:

	Millions	%
1. Newspapers	\$3,235.6	32.7
2. "Magazines	749.7	8.0
3. "Television	1,209.9	12.2
4. "Radio	570.7	5.8
5. "Farm Publications	36.0	0.4
6. "Direct Mail	1,419.2	14.4
7. "Business Papers	495.5	5.0
8. "Outdoor hoardings, posters, etc.	199.6	2.0
9. "Miscellaneous	1,943.5	19.5
Total	\$9,904.7	100.0

Unfortunately no attempts have been made in India so far to assess the amounts spent in the different media or for comparing their respective importance.

We are giving below our own estimate of India's 1956 spending on advertising, based on our experience of the business for nearly two decades:

	Crores.	%
Newspaper	Rs. 6.00	44.4
Magazines	Rs. 2.00	14.8
Outdoor and Transportation	Rs. 2.00	14.8
Cinemas—Films and Slides	Rs. 1.00	7.5
Direct Mail	Rs. 0.50	3.7
Commercial Radio (Radio Ceylon)	Rs. 0.50	3.7
Business and Technical journals	Rs. 0.25	1.9
Miscellaneous	Rs. 1.25	9.2
Total	Rs. 13.50	100.0
	= \$28.40 million.	

The figures for newspapers and magazines are projections from those published in the Press Commission's Report; others are our own estimates. It is high time that either the Association of Advertising Agencies in India, the Indian Society of Advertisers, or the Statistical Department of the Central Government started collecting this valuable information.

BAROMETER OF DEVELOPMENT

Advertising is considered to be an accurate barometer of a nation's development in a free, competitive economy. The following figures of

advertising expenditures during 1956 lend weight to this statement:

Country	Advertising Expenditure during 1956	Proportion of National Income spent on advertising in 1956
	Millions	Per cent
USA	\$9,904	2.77
UK	912	1.94
W. Germany	550	...
France	212	...
Japan	166	...
Australia	100	...
Brazil	100	...
Sweden	100	...
Argentina	85	...
Italy	70	...
Belgium	50	...
Netherlands	50	...
Denmark	40	...
INDIA	28	0.13

This shows how far India is lagging behind, and what leeway we have yet to make up.

HOW ADVERTISING CAN HELP OUR FIVE YEAR PLANS

We have referred earlier to the problems to be faced by (a) the Government and (b) business and industry in achieving the basic objectives of our National Plans.

Government's problems fall into the following two broad divisions:

- (a) Educational
- (b) Promotional

While both the groups can benefit by advertising, the following 'promotable' items will benefit most from properly conducted and scientific advertising:

1. Marketing of cottage industries' products and small scale industries' products.
2. Small Savings Schemes.
3. Government Loans.
4. Exports.
5. Nationalised Life Insurance.

If supported by well planned and well designed advertising on an adequate scale, there should be no difficulty in achieving the plan targets.

RESEARCH IN ADVERTISING

The effectiveness of advertising can be increased many times when it is supported by research at all stages, viz:

- (a) Product research—to assess the suitability and acceptability of the product.
- (b) Marketing research—to find out who the consumers are; their consumption habits; location; buying habits; etc.
- (c) Advertisement research—to test the copy, illustrations, layout, the kind of appeal, etc.

A great deal of research has been conducted in Western countries on these and allied subjects, and some of the findings have been published. This has enabled them to adopt methods and approaches which have been proved to be effective, and eliminate wasteful and unsuccessful methods. While some of the basic findings may be applicable

in India, this assumption can be confirmed only if local research corroborates the findings.

Very little research has been done in India so far. Efforts should therefore be made without delay to start systematic research on each aspect. Both Government and the trading and manufacturing public should apply themselves to make a start in this important project.

At the same time, market research combined with well-planned advertising is one of the best means of promoting and building up exports.

CENSUS OF DISTRIBUTION

We have referred earlier to the importance of effective distribution in securing the sales of any product or service. It may be emphasised here that any amount of advertising without proper distribution will fail to produce satisfactory results. In fact, distribution should precede advertising to make the latter most effective.

Enquiries by individual manufacturers have revealed that the sales of a product vary directly with the number of outlets selling it in a town. It is also a fact that the more the number of businesses in a town, the greater will be the volume of its trade, commerce, employment potential and consequently its prosperity.

One of the basic pieces of data in marketing and advertising is therefore the distribution picture in the important towns and villages in the country. This can be ascertained only by a nation-wide census of trades and businesses—a project that only the Government is in a position to undertake. Such a census will help both the Government and the public.

SOCIAL VALUES OF ADVERTISING

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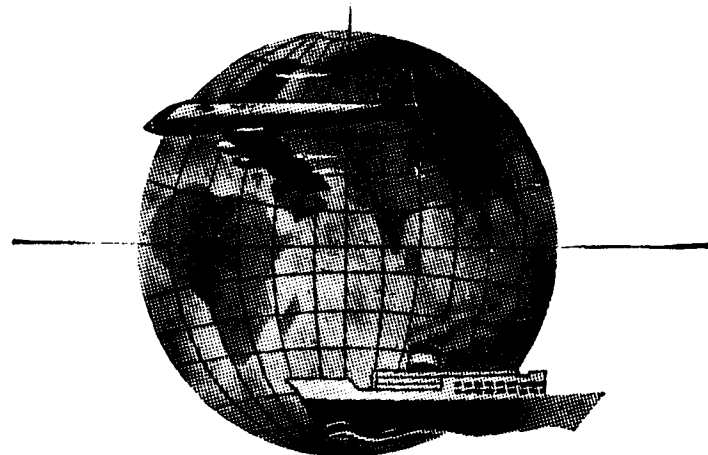
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Life Insurance in India

By A. C. GUHA ROY

MR A. D. SHROFF, Chairman of New India Insurance, in his presidential address the other day conceded that life insurance as a social service should be run by the State but he held that it does not mean that it could be run by the State. Thus, from the ideological point of view, the spokesman of the private sector recognised the social role of the State in a community service like life insurance. It need hardly be stated that it is unethical and goes against the concept of morality that community and social service should be exploited to be a source of profit to the individual. A State wedded to the welfare of the individual has necessarily to assume direct and active responsibility for social service. The Government of India, in nationalising life insurance in the country, have only acted in conformity with the inherent role of a welfare state. As regards the query posed by Mr Shroff as to whether life insurance could be run by the State, the Life Insurance Corporation of India is providing the answer.

The Corporation commenced trading without having the advantage of having a precedent of any kind. Life Insurance is, in some countries, a mixed undertaking. Even so, they hardly provided a parallel. The countries, highly educated, and smaller in size, bear no comparison to India with its vast borders and a teeming population immersed in prejudice, squalor, poverty and thriftlessness. In this climate, hostile rather than conducive to growth of thrift and insurance, the Life Insurance Corporation was born. The critics who, from the beginning, saw in nationalised life insurance signs of disaster, would do well to remember that life insurance would belie the social role if, as in the company regime, it was assiduously directed to upper middle class. The Corporation has a far larger message and its sense of direction to the assignment should be appreciated rather than criticised. In its endeavour to weld into one unified whole, the incoherent mass of legacy of two hundred and odd companies, it is bound to make mistakes and errors, but it goes to the credit of the Corporation that it has been able, in the course of a year or so, to impart a semblance of order and coherence to a tangled mass of varying systems and patterns of the differing companies including widely varying terms and conditions of service of about 27,000 employees.

An indication of the enormity of the task will be found in the interim report of the Life Insurance Corporation of India. When the

Corporation was constituted on the 1st September 1956, it was confronted with the task of integrating into one organisation the controlled business of 243 differing units. These units differed widely in age, size, pattern of organisation, in fact in every aspect of working. The total assets of these units as on 31st August 1956 were about Rs 411 crores and the total number of policies in force was over 50 lakhs assuring a total sum of more than Rs 1,250 crores.

The investments again constituted a problem. The investments which were taken over by the Corporation on the "appointed day" stood in the names of the controlled business of the Companies merged in the Corporation. The magnitude of the task may be appreciated when it is mentioned that there were 243 units whose investments were to be integrated and all these units had invested in the debentures and shares of some of the 2000 and odd joint stock companies apart from their investments in the Central and State Government Loans and in other trustee securities. To scrutinise these investments, to transfer them from their places of safe custody to the safe custody accounts of the Corporation and to get them transferred in the name of the Corporation was an enormous job requiring careful planning and supervision. According to the interim report, more than two thirds of the investments have been integrated. The process is nearing completion and complete integration is expected before 31st December this year.

The integration of the services of supervisory clerical and subordinate staff presented still more difficult problems. Standardisation of pay scales and service conditions was an absolute necessity, if the Corporation was to function as an organic whole, but the widely differing salary scales, service conditions and other privileges granted by the respective insurers presented serious difficulties in bringing about uniformity. The basic approach was that the Corporation should have a standardised scale into which all existing employees would be fitted. But, to prevent any monetary loss to existing employees, an assurance was given that at no time would an employee get less than what he would have got had he continued on his old scales of pay, provided he possessed the required standards of efficiency. There was widespread resentment amongst the employees in accepting the grade even with all the previous benefits attached thereto. After long and elaborate discussion, a mutually satisfactory agreement has been arrived at,

although the agreed terms, the interim report points out, are likely to increase the wage bill of the Corporation in respect of these employees by about Rs 60 lakhs per annum.

These brief details are indicative of the difficulties the Corporation had to face in the first essay in writing life insurance as a nationalised undertaking. Even so, the Corporation could have given a better account of itself had it not, from the beginning, been dominated by the Delhi Secretariat, both in its structural frame work and the composition of the hierarchy. The Corporation was, again, weighed down with vast responsibilities. It had, on the one hand, to stimulate life insurance in India and, on the other, to father correctly the first nationalisation of a community service. With it, nationalisation itself was on trial. Mr T. T. Krishnamachari stated in the Lok Sabha that the "teething of this particular baby has taken a very long time", but the Corporation had succeeded in "getting out of the morass". Even so, the Corporation has not been able to discard completely the shackles of bureaucracy, and that alone accounts for many of the ills that now corrode the vitals of the Corporation.

Orthodoxy of bureaucracy permeating every aspect of the person of the Corporation requires thus to be disowned, and not merely "dropping some of the useless limbs right on the top and strengthening some of the limbs in the Corporation which are useful", on the basis of which the Finance Minister proposes to amend the Life Insurance Corporation Act next year. The Corporation commenced with an apparatus devised on theoretical considerations. It speaks well of the Government of India that they are serious about mending the apparatus with a view to conforming to the requirements of life insurance in India.

The achievements of the Corporation have thus to be viewed in the context of the above noted limitations. The revelation of a precipitous fall of Rs 58 crores in business in 1956—the first year of nationalisation—came in for much mention as a testimony to the organisational inexperience of the Corporation in the current Lok Sabha debate. The defects were generally admitted by the Finance Minister. But it would be completely unreal to make an assessment without taking into account the limitations, and it would be equally unreal again to anticipate spectacular results merely because Government have stepped in, in the place of the companies, and that too in the very first year.

Mr Krishnamachari, however, disclosed that, up to November 25, fresh business amounted to Rs 196 crores in addition to proposals worth Rs 44 lakhs in hand. Enquiries made in the Corporation's Central Office reveal as on 11th November 1957, that the Corporation has completed a business of Rs 186.47 crores representing 79.56 per cent of the total quota of Rs 324.60 crores.

The interim report of the Life Insurance Corporation of India made an analysis of the completed business in 1956. During the first eight months of 1956, companies were managed by the Central Government with vast responsibilities. The Life Insurance Corporation of India was in direct charge from 1st September 1956 onwards. The following table gives the total new life insurance business effected in India by insurers during the last decade. The figures indicate the comparative position of the Life Insurance Corporation of India.

	crores of Rs)
1946	153.8
1947	139.6
1948	134.6
1949	122.2
1950	99.5
1951	79.9
1952	146.7
1953	155.2
1954	236.3
1955	238.3
1956	187.69

The interim report has endeavoured to explain the reasons for the fall in business. There is no reason why the Corporation should be apologetic, nor is there any reason why the authors of the report should refer to "substituted business" "staff insurance scheme" and "estate duty policies" in endeavouring to explain 1954 and 1955 figures. Discerning students will realise the limitations under which the Corporation proceeded in 1956 and that should provide the answer. Mr A. D. Shroff estimated India's insurance potential as Rs 8000 crores. The Life Insurance Corporation of India has estimated the number of insured persons at 5 million which, according to their calculations, represents only 5 per cent of the potential number of persons who can be insured. It is obvious from a perusal of the peak figures of the company regime that, with their organisational strength and experience of decades, there was neither a serious endeavour nor a calculated planning to reach even half the figure mentioned by Mr Shroff. Life insurance was conceived and planned to suit the requirements of the upper and middle income groups. The companies failed to take note of the changing economic pattern of



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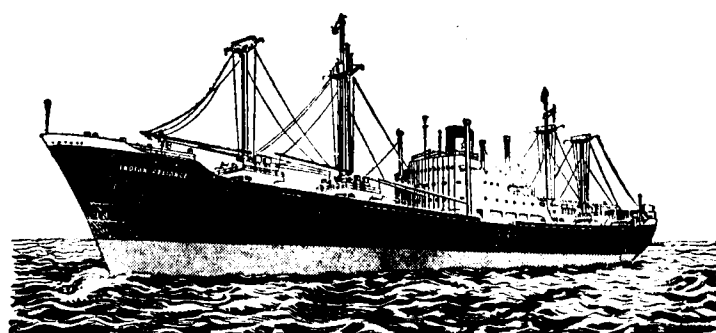
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India and the process of shift in income from the middle class to the skilled and semi-skilled labour. On this vast insurance potential, attention has to be focussed. It matters little, therefore, if the Corporation has failed to reach the figure of 1955, nor should the Finance Minister have looked longingly at the 1955 figure as if that sets the ideal in life insurance in India. He should have, on the contrary, focussed the attention of the Lok Sabha on the insurance potential and how the aims of the Corporation require to be strengthened to probe into the reservoir of insurable material. Its Janata policy is only a pilot project in that direction.

All the investments of the insurers whose controlled business was taken over by the Corporation on 1st September 1956, amounted to Rs 341.40 crores on that day. The Interim Report gives the distribution of these investments:

(Figures in Crores of Rs)			
Class of Investments.	Book Values.		
	Total	%	India
Government of India Securities	171.04	50.1	171.04
Foreign Government Securities	11.36	3.3	Nil
Indian State Government Securities	34.99	10.2	34.99
Foreign Provincial Government Securities	0.73	0.2	Nil
Govt. guaranteed and other approved securities	31.67	9.3	31.33
Debentures of Companies	20.38	6.0	19.49
Preference Shares of Companies	13.29	3.9	12.87
Ordinary Shares of Companies	23.42	6.9	22.43
Loans on Mortgage of Properties	14.97	4.4	14.86
Other Loans	0.71	0.2	0.71
Land and House Properties	18.84	5.5	18.28
Total	341.40	100.0	326.00

In the following table is given a statement of the distribution of the investments of the Life Insurance Corporation as on 30th June 1957.

(Figures in Crores of Rs)			
Class of Investments.	Book Values.		
	Total	%	India
Government of India Securities	171.31	47.5	171.31
Foreign Government Securities	11.35	3.2	Nil
Indian State Government Securities	44.18	12.2	44.18
Foreign Provincial Government Securities	0.73	0.2	Nil
Govt. guaranteed and other approved securities	32.60	9.0	32.23
Debentures of Companies	21.78	6.0	20.89
Preference Shares of Companies	14.90	4.1	14.47
Ordinary Shares of Companies	29.03	8.0	28.05
Loans on Mortgage of Properties	14.32	4.0	14.21
Other Loans	0.71	0.2	0.71
Land and House Properties	20.12	5.6	19.56
Total	361.03	100.0	345.61

*Show the investments as on 30th April, 1957.

It will be of interest to note that, as at 31st December 1955, 47.4 per cent of the assets of the Indian insurers was invested in Central Government securities. This went up to 50.1 per cent on 31st August 1956, but again declined to 47.5 per cent on 30th June 1957. Likewise, during the company regime 7.4 per cent of the assets of the Indian insurers was invested in Indian State Government securities. This went up to 10.2 per cent as at 31st August 1956 and to 12.2 per cent as on 30th June 1957. Thus, the fall in investments in Central Government securities was compensated by rise as on 30th June 1957 in investments in State Government securities. On 31st December 1955, investments in preference shares of Indian companies was 3.8 per cent and in ordinary shares 6.9 per cent. Under the Government of India, on 31st August 1956, the percentages stood at 3.9 and 6.9 respectively marking no variation in the pattern of investments. On the 30th June 1957, the figures went up to 4.1 and 8.0 respectively. The pattern of investment of the Life Insurance Corporation of India came in for strong criticism in the current Lok Sabha debate and no doubt the incidence of investment in ordinary shares of companies

figured prominently in the minds of the members of the Parliament. Serious doubts had arisen in the minds of the public in the last few months, because the investment policy, it was alleged, was to benefit certain private capitalists. The Finance Minister, however, defended the present investment policy of the Corporation. He said that profitability should be the criterion for investment. In outlining the Government policy, the Finance Minister stressed the need for investment of the funds of the Corporation in public concerns which had grown up under the auspices of Government influence and Government protection. That was, he said, the "culmination". He denied that there was any policy of helping any individual. Insurance funds, he said, would not be used to serve the interests of any particular group. All investments would be made keeping the interests of the policyholders in view.

A Bill is in the agenda of the Lok Sabha for setting up a statutory body for investment of insurance funds. The body would be supported by advisory committees in Bombay, Calcutta, Madras and other areas where there might be business with a view to looking into these matters.

General insurance turns the corner

ALMOST simultaneously with the nationalisation of life insurance in India, general insurers in India seriously set about evolving their own "Code of Conduct", for, they feared that, should the unsocial practices, which stalk their path, be allowed to continue unabated, Government of India would not be able to stay their hands indefinitely. Sir Chintaman Deshmukh, whilst piloting the Life Insurance Corporation Bill, warned general insurers in the country that Government would examine nationalisation of general insurance on the issue of malpractices. He even refused to part with the three general insurance companies which came accidentally in the hands of the Government of India following nationalisation of life insurance as he said Government wanted to gain "experience". After considerable discussion and exchange of views, the "Code" was finally evolved and put into force on and from 1st March 1957. An undertaking by the Chairman of the Board of each company forms an integral part of the "Code". The "Code" is voluntary in character. But it has all the compelling force of law in as much as its implementation is ensured by a "voluntary" agreement of the Board of each company. The Code ensures advance payment of premiums—the credit system, bane of general insurance business, being abolished altogether. Periodical inspection by the Government appointed auditors is an integral part of the code. The inspection has been designed to ensure that the busi-

ness is run on proper and correct lines, that there be no malpractices such as rebating, etc., and that proper value be placed on assets and liabilities. A "solvency test" has been designed with a view to ensuring that the companies' assets over liabilities reach a certain standard. The Code has been in operation for the past nine months, and seems on the whole to have worked well. It may not be too presumptuous to claim that Indian general insurance has turned the corner.

The Principal Agency has been abolished in India from 1st September 1957. The former Principal Agents are now allowed to function, but their commission level has been reduced to 10 per cent for marine and 15 per cent for non-marine business. Principal Agents, therefore, can draw commission only at the level of ordinary individual agents. In India, thus, commission has been reduced to the minimum and to one level only. A uniform rate of commission available to ordinary and principal agents makes the position of previous Principal Agents somewhat untenable, with the result that the Principal Agency system will slowly die a natural death.

For general insurance business, completed figures up to the end of 1955 are available.

The table below shows the gross premium written direct in India during the year 1955 by Indian and non-Indian insurers operating in India. The figures in brackets

give the increase (+) or decrease (—) compared with the corrected figures for 1954.

(In Thousands of Rs)				
Gross premium written direct in 1955.				
Class of Insurance business.	Indian Insurers.	Non-Indian Insurers.*	Indian Insurers.	Non-Indian Insurers.
Fire	5,91.43 (+12.42)	4,36.01 (+7.35)	1,82.56 (+6.12)	—
Marine	3,28.31 (+50.13)	2,67.15 (+24.05)	1,63.79 (+2.57)	—
Miscellaneous	4,35.08 (+46.37)	2,15.24 (—2.71)	1,80.60 (+12.36)	—
Total	13,54.82 (+108.92)	9,18.40 (+28.89)	5,36.95 (+8.81)	—

*Inside India. †Outside India.

Table below gives the net premium income in 1955.

(In Thousands of Rs)				
Gross premium written direct in 1955.				
Class of Insurance business.	Indian Insurers.	Non-Indian Insurers.*	Indian Insurers.	Non-Indian Insurers.
Fire	2,74.70 (+10.77)	2,80.51 (+20)	5,73.79 (+19.87)	—
Marine	1,45.07 (+10.02)	1,93.26 (+19.83)	1,86.69 (+1.02)	—
Miscellaneous	3,29.15 (+16.29)	1,96.64 (+1.69)	1,88.39 (+20.70)	—
Total	7,48.92 (+37.08)	6,70.41 (+21.71)	9,48.87 (+41.69)	—

*Inside India. †Outside India.

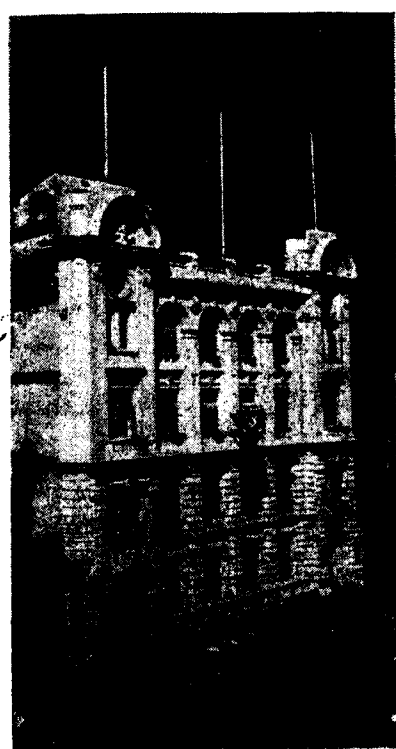
The above figures show that the gross premium written direct in India during the year 1955 in all classes of business registered a sharp increase as compared with the figures of 1954. Whilst the foreign insurers are behind Indian insurers by more than Rs 4 crores in gross direct premium written in India, they are short by a little less than a crore in net premium increase in 1955 compared to Indian insurers in business inside India. Indian insurers have, however, a net premium income of over a crore outside India. That shows that, apart from direct business overseas, Indian insurers are getting good reciprocity for their reinsurances overseas. In fact, the combined gross premiums of Indian insurers both inside and outside India are almost at a level with their combined net premium income inside and outside India.

The following table gives the gross and net premium increases during the years 1951-55. The figures are self-explanatory.

(In Thousands of Rupees)				
Total gross premium written direct in India by Indian and non-Indian insurers				
Year	Fire	Marine	Miscellaneous	Total
1951	12,05.53	5,94.04	5,94.04	23,93.61
1952	10,33.17	5,51.74	6,09.18	21,94.09
1953	9,82.71	4,90.04	6,10.61	20,83.36
1954	10,07.47	5,21.28	6,06.66	21,35.41
1955	10,27.44	5,95.48	6,50.32	22,73.24

Total net premium income inside and outside India of Indian insurers only

Year	Fire	Marine	Miscellaneous	Total
1951	7,86.56	2,76.12	4,02.05	14,64.73
1952	7,67.82	2,82.87	4,12.90	14,63.59
1953	7,91.40	2,79.65	4,58.72	15,29.77
1954	8,17.75	3,20.72	4,80.55	16,19.02
1955	8,48.49	3,31.76	5,17.54	16,97.79



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Cooperative Farming for India

By S. RAMASWAMI

AT its meeting in mid September, the Standing Committee of the National Development Council decided on a five-point programme for the promotion of Cooperative Farming. All the State Governments were called upon to cooperate in this programme. The Prime Minister and the Union Planning Minister were reported to have made special appeals for expediting land reforms of which cooperative farming formed one of the most positive aspects.

The five-point programme is to consist of the following steps: (1) a survey of the existing Cooperative Farming Societies to be undertaken with a view to selecting those societies which should be developed further through the programme of cooperative experiment. (2) During the next three years, about 3,000 Cooperative Farming experiments are to be carried out in all the States, after consultation with the State Governments. (3) Of these, 600 are to be taken up for 1958-59, the selection of societies, the training of the personnel, the drawing up of village industry programmes for the societies, etc., to be taken on hand forthwith. (4) A programme for resettling landless workers to be undertaken on lands obtained through the application of ceilings and the Bhoodan and the Gramdan lands; it was tentatively suggested that about three lakhs families of landless workers should be settled on these lands during the remainder of the Plan period; and (5) With the aforesaid purposes in view, each State is to set up a Board consisting of officials and non officials and entrusted with advisory functions; a similar Board at the national level is also envisaged, for considering general questions of policy and organisation.

Apart from the preference indicated for cooperative farming in the Second Plan, the Prime Minister is known to be firmly wedded to the idea. He believes that it is not enough to organise credit and supplies alone on cooperative lines, an idea which was sponsored by the All-India Cooperative Union as the more practical under conditions obtaining in India. The Prime Minister holds that cooperation should be on a wider basis and he has expressed himself in favour of cooperative societies linked to the Community Development Projects. Even he does not wish to proceed except on the willing consent of the people concerned and therefore rather slowly. He also concedes that members who join the Cooperative Farming Societies must have the right to withdraw and that, in any case, servicing societies will have to come first. The outlook for cooperative farming is stimulated largely by the application of ceilings on land holdings on the one side and on the existence of uneconomic holdings, on the other, all over India.

In India, a great deal could be said in favour of cooperative farming and a great deal against. It is obvious that farms below 10 acres are uneconomic sometimes even in the most fertile area. Joint farming would appear to be the only way for a reduction in cost of cultivation and for the avoidance of waste such as what arises from bunding, the separate ownership of cattle, implements, etc. With the imposition of ceilings, the small percentage of big farms will automatically be disrupted, to join the ranks of the majority whose economic management remains largely doubtful. The points against are more numerous. The small farmer, who is often an agricultural labourer too, if deprived of the obligation to work on his own land, may find it tempting to migrate to the towns and thus aggravate the problem of urban unemployment. Under the tardy pace of industrial expansion today, this is a trend which it is not desirable to encourage. Cooperative farming implies, at least in the eyes of those who are its strongest advocates, today, the increasing replacement of manual by mechanical labour without which the cost of production cannot materially go down.

When machine replaces the human hand in agriculture rural unemployment will be correspondingly worsened. There is also the overwhelming objection of the small farmer being deprived of his sense of immediate personal interest in the land he cultivates, which has always been a great compensation for the miseries of rural underemployment. Again, in countries such as Russia, an acre or two of land are set apart for purposes of the family garden, which is entirely privately owned and managed, and which does not belong to cooperatives. In many areas in India, the individual landowner may not have more than one or two acres, and if this much of property is excluded from the scope of cooperative farming, there would be little left for joint cultivation.

In India, the spirit of cooperative farming obtained in the old economic structure of the villages, where many functions were undertaken on a joint basis and produce shared in some agreed proportions among the participants, whether families or groups. But that tradition can no longer be recovered and cooperative farming today is conceived on an entirely different basis. Experiments in this field are by no means new. Several years ago, Cooperative Farming Societies were tried in the Bombay State. In spite of the initial enthusiasm displayed by the peasants and the keen interest taken by the State Department difficulties soon cropped up. From the accounts available of the working of these societies, the participants could not agree on the manner of assessment of individual contribution in labour or in the supply of bullocks or materials

and even in the estimate of yields; the cooperatives could not survive long in a healthy condition. In the Punjab, similar experiments were tried, though with slightly more encouraging results.

In the first Five Year Plan, there was a provision of Rs 40 lakhs for the promotion of planned experiments in farming, with a view to evolving suitable methods and techniques for cooperative farming. It is a sad commentary on the response from the public that the bulk of this provision remained unutilised. About 14,00 farming societies were actually formed, which included tenant farming societies, joint farming societies and collective farming societies, all of them together covering an area of nearly 2 lakhs acres. In Bombay, where State financial assistance was given on a generous scale, a large number of these societies are reported to be working satisfactorily. Data on the progress of the societies in other States are insufficient for any reliable judgment. The general impression is that a sustained effort was not forthcoming and therefore the aim of the Plan in this particular respect went mostly unfulfilled.

In the Second Plan, the position was naturally reviewed and it was once thought that new foundations would be laid for the development of cooperative farming so that, during a period of about ten years, a very substantial part of the cultivated area in India would be brought under this system. Subsequently, several discussions have taken place and apart from the direct stimulus given to co-operative farming in the Community Development Projects and Extension Blocks, nothing much seems to have been done on practical lines, in spite of the fact that even cooperative village management is held out as the ultimate goal of planned economy for the rural areas.

The meagre success of the movement, despite strong official encouragement and support has to be traced to the average Indian peasant's reluctance to give up a way of life and a way of economic functioning to which he has been accustomed for centuries. Ultimately, cooperative farming involves the surrender of individual rights and the acceptance of a group discipline in the only worth while activity to which the Indian peasant is accustomed.

It can even be said that the new and more efficient services which either Government Departments or the Community Projects or other semi-official organisations rendered to the peasants in the form of technical guidance, supply of implements and fertilizers or cheap credit, have undermined to some extent his sense of appreciation of the need for a thorough change in the system of cultivation. This is perhaps the strongest reason why, even in the Community Projects areas, where publicity and propaganda are most concentrated, the response

from the peasants continues to remain lukewarm.

Beyond the borders of India, it is in Israel that cooperative farming has shown the most brilliant results; but there, cooperative farming was taken up with a kind of missionary zeal and group fervour which it is impossible to expect from the traditional inhabitants of larger countries. Israel itself is the creation of a unique communal fervour and the peculiar economic conditions under which the tightly packed population of that new State is forced to get on have necessitated ways and techniques which do not appear to be easily adaptable in conditions obtaining elsewhere. In countries like the USSR, Italy, Germany and England, though cooperative farms thrive, they are reckoned more as infrequent exceptions rather than the general rule. It is also noteworthy that, in all these countries, cooperative farms have emerged in answer to the need for economising human labour and attaining the benefits of large scale mechanisation.

This trend is all the more conspicuous in Communist countries where the collectives are becoming the order of the day. While it has to be admitted that, in the USSR, collectivisation of farms, which incidentally is different from cooperative farms as conceived in India, has led to a remarkable improvement in crop yields and in total agricultural production, the manner in which these results have been achieved is not at all congenial to the requirements of a country where the problem of surplus labour is most acute and is perhaps worsening day by day.

In Russia, collectivisation and mechanisation have gone hand in hand. Significantly, during the process of industrialisation, Russia was able to absorb almost the entire labour released from agriculture. As early as 1932, 25,00 machine and tractor stations were in existence in Russia, each equipped with the agricultural implements necessary for various duties on the collective farms. The wooden plough, the scythe and the sickle, quickly gave place to the tractor. At the commencement of the Second World War, more than 50 per cent of the harvesting in Russia was being done with tractors and combines. Today, the percentage is much higher.

In the light of these facts and experiences, the path of co-operative farming in India must be deemed to be none too rosy, unless radical changes in political conditions take place, which may have the effect of transforming the outlook of the population. At the same time, the great zeal evinced by the Planning Commission and the Congress Party is not likely to go unrewarded; the few beginnings which are now being witnessed may augur widespread changes and developments on a scale difficult to envisage at present.

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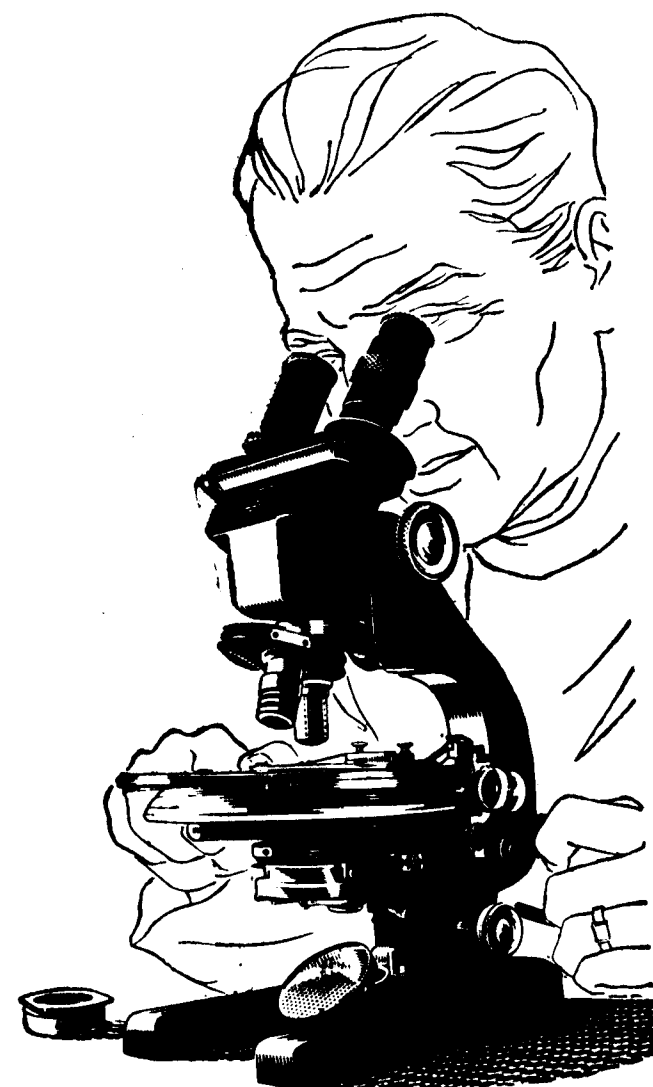
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Power Development—Need for Balance Between Hydro and Thermal Schemes

By R. P. AIYER

THE need for tapping the hydro resources which otherwise would go waste has largely governed the country's power development plans. Nevertheless there has been greater awareness recently of the need for co-ordinated development of hydro and thermal power for securing the optimum benefit from the country's available resources. The river systems of the country have already been surveyed, and reports covering the following regions are available.

Ganga Basin.
East Flowing Rivers of South India.
West Flowing Rivers of South India.
Rivers of Central India.

While no doubt these 4 river basins, not to mention the Himalayan region, must needs be fully exploited, any long term plan for power development should take into account the trend in load growth as well as the pattern of consumption over a period. Systematic load surveys have been initiated only recently and indications are that the country has a utilisation potential of over 35 million kW as to sustain fully the development of anticipated regional loads over the next two decades.

LOCATION OF INDUSTRY

Conscious planning no doubt could, by locating power stations at pre-determined places, attract industries to such places. Nevertheless industry has a tendency to gather round centres which have already achieved a measure of industrialisation. The economic factors which have induced such industrial development are the traditional ones such as (a) availability of raw material, (b) water supply (c) skilled personnel (d) financial and banking facilities and (e) a ready market for the produce. The availability of electricity is of course an influencing factor, but the others cumulatively tip the scale in determining location of an industry.

Most of these developed areas are away from the big hydro electric sites and industries in those areas are increasingly dependent on thermal power. This will have an important bearing on future power demand. A significant point which may be mentioned here is that out of the target of 7 million kW of installed capacity at the end of the Second Five Year Plan the hydro component will be of the order of 3 million kW. This gives an indication of the relative roles of hydro and thermal development in the coming years.

POWER GROWTH

Even in the most developed countries of the West, growth in power consumption continues un-

abated, and in the face of this phenomenon and past trends the country's power planners anticipate doubling in demand every 5 years, at least for another three

5 year plan periods. On this basis the following trend has been projected as an indication of growth in generating capacity by the end of the Fifth Five Year Plan period.

Installed capacity of generating plant including capacity in self-generating industries in million kW.

	At the beginning of the Plan	Additions during the Plan	At the end of the Plan	Percentage increase between beginning and end of Plan
1st Plan 1951-56	2.4	1.0	3.4	42%
2nd Plan 1956-61	3.4	3.5	6.9	103%
3rd Plan 1961-66	6.9	6.6	13.5	96%
4th Plan 1966-71	13.5	10.0	23.5	74%
5th Plan 1971-76	23.5	12.0	35.5	51%

These figures visualising a stupendous rate of growth indicate the magnitude of ancillary development in other industries if there is to be no wastage in resources inherent in non-utilisation. This is, of course, apart from the need to invest a sum of Rs 1,900 crores by the end of the Fifth Plan period on power development facilities alone.

COMPARISONS

Having referred to the targets, a reference may be made to the country's power resources. The country could be classified into three types of regions for this purpose.

- (1) (a) Predominantly hydro areas, covering the Himalayan region and the States bordering the region and (b) the Western Ghats
- (2) Predominantly thermal areas, such as West Bengal, South Bihar and parts of Madhya Pradesh.

HYDRO

Higher capital outlay per kW (above Rs 1,500 per kW).
Lower foreign Exchange.
Lower working expenses.

Higher outlay on transmission lines because of generating station being far away from load centres.

Time lag in accrual of benefits.

Longer time for investigation and planning.

Longer construction schedules (say 6 to 7 years) resulting in greater interest charges during construction.

Larger employment during construction stage.

THERMAL

Comparatively moderate capital outlay (Rs 900 per kW).
Larger foreign Exchange.
Higher operating costs on account of fuel.

Smaller outlay on transmission lines.

With greater flexibility in phasing, greater possibility of revenue being earned earlier.

Comparatively smaller time on planning.

Shorter periods for completion (3 to 4 years) with relatively smaller debit on account of interest.

Larger employment during operational stage.

These comparisons lead to the conclusion that development in a region is best attempted having regard to the resources in the area. Where running waters go waste, and multi-purpose projects are indicated for other reasons such as flood control and irrigation, the maximum benefits by way of hydro power should be obtained. Except in the Himalayan region hydro development schemes in the rest of the country are dependent on monsoon rains. Therefore, prudence would indicate the need for the thermal firming up in such regions. The perennial power shortage in Madras is an object lesson and points to the need for a balanced development of hydro and thermal components in a Grid. The implications of such a situation have not been lost sight of by the planners of Damodar Valley Scheme in that the programme of power generation in the D.V.C. envisages a power generation capacity of 559,000 kW, out of which 375,000 kW will be thermal and 184,000 kW hydro.

NUCLEAR POWER

The situation has also to be viewed in the context of nuclear power development, which is just round the corner, but this is a matter which is a subject by itself for discussion. It would suffice to say here that the possible saving in coal and its transport involved in an atomic power project recommend it for serious consideration in areas not reachable by comparatively cheaper power produced by multi-purpose river valley projects.

REALITY

The situation that the country would need large scale thermal development may be not palatable, but the hard fact is that integrated power development with a proper blending of hydro and thermal is a necessity which cannot be escaped. It is in this context that the Resolution calling for co-ordination of hydro and thermal resources adopted at the All India Power Engineers' Conference held in Bangalore in January 1957 assumes significance. Within limits set by the country's resources, it will, of course, be necessary to evolve a long term plan for power generation not merely from the point of view of harnessing the natural resources, but also to meet the country's power demand in all parts. This emphasises the need for nation wide survey of thermal resources simultaneously with survey of hydro-electric projects. The Central Water and Power Commission can be relied upon to conduct such a survey without loss of time and in the process indicate suitable locations for large and small thermal power stations—either at new sites or as adjuncts to existing thermal stations.

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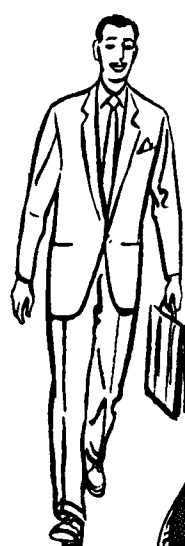
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What is Victimization?

By M. SUR

WE are becoming slaves of catch-words these days. Victimization is one of them. It is perpetually in the mouths of advocates and trade union officials who appear in industrial courts. What does it mean? Can it be victimization to keep a check on the work of a clerk found to be idle and inefficient? Can it be victimization to record his inefficiencies and finally charge him with them? It seems in certain circumstances that it can.

Take the case of a clerk employed by the River Steam Navigation Co. Ltd. referred to the First Labour Court in Calcutta and reported in the Calcutta Gazette of 28th November. It seems that for years this clerk had been having a very easy time. His job was to check the charges for tolls sent in by the Port Commissioner's Office by scrutiny of certain manifests. The items were ticked off one by one, but in recent years he had not reported any discrepancy. Then one day the management became doubtful that a true check was being kept. A counter check was made and various discrepancies which the clerk had failed to bring to light were detected. It was also discovered that his work was 18 months in arrears. The clerk was therefore charged with gross negligence of duty in that he allowed his work to fall into arrears, that he had certified as correct certain manifests which contained discrepancies, and that he had failed to check others, thus involving the company in heavy loss.

One would hardly have thought that the management was not within its rights in taking disciplinary action against the clerk, though one might criticise their supervision in past years during which the clerk had managed to get away with ticking items without proper checking and without, it seems, much idea of what he was doing.

But this particular clerk was Assistant Secretary of one of the units of the Union which was recognised up to April 1956, when the company withdrew recognition of it. (Later it was recognised once again and still is one of the recognised unions in the company, but the award makes no mention of this). Here is the rub. The clerk had a ready-made case when the company, after the usual departmental enquiry, dismissed him for negligence of duty. With the backing of the union he declared that his dismissal was a case of unfair labour practice; that in fact he had been victimized for his trade union activities; and that after withdrawal of recognition of the union the company had set out deliberately to get rid of him as its assistant secretary.

The First Labour Court awarded reinstatement with full back pay

of the clerk on the grounds of flagrant victimization, holding that the termination of one who for the past 8 years had had a clear record was obviously actuated by mala fide motives.

In the Court's view the company had withdrawn recognition of the union in April, 1956, because of the public campaign of vilification that it had directed against the company. A charge-sheet was issued in June after a 'long battle of letters' about arrears of work with the clerk and the Court held that the wrath of the company had fallen upon him because he was assistant secretary of the union. It held that the company was actuated by mala fide motives even in launching the proceedings against the clerk.

The fact that the company, far from victimizing the unit secretary of the union, who was also the head clerk, had actually promoted him to junior officer grade was not held as evidence of the company's bona fides, as it was argued by the union that the company had only promoted him to withdraw him from his trade union activities, although the fact that he was head clerk and had long service gave him an obvious claim to promotion. (It seems a bit hard that the union can argue it both ways—charge-sheeting and promotion in this case are both held to be unfair labour practices and evidence of the company's evil motives.)

As to the actual charge, the accumulation of arrears was admitted, but the Labour Court did not agree with the management's finding of guilty on this count. He held that the work could not be done single-handed (though the only evidence for this seems to be the fact that the clerk who took over the work had to have assistance to bring the arrears up to date), and that certain arrears were inevitable because it took 2 to 4 months to get the Port Commissioners' returns. The difference between 4 and 18 months arrears is not commented on! The award adds: "Shri... was emboldened to let arrears mount up because he knew that there was no check over his work for the last 7 or 8 years, and I am sure there would have been no checking at all if the feelings between the union and the company had not become strained of late." The conclusion is a possible one, though not very complimentary to the company's system of supervision, but how does it excuse the arrears or absolve the clerk from responsibility?

On the second charge of not checking properly the Court found the clerk 'clearly guilty'. His explanation that the return of some manifests as checked when he had actually not checked them was

done in haste was not acceptable, said the Court. From the evidence cited it seems that the clerk had no very clear idea of what he was doing, for the procedure as outlined by him was stated to be entirely incorrect by a technical officer of the company. The third charge, which related to losses incurred through the negligence of the clerk is not dealt with in the award. However, though the Court found the clerk guilty on at least one count, it held the punishment of dismissal to be "too harsh, severe, arbitrary and unjust," and that it called for remedy in the interests of justice. In the opinion of the Court a warning would have been enough. So in the interests of 'social justice' the clerk has been reinstated.

What are the rulings of the higher courts on this question of victimization? The Labour Court in its award mentions one of them, the well-known Buckingham and

Carnatic Mills award (L.L.J. 51 II p. 314) which stresses that the management has the right to direct its own internal administration, but that the employee must be protected against vindictive or capricious action by the management which may affect his security of service, and adds that at the same time undue interference by a tribunal with administration should not be encouraged.

There have been a number of other cases. The Appellate Tribunal in the case of Caltex (India) Ltd. (L.A.C. 55 p. 445) held:

"Victimization is a question of fact, namely whether the employer is acting bona fide... or whether he is motivated by some improper object... The reason for victimization urged in the present case is that the persons chosen to be proceeded against are connected with the labour union... A member or official cannot take shelter behind the

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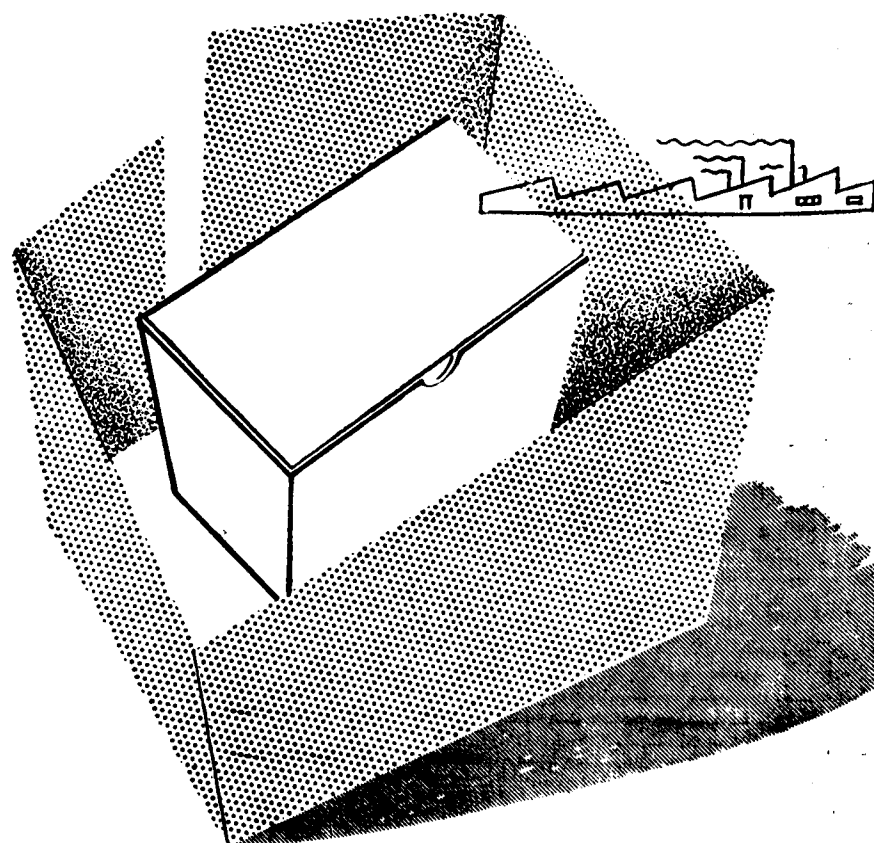
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mere fact that he is a member or an official of a trade union. Of course, the fact that he is an officer or active worker of a trade union will be relevant in the enquiry as to whether there is any improper reason for selecting him for being proceeded against."

The Supreme Court also in the Laxmi Devi Sugar Mills case (F.J.R. 56-57 XI p. 202) passed severe strictures on an employee who tried to shield himself in his capacity as vice-president of the union from answering questions in an enquiry into alleged misconduct.

The Supreme Court in another Caltex case (L.L.J. 57 I P. 1.) observed that:

"The measure of punishment to be meted out is within the sole discretion of the employer, who is to judge for himself what is the punishment commensurate with the offence which has been proved against the workmen."

But these cases all concerned applications under Section 33 of the Industrial Disputes Act for permission to dismiss, and it has been established that in such cases the management has only to make out a prima facie case for punishment, and the court to give permission or approval for punishment without passing orders on the kind or severity of the punishment.

It has not, as far as we know, ever been laid down that the industrial courts shall not interfere with the type of punishment in other cases. In fact in many cases on the grounds of mala fides the industrial tribunals have done so. But this is surely anomalous. If misconduct occurs during the pendency of proceedings before an industrial court, the employer can apply for permission or approval of dismissal (according to the appropriate clause), and he has only to establish in the eyes of the court the guilt of the workman concerned for that permission or approval to be granted, but if there are no proceedings pending and a straight reference is made on a case of dismissal the judge can decide not only whether the workman was guilty, but on grounds of social justice whether the punishment was too severe.

In civil courts an employee can claim damages for wrongful dismissal. He cannot claim reinstatement. In industrial courts he can claim reinstatement and obtain it, although found guilty, if the judge considers dismissal is too harsh a punishment.

In the opinion of the Labour Court in the present case it seems that inefficiency which can allow work to fall into at least 12 months' arrears, passing items without proper checking and others with no checking at all, thus causing loss to the company, are minor offences not warranting

dismissal. One wonders whether judges would put up with such faults in their own clerks. Moreover the judge has himself made the following comment: "Honestly speaking I must say that Shri.... mixed himself up too much in his union activities and as a result thereof at times he did not give due attention to his works as the same required."

It may very well be that there was no love lost between this clerk and the management on account of the campaign of vilification that the union was conducting, but is that in itself sufficient reason for reinstating a provedly inefficient worker? The Court by condoning his offence has, in effect, given carte blanche to any employee who can claim to be an official or an active member of the union, to do or leave undone what he likes with impunity. What assurance has the company that the clerk on reinstatement will make any attempt to improve his work? Any word of complaint or correction will be treated by the union as further evidence of victimization, so there is no hope of turning him into even a moderately efficient clerk. Closer supervision will also be resisted on the grounds of victimization, so the company may as well abandon altogether the check of the toll charges! It is for these reasons that many managements hesitate to take any action in cases of laziness and inefficiency against union officials, with the result that the inefficient establish themselves in official positions to safeguard their jobs. This is neither the way for the trade union movement to flourish, nor the way to better productivity in industry.

The only other alternatives left to the Company are to refuse to reinstate the clerk—and such refusal in a recent case led to compensation being awarded at Rs 12,500, which would be a tidy reward for inefficiency—or to appeal to the Supreme Court against the award, which is also a costly business. Besides it is doubtful whether the highest court in the land should be cluttered up—as it is at present—with endless petty industrial cases of individual misconduct.

The irony of the whole case is that if the company had really held this particular clerk mainly responsible for the campaign of vilification, they could have proceeded against him on these grounds with the backing of the Appellate Tribunal judgment in the case of Bennett Coleman & Co. Ltd. (L.L.J. 55 II p. 548), which upheld dismissal of certain union officials for the issue and distribution of leaflets "couched in abusive, defamatory, libellous and disloyal language" thus breeding "a sense of disrespect, insubordination and indiscipline amongst the employees".

References:

L. L. J.—Labour Law Journal.
L. A. C.—Labour Appeal Cases.

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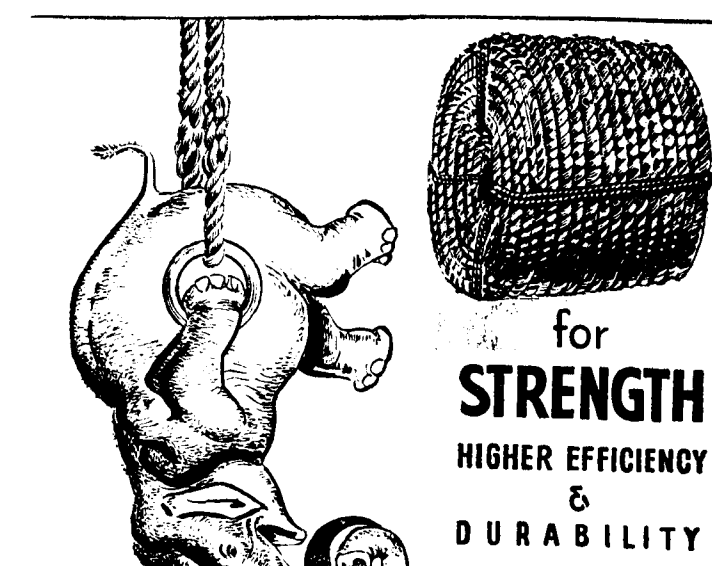
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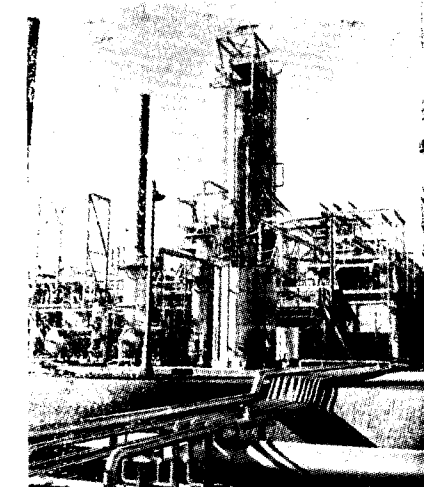
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Oil in India's Economy

By J. CHARANJIVA



DISTILLATION UNIT

IF we are to reduce human toil, we must have recourse to other forms of energy viz. animal, non-commercial and commercial energy. Animal energy, like human energy, is the oldest source of power available to man but is gradually getting outmoded for industrial purposes in the same way as non-commercial energy derived from wood, charcoal, animal and farm waste. The last named is better used on land to enrich the soil than as fuel. We have therefore to look to commercial energy (coal, electricity and oil) for the industrial advancement and economic progress of the country.

Atomic energy too is making rapid technological advance but its contribution to our requirements is not likely to be appreciable for some years yet, due, among other factors, to the high capital cost involved.

The contribution of hydro-electricity to the supply of world energy was 6% in 1955. It is currently supplying approximately 4% of India's industrial needs as against 80% supplied by coal and some 14% by Petroleum products. Hydro-electricity's contribution may increase somewhat during the next ten or fifteen years, but its expansion is likely to yield place to atomic power in the future.

Although the world, including India, has large reserves of coal,

its extraction is not easy, as the pits get deeper and extensive mechanisation becomes a necessity involving heavy capital expenditure. It is also hazardous. Coal production in the world has consequently been relatively static, and its percentage contribution to the total energy requirements has been on the decline. There has been a progressive shift from the coalfields of Europe and the USA to the oilfields of the Middle East and the Caribbean. World production of oil has gone up from 100 million tons in 1920 to over 800 million tons in 1956, oil having replaced coal for many uses both on land and water, e.g. diesel propulsion and oil firing on ships.

The energy pattern of the world has changed substantially during the past 30 years, as will be seen from the following figures:

World's Pattern of Effectively Utilised Energy:

	Percentage Contribution	Total
	1925	1955
Coal & Lignite ..	77%	45%
Petroleum Fuels & Natural Gas ..	20%	49%
Hydro Electricity ..	3%	6%
	100%	100%

During the past ten years oil requirements of the world have grown at an average annual rate

of some 7½%, though there have been appreciable variations from year to year: 1956 recorded a gain of 8% over 1955. India is no exception to this rapid world-wide growth of the demand for oil. By a coincidence she too recorded a gain of 8% in 1956 over the previous year. Her requirements of oil (currently approximately 5 million tons per annum), which doubled during the period 1948 to 1955, are likely to double again in less than ten years, if the present trend of demand continues. According to one estimate, India's requirements may well touch the 50 million ton mark by 1975, embarked as she has on a heavy programme of industrialisation in her five-year plans.

The four refineries (Assam Oil Company's at Digboi in Assam, Burmah-Shell and Standard Vacuum Oil Companies' at Trombay near Bombay and the fourth belonging to Caltex, which came on stream at Vishakhapatnam in July last) have a combined refining capacity of a little over 4 million tons per annum. When the projected Eastern Refinery comes into being, India's refining capacity will exceed 5 million tons per annum. But if her refining capacity will increase, so will her needs and more oil will have to be found both within and without the country to meet her growing requirements.

India's reserves of oil are currently estimated at 2½ million tons per annum. The find of oil, thanks to the efforts of the Assam Oil Company over a period of years, is at present confined to Assam where the Nahorkatiya-Hugrijan area has produced good results. Efforts to find oil in West Bengal, where two test-wells were drilled near Burdwan under the Indo-Standard Vacuum Agreement, have not met with success. Drilling is still going on at Jwalmukhi in the Punjab under the auspices of the Oil and Natural Gas Commission. Hard rock has been encountered which has slowed down the speed of drilling. A depth of 4431 feet was reached early in November and it will be a big thing if oil is found in this area. Extensive geological and geophysical work is also being carried out by the Oil and Natural Gas Commission in

conjunction with the Geological Survey of India, with a view to finding oil in other parts of India. It is fervently hoped that these efforts will be crowned with success, as, amongst other things, it will mean a considerable saving in foreign exchange.

But finding of oil is a very expensive operation and a hazardous undertaking. It is estimated that every additional ton of oil required in excess of existing demand currently calls for an investment of roughly Rs 600/- this cost is rising and is higher elsewhere. Approximately half of this sum of money is required to finance the exploration and production of oil from the oilfields, the other half being split between the requirements of refineries, tankers, research and marketing facilities. An investment of the order of Rs 300 crores at current prices will therefore be required to meet India's future requirements over and above present levels by say 1965, and double this amount by say 1970.

The finance required to develop the oil industry facilities for India are big indeed but the sums required for development over the world are enormous. It is estimated that the industry has already invested at least Rs 30,000 crores equivalent in many currencies since the war and will average at least Rs 4,600 crores per year for the next few years and over Rs 6,000 crores per year for the period 1961-65. The penalty of failure to meet this demand is widespread distress.

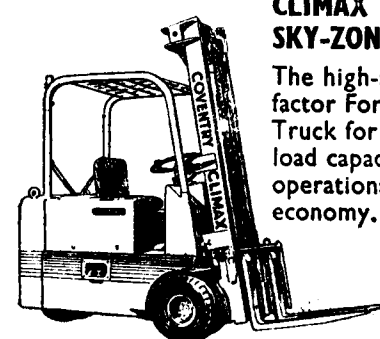
Capital finance of this size is not available from the world's markets and only a small proportion say 10 to 15% can come from the capital markets. Moreover, there is currently a demand for development and expansion of every kind in countries at all stages of economic development. All this requires capital which is in short supply.

The oil industry has a remarkable history of self-financing. With a large turnover and a small margin of profit, it has been able to finance its expansion by ploughing back the bulk of its earnings into the industry. In a competitive and expanding industry such as oil, new capital formation has to be a step ahead of demand to ensure that it is met.

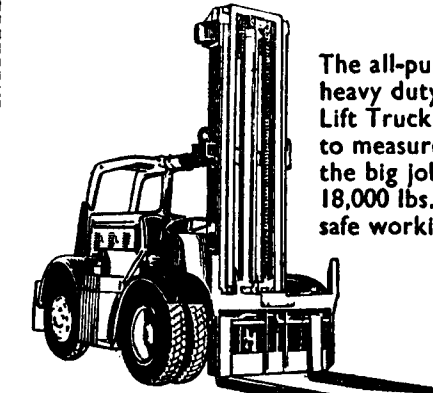


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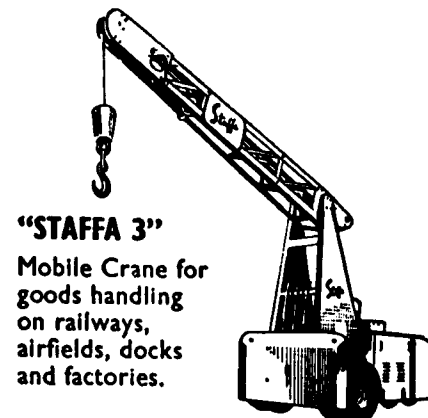
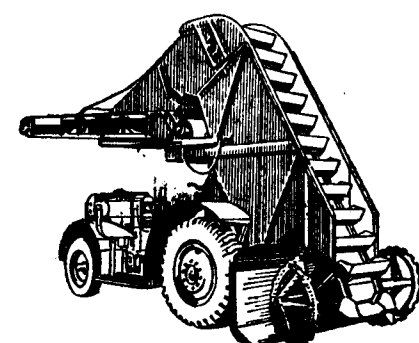
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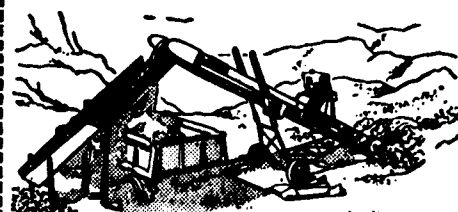



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PAS 73a

Rubber—Output Short of Demand

By K. ANANTHANARAYANAN

THERE is not another material used by the engineer which has equally wide utility and range of physical properties as Rubber. Demand for this commodity is bound to increase at an unprecedented rate during the Second Plan period, as the success of the Plan depends upon the various sections of the rubber manufacturing industry. An idea of the additional requirements of the rubber goods manufacturing industry, during the Second Plan period, can be had from the targets fixed for the production of automobiles and bicycles. The output of automobiles is proposed to be raised from 23,000 units in 1955-56 to 57,000, while the production of bicycles is to be doubled from 500,000 to 1,000,000. It is needless to add that the success of the whole Plan depends on the provision of adequate facilities for the movement of goods.

It is public knowledge that the railways alone will not be able to meet the growing transport requirements. The automobile industry will, therefore, be called upon to share the responsibility of providing transport facilities. The establishment of industries and improvement of economic condition in urban and rural areas will stimulate the demand for bicycles—

the common man's popular vehicle. In addition to the automobile and cycle industries, which will call for more rubber tyres, tubes and other accessories, there are other fields which will make an increased use of rubber. The vast industrial expansion will increase the demand for conveyor and transmission belts, hoses, rubber-insulated cables, etc. Under the Plan, the output of electric cables is proposed to be raised from 9,000 tons to 15,000 tons.

With the aforesaid possibilities for expansion of rubber production, the problem of raw material supplies, particularly rubber, has assumed great urgency and is naturally engaging the attention of the manufacturers and the Government alike. While the Planning Commission have estimated that the raw rubber requirements of the country will reach 40,000 tons by 1960, the present output is of the order of 23,000 tons, which is far less than what the domestic manufactures require. The problem is, therefore, one of finding a solution during the intervening period, as the deficit is likely to increase progressively for some years to come. The following table shows the production and consumption figures for the past three years. (Figures in tons):—

	PRODUCTION.			CONSUMPTION.		
	1957.	1956.	1955.	1957.	1956.	1955.
January	...	2,180	2,082	1,700	2,679	2,256
February	...	1,165	976	434	2,493	2,459
March	...	1,220	1,279	1,329	2,586	2,072
April	...	2,072	1,826	2,277	2,907	2,443
May	...	1,645	1,983	2,085	2,573	2,140
June	...	750	1,484	1,037	2,513	2,175
July	...	1,499	1,730	1,636	2,820	2,564
August	...	2,341	1,750	1,756	2,664	2,368
September	...	2,712	2,293	2,310	2,666	2,401
October	...	2,768	2,326	2,450	2,320	2,308
November	...	...	2,800	2,690	...	2,545
December	...	...	2,914	2,787	...	2,513
Total	18,362*	23,444	22,471	26,221*	28,996	27,543

*For 10 months.

From the comparative figures, it will be clear that the situation poses serious problems for the manufacturers. The average stock-cover they will normally want to maintain is a quantity equivalent to 12 weeks' consumption. In the past several months, it has been impossible for most, if not all, factories to have this cover; and the larger manufacturers, in particular, have, therefore, been going through very difficult times. How the stock-cover has been steadily declining since 1953 in relation to consumption is apparent from the table given below (of natural rubber only):—

Year	Total Consumption	With Estates and Dealers	With Manufacturers
		(In Tons)	
1953	22,373	6,523	2,798
1954	25,487	5,408	3,279
1955	27,543	4,758	2,696
1956	28,996	4,142	2,663
1957*	26,221	5,619	3,246

*At the end of October.

Last year's gap between production and consumption was nearly 8,000 tons; and it is estimated that the 1957 gap will be still larger at 13,500 tons and that this quantity will have to be imported. If production has fallen so low as not to reach the estimated target for the year, and consumption is proceeding at the anticipated pace, more imports will have to be allowed. Consumption will be more than 35,000 tons of both synthetic and natural rubber in 1957. In view of the widening gap between production and consumption, it is of the utmost importance that the scheme now set afoot to replant 70,000 acres at the rate of 7,000 acres a year, spread over the next ten years, should be watched vigilantly so as to result in the South Indian plantations, meeting adequately the country's requirements in the years ahead.

Against the target of 7,000 acres to be replanted in 1957, the Rubber Board has already sanctioned subsidy for 6,186 acres. Under the

scheme, expected to cost about Rs 2 crores, 70,000 acres of worn-out rubber lands are to be replanted with high-yielding strains over a period of 10 years. Subsidy ranging from Rs 250 to Rs 400 per acre is being paid to the growers to encourage replanting. The higher rate of subsidy is for the small growers.

Applications for the grant of subsidy for 1958 and 1959 have also been invited by the Rubber Board, so that subsidy can be granted well ahead of the period of replanting. Of 359 applications received for 1958, subsidy permits have been issued to 29 small growers. Against 90 applications for 1959, subsidy permits have already been issued in a few cases. Due to this planting and extension scheme, prospects of a higher indigenous production in 1958 are not very bright. The Rubber Board has, therefore, stressed the need for regular imports with a view to easing the supply position. Unless there is price advantage by importing rubber, most manufacturers prefer to buy local rubber, because they thus escape the cumbersome procedure involved in importing.

It is now about three years since the price of rubber was fixed at Rs 150 per 100 lbs. Since then, there was a small increase of Rs 5.75 per 100 lbs to offset the increase in the cess from 75 nP to Rs 6.25 collected by the Board from the producers. The producers are meeting extra expenditure through additional amenities to workers, taxation and other charges over and above what has been taken into account in the existing price structure. There is, therefore, a case for a revision of the rubber price to cover the additional cost that is being incurred. While growers are inclined to ask for a rise in price on account of higher cost of production, the rubber goods industry pleads that the rise in price, if any, will tell adversely on the export of rubber goods. It is pointed out that foreign prices have considerably declined and are far below the Indian parity.

But, the rubber price trend in the world market depends on various factors. The Russian and Chinese buying, which was so important a source of support to prices last year, has been less strong this year. Whenever they do buy, the prices rise; but their buying has not been on sufficiently large a scale to give prices more than a small and temporary increase. Without this support or any grounds for believing that Russians are likely to be heavier buyers in the near future, a falling price trend is almost inevitable.

It has been made more certain by the tendency of consumers, particularly in the USA and UK,

to adopt a hand-to-mouth buying policy. In both these countries, car production has been at a disappointingly low rate and this has lessened the demand for rubber. In the USA, the expected improvement in demand for new cars has not yet appeared and stocks are reported to have piled up. In the UK, production and home sales have both been less than last year. But, manufacturers, in both the countries, have allowed their stocks to run down and are spreading out their orders for rubber in a way that has kept price fluctuations within fairly narrow limits. If they do not alter their buying policies and are not forced into the market to cover their requirements in the near future, the prospect of a marked recovery in prices is remote unless Russia and China start buying heavily.

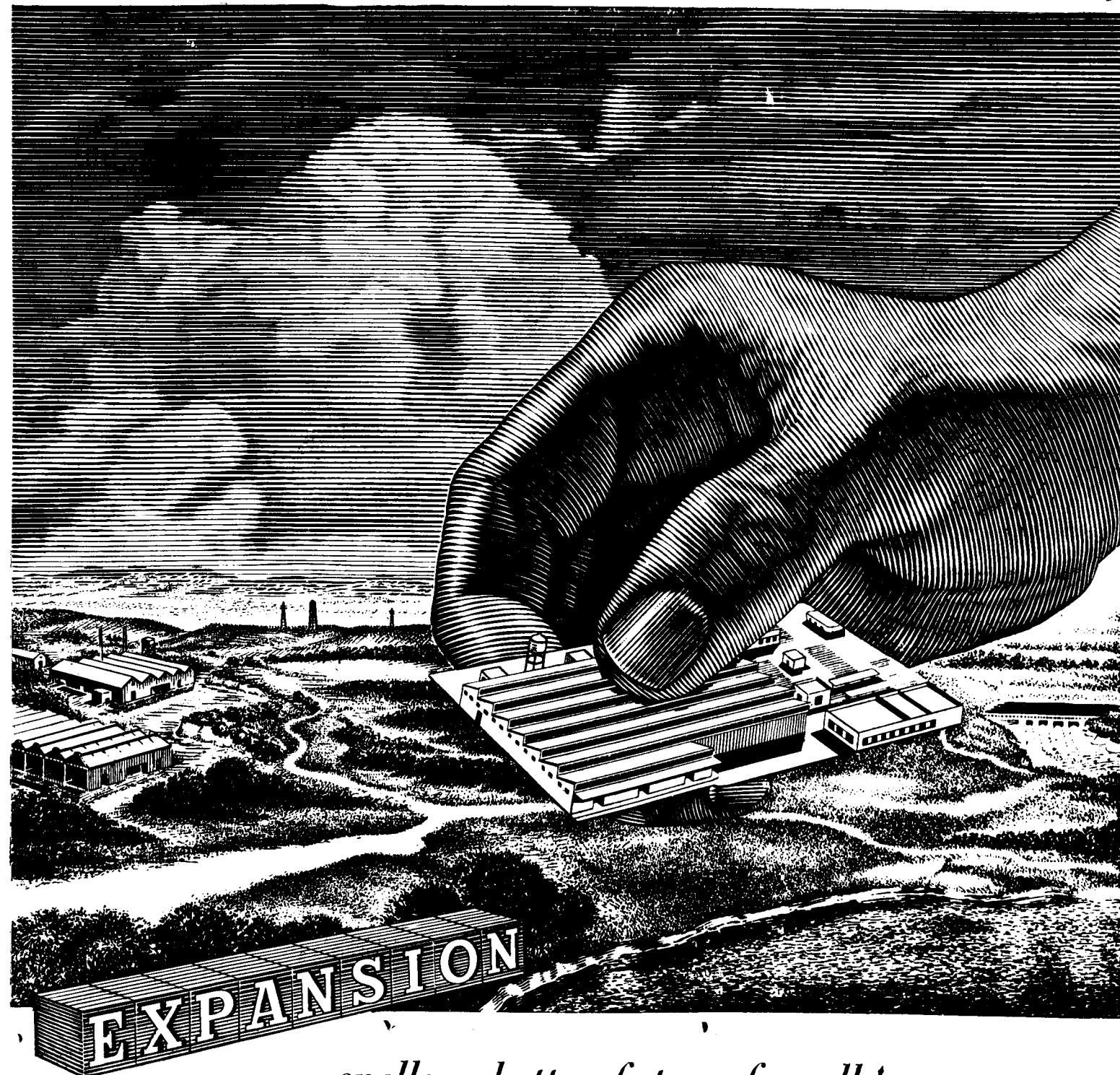
There is, however, one pointer to the possibility that manufacturers will need to buy more heavily in the near future. Sales of replacement tyres have been improving recently. It is this section of the trade which provides some shelter to the rubber market when car sales are falling off or stagnating. The rubber price trend will, therefore, largely depend on the prospects for the car industry.

Meanwhile, the substantial progress made by the synthetic rubber industry has given rise to misgivings, among natural rubber producers, about the outlook for their produce. Some of them have even come to feel that the days of natural rubber are numbered. This pessimistic view is not shared by all. It is true that the competition from synthetic rubber can be exaggerated. For, the two can be regarded as, to some extent, complementary. The higher quality natural rubber suffers less from the existence of synthetic, and the companies that produce them have been less affected by the lower market prices.

Although there has been a fall in consumption of natural rubber by non-communist countries, there has been a marked increase in the use of synthetic rubber by these countries. This confirms the impression that, so long as the price of natural rubber stands above that of synthetic, there is an inducement to the manufacturers to use the substitute material. The future of natural rubber, therefore, depends on adequate supply of it at competitive price, which means that the cost of production should be lowered and the output should be increased. The main way of reducing the cost is to increase the yield, which can only be done by more replanting and new planting of better varieties of rubber trees. As a producer of natural rubber, India is naturally interested in the developments in the use of rubber.

Kerala Economy Under Communist Regime

By S. NILAKANTAN



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THE formation of a Communist Party Government in Kerala last April has brought to the State a degree of publicity which is not always helpful in finding a solution to the State's economic problems. In the first place, all developments in the State are now being discussed to the accompaniment of furious political polemics, which is not conducive to an objective approach. Secondly, the Government party, before the elections, had raised the expectations of their supporters to an unrealistic level, while their actions after being called to office have raised the apprehensions of the employers and propertied classes to an almost equal degree. The Government, it appears, will have as much difficulty in restraining the expectations of their followers within realistic limits as in allaying the apprehensions of the employers. Apart from these difficulties traceable to the complexion of the Government, there are many others inherent in the economic situation in Kerala.

Even after the re-organization of the States, which added 5,000 square miles to the area, Kerala remains the smallest State in the Indian Union with the highest density of population. According to the latest figures, Kerala has a population of 13.5 million crowded in an area of 14,937 square miles. Each square mile in the State, of which a considerable portion is covered by forest and mountains, has to support a population of about 900 persons. This compares with 310 for the whole of India. But there are certain compensating factors which mitigate the severity of the economic distress indicated by the figures of land and population. A larger proportion of the total arable, as well as of the total geographical area is under cultivation than in other parts of the country. It has been estimated that 46 per cent of the total area in Kerala is under cultivation as compared with 43.5 per cent for the country as a whole. On the other hand, while 70 per cent of the Indian population are dependent on agriculture for their livelihood, the corresponding figure for Kerala is 50 per cent. The average holding, therefore, is not as diminutive as it would otherwise have been. The natural fertility of the soil and the wide range of commercial crops ensure a comparatively larger return per acre. The State has a sea board extending over 300 miles. There are about a hundred thousand families of fishermen living along the coast. The harvest of the sea contributes substantially to the maintenance of nutritional standards, which compare favourably with those prevalent in the neighbouring State of Madras. Unemployment, however, remains the State's major problem. If widespread unemployment helped the Communists to power, it is also

bound to give them a trying time so long as they remain in office.

Estimates of unemployment in the State, as in the rest of the country, vary. So far, there has been no comprehensive survey of unemployment in the different sectors. Recently, a report submitted for discussion at the Kerala Student Federation Conference placed the figure of unemployed in the State at 700,000. Out of these, it was stated that 9,000 persons had secured university education. In the last Census, about 4 million people were returned as total dependents. Excluding women, numbering about 2.6 million, it has been calculated that the total number of unemployed in the State would be nearer 1.4 million than 700,000. The magnitude of unemployment in West Bengal with its total population of 26 million, (nearly double that of Kerala) has been estimated at about the same figure. This would give an indication, to those familiar with conditions in West Bengal, of the intensity of unemployment in Kerala. Finding avenues of remunerative employment for this vast army of the unemployed is a task which will face any Government called to administer the State. To this fundamental problem, the Communists have added difficulties of their own creation.

The main economic plank of the Communist platform in the last election was the demand for increased allocations to the State under the Second Five Year Plan. The party put forward a demand for allotment of Rs 200 crores against the actual plan allocation of Rs 87 crores, which they considered totally inadequate for the development of the State's industrial and agricultural resources. The Party's election manifesto pledged to fight for raising the allotment to Rs 200 crores. If the Communists had remained in the opposition, they could have continued to harp on this theme to the considerable embarrassment of whatever party was in power. But, being in office, they have been obliged to take note of the hard realities of the national economic situation, which rule out any possibility of the scaling up of the Plan. It is now realised that, far from being able to secure increased plan allotments, strenuous efforts will be necessary even to save the original allotment in the context of the republishing of the Plan, with its main emphasis on the implementation of projects in the core. It is a legitimate grievance of the State that none of the big central projects has been allocated to Kerala. Limiting of the Plan to projects in the core will mean that Kerala will be left high and dry. It is now clear that it will not be possible to have big schemes involving crores of rupees, and emphasis has been shifted to a series of small schemes of industrial and agricultural development, to be

implemented by mobilising local resources and local enthusiasm.

A State Planning Advisory Board has also been set up with 21 members, besides the Chief Minister, who is its chairman, to advise the Government generally on matters connected with Development and Planning. In addition, the old Development Committees have been reconstituted into District Development Councils, consisting of legislators from the District, chairmen of municipalities, representatives of the co-operative movement, panchayats, social service agencies, trade unions, kisan sabhas, and all the district officers of the Development Department. There is also a State Planning Forum with its executive committee.

Schemes for development of small industries are being implemented in respect of leather and foot-wear, pottery, blacksmithy development, toy-making, wood work and carpentry, plastics, model sports goods, hardware fittings, cycle parts, foundry, lacquer ware, etc. Some of the schemes have been started in the NES, blocks of which there are over 64 in the State. A sum of Rs 4 lakhs has been provided in the current year's budget for loans under the State Aid to Industries Act. Financial aid has been extended to various new and existing industries like match factories, saw mills, rice mills, oil mills, printing presses, etc. A scheme for organising 10 Industrial Co-operative Societies has also been taken in hand. So far, four Industrial Co-operatives have been organised, and share capital and working capital of Rs 30,000 and Rs 4.8 lakhs respectively have been sanctioned for these societies.

The coir industry is the most important industry in the State, and it provides employment to about one million persons. As a consequence of the fall in export demand for coir products, the industry has been passing through a period of recurrent depression. A coir development scheme had been drawn up with a view to bringing persons engaged in the industry into the co-operative fold. A new post of Joint Director of Industries (coir) has been created to look after the implementation of the Scheme. To check a fall in prices of coir yarn, Government have fixed floor prices.

Work has been initiated on the establishment of seven industrial estates in the Districts of Trivandrum, Alleppy, Kottayam, Trichur, Palghat, Kozhikode and Cannanore. Up to the end of September, 400 educated unemployed had received industrial training under a scheme financed by the Government of India. After a test, the successful candidates will be absorbed in the Government of India workshops which are proposed to be constructed in the State, namely, Machine Tool Factory at Ettumanoor, Motor Manufacturing Unit

at Thiruvella, Stainless Steel Utensils Concern at Attingal, Tin Can and Tin Painting Centre at Moovattupuzha, and Engineering Tools Service at Alleppy.

The Government and their spokesmen have been very active in trying to persuade outside capitalists to set up industrial establishments in the State. The Chief Minister, during his visit to Calcutta early in November, took the opportunity of contacting a number of local industrialists including a well-known firm of rubber manufacturers. Similar approaches have been made in Bombay and elsewhere. Recently, the State Minister of Industries issued a statement clarifying his Government's industrial policy and especially their attitude toward nationalisation. But these overtures to date have not been followed by any significant move on the industrial front.

Peace and production on the agrarian front are sought to be maintained by the long expected land reform legislation and attendant measures like stay of evictions, fixation of minimum wages for agricultural labour and so on. The land reform Bill prescribes a ceiling for landholdings, ranging from 15 to 30 acres according to the quality of the land. The ceilings will apply to present as well as future holdings, and also to land held by tenants as well as owners. The surplus land will be taken over after payment of compensation by the Land Board to be set up under the legislation. The compensation will be on a graded scale varying from five to 20 times the fair rent. The Bill also fixes fair rents for various categories of land. The surplus land will be distributed among displaced tenants, landlords and landless labourers in that order. Plantations exceeding 25 acres, along with Government land and land owned by local bodies and charitable institutions, are exempted from the application of the ceiling. The Government have also fixed minimum wages for agricultural labour classified into different categories.

Immediately after the Communist Government was formed, reports of widespread lawlessness and labour unrest received wide publicity. Subsequent enquiries have enabled objective students to form a more balanced estimate of economic prospects. But these continue to be covered by a haze of uncertainty, which the assurances held out by the Government spokesmen have not helped to dispel. The solution of the economic problems, so formidable as those confronting Kerala, require the unreserved and wholehearted co-operation of the entire population for the achievement of the objective. But the balance of political forces with their communal overtones makes it inevitable that all actions are judged from the political angle. This does not by any means lighten the task of economic development.

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Typical Taxpayer: Man in the Street

By K. V. IYER

WHEN over a hundred years ago, Mr Gladstone introduced his Budget and proposed to renew the levy of income tax for a period of seven years, starting at seven pence in the pound and proceeding at reduced rates in the succeeding years, he entertained the hope that, by that time, the parliament would be able to dispense with it, a hope which was never realised. On the other hand, the rate has gone up by slow stages till, at the present time, an assessee of the highest bracket of income feels happy if even a shilling is spared to him out of a pound of his income.

Those were easier days. The duties of the Government were confined to internal administration, maintenance of law and order and defence against foreign aggression. The scale of taxes was comparatively mild; extraordinary expenditure arising from a war was met mainly by loans.

A change commenced early in this century and the beginnings of what is called Welfare State appeared on the scene, the first step being old age pensions. Other steps followed in its wake and public expenditure in England now covers a variety of services in the interests of the general public, e.g., education, public health, sanitation, etc., which involve the Government and local bodies in more and more expenditure. With a view to augmenting public revenue and other reasons, the idea of nationalising industries has been much in the air and its implementation is working like a see-saw, depending on which party is in power. For instance, nationalisation of coal mines which was carried out by one party in power was reversed by the next.

Further, within living memory, war once begun was finished in a few years though its aftermath endured for several years more. Unfortunately, since the close of the Second World War, Western Europe and the USA are in a continuous state of tension and of cold war and fear of war, which has involved them in colossal expenditure. India, though not entangled in these perplexities and proclaiming a policy of peaceful co-existence and co-operation with every other country, cannot be said to have been left unaffected by these conditions so that our expenditure on defence (which cannot overlook a measure of preparedness for the offensive) is getting larger every day and consuming a large percentage of India's revenues.

In the result, taxation is going up day by day. Indirect taxes, e.g., customs duty, license fees, etc., have been imposed. Direct taxes also are increasing, collections from the former exceeding those from the latter.

Since India attained Independence, the idea that the State should help people in a lower scale of life to a higher scale has been gaining ground and goes by the name of achieving a socialistic pattern of society. And the realisation of this idea is what underlies the two Five Year Plans. The Second one now in progress requires ample funds to be secured by taxation, private savings and loans and aids from foreign countries.

In the matter of aids and loans from foreign countries, much depends on the international atmosphere. When the plan was prepared, great hopes were entertained by the Government in this respect. Since then, economic conditions have altered in those countries, sympathies with the aspirations of India have dried up to a certain extent, the countries being apologetic in regard to their inability to help this country as much as they would like. On the other hand, when certain other countries offer assistance, which after all do not appear to be considerable, there lurks a doubt whether such offers are not merely to spite the rest and in order to secure India's goodwill in the existing international tensions. At any rate, the Finance Minister's tour of the West in this connection does not appear to be a case of "vini, vidi, vici".

In the matter of taxation, the Government have gone all out. Some time ago, they started taxing the dead also. Now they have decided to tax the prudent as well as the extravagant, so that one does not know where one stands. Time must decide whether the Wealth Tax and the Expenditure Tax are worth retention. Savings are the life-line of any flourishing state and woe betides a country where these are not encouraged.

When one expects other countries to lend us money where do we think they arise in those countries if not from the savings of their citizens? And in this context it is proper to dwell on two of our Finance Minister's slogans.

He has proclaimed that he is out to liquidate quickly persons whose main source of living is unearned income. If a person saves any money out of his earnings, is it only with a view to his own enjoyment during the evening of his days past any work? Should this be so, a policy for an annuity should amply meet his requirements and save him many a headache. It is universally accepted that what he contemplates is not merely this piece of what may be called selfishness but also the well being of his kith and kin after he has been laid to rest. If this expectation is in jeopardy, what proffeth him to save?

Another slogan is that the gulf between the well-off and ill-off should be bridged by bringing down the former. This manner of thought only creates ill will and promotes jealousy. A better way of expressing the same idea is to say that it is intended to raise the level of those low down.

An additional point to remember is that surplus of income over expenditure is savings in the hands of the individual whereas such surplus in the hands of the State leads to more expenditure not necessarily of a productive or lasting character.

The primary duty of the Government is to encourage savings, and savings in the hands of the common man though individually small may figure out large in the aggregate; they cannot however be very large as the Government have already realised. Large savings must be looked for from the well to do; and savings both by the rich and the poor and the lending thereof to the Government should be encouraged by the Government.

This brings us to the problem of the division of responsibilities between the public and the private sectors in industries. Though a fixed line of demarcation cannot be drawn to last for ever, it is necessary that the division should be clear and definite for all practical purposes. Private enterprise must be assured of a long-term policy, encouraged to expand, ploughing a considerable share of the profits earned into the enterprises themselves and assured of a definite future. The fears of a nationalisation without ample notice should be removed. In regard to compensation in the event of nationalisation, the investing public will recollect what opposition there was in the Lok Sabha to the rate of compensation when the Imperial Bank of India was taken over, how a promise of smaller compensation in the future was held out and accordingly an Act has been passed which places the proprietor in an unenviable position. Such an attitude is unhelpful and, in the light of its repercussion on our dealings with foreign countries, the Government have since had to give an assurance that foreign investors will receive a fair deal. Why should the Indian nationals be left in the cold?

But, apart from the question to what extent the Second Plan is completed, there appears to be a fallacy underlying these plans. It has been frequently stated that our plans are intended to achieve in fifteen years or so what took other countries five decades and more. Such hopes unrealised breed disappointment and discontent. It should not be forgotten that their achievements were founded on their own efforts and there was no

question of going round to all and sundry with the bikku's bowl.

Another factor which bears seriously on the success of all our enterprises is the loyal cooperation of labour. During recent years, several pieces of legislation have been passed, fixing the wages of labour, terms of bonus, conditions of work, provident benefits and the several amenities to which they shall be entitled all of which have added considerably to the cost of the product. Still, labour asks for more—a world-wide phenomenon—and strikes, slow down tactics, etc., are being resorted to. Till recently, the Government appeared to look on these with indifference. The position is now changed; they themselves have to manage large forces of labour and put up with headaches due to strikes, etc.

It is common knowledge that almost every one of our irrigation projects is costing or is expected to cost more than the original estimate. A recent report states that, apart from the cost of township, ore-mines and quarters, power and water supply, customs duty, etc., the three steel projects—Rourkela, Bhilai and Durgapur—are now estimated to cost Rs 42, 21 and 23 crores more respectively, or work out to a total of Rs 170, 131 and 136 crores or Rs 439 crores in all as against the original estimate of Rs 353 crores, an increase of 25 per cent. It is hazardous to forecast what they will ultimately cost if the difficulties of foreign exchange persist and the completion of the works takes longer. Should we not do all that we can to enable our steel and other goods to compete successfully in foreign markets?

The Government have now adopted the scale of prices in 1953 as the base and reckon subsequent changes accordingly. Is this not a sign of defeatism, implying that the prices of 1953 should be considered normal? This will bring on a claim that payments hitherto designated dearness allowances, etc., should be merged in the substantive wages and salaries.

There are two reasons for this present state of discontent. Whereas the rise in prices is factual, the so-called rise in the standard of living is psychological. Contentment arises from what one wants and discontent from what one desires and fails to secure. This is the kind of discontent which is spreading throughout the country like an epidemic. In the opinion of some in authority, India does not appear to have enough numbers of cinema-houses, stadia, etc., nor to produce a sufficient number of filmplays, etc. There is also the idea that any kind of work or expenditure of energy is not worth-while. We talk of our ancient culture and pay lip service to the blessings of a simple life, but our practice is far different.

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Industrial profiles

We present herein a special section in which are presented pen pictures of some of the industrial units which are furthering the Second Plan.

These industrial profiles cover so diffuse a field as chemicals and ferro-manganese, radios and aluminium ware, batteries and engineering goods.

Answers to some interesting questions will be found in the following pages.

Are engineering goods compatible with small scale industry?

What is the foreign exchange saving from the indigenous production of batteries?

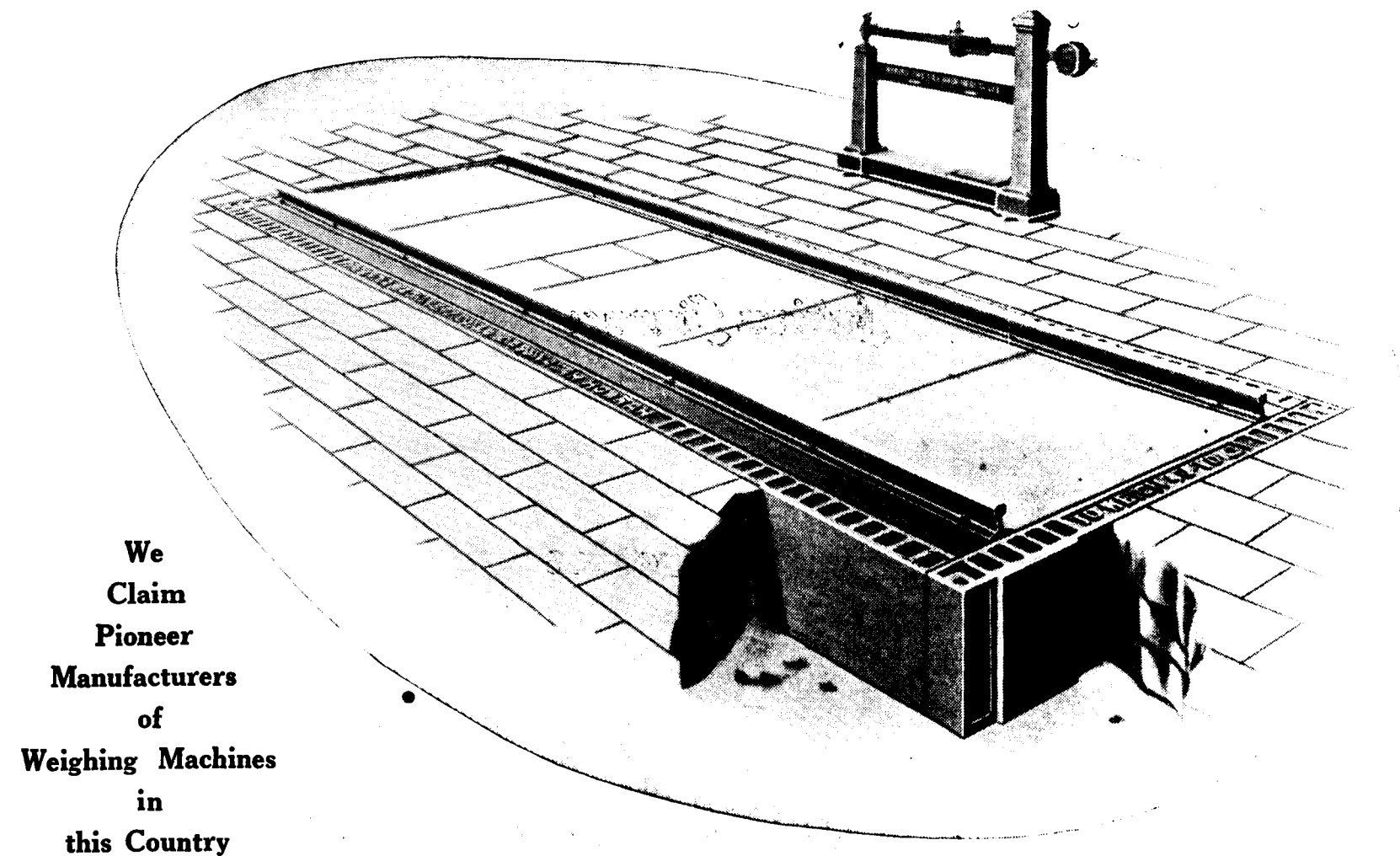
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Engineering Industries of Howrah

THE small engineering workshops of Howrah, which have put this crowded suburb of Calcutta on the Industrial Map of the country, represent valuable resources of mechanical skill and inventive talent which may be utilised more fully for speeding up the pace of industrialisation. The contribution which they can make will be more clearly seen in the light of the current foreign exchange shortage which has compelled project managers to seek out indigenous substitutes for imported equipment. The Engineering Industries of Howrah are assured of a bright future if the different small units learn to act in accordance with a coordinated scheme. These prospects may be better appreciated when viewed against the important place assigned to small scale industries in the general pattern of industrial development.

The substantial contribution which small scale industries can make to the economic development of the country is now widely acknowledged. The increase in plan allotments under this head in the Second Five Year Plan as compared with the First Plan provides a measure of the growing importance that is being attached to this sector of the national economy. Expenditure incurred on small scale industries during the period 1951-56 amounted to Rs 5.3 crores. The outlay envisaged under this head in the Second Plan amounts to Rs 55 crores. The industrial estates which are being established at various centres distributed all over the country will give further impetus to the development of the industries which come under the care of the Small Industries Board.

The importance assigned to small industries development under the scheme of national planning is not the result of any ideological or sentimental attachment to outmoded techniques. It is based on a realistic assessment of resources and possibilities of increasing total output. Nor will it be correct to consider small industry development as a half way house for underdeveloped economies on the road to industrialisation. Even in highly industrialised countries, small firms account for a substantial part of the total industrial activity. Mr Arthur Hachten, Director of Information, Small Business Administration, United States Government, estimates that there are over four million small companies in the United States which represent more than 95 per cent of business establishments. A survey made by du Pont's, itself one of the giant corporations, has brought out significant facts regarding the organisation of American industry. The survey revealed that 93 per cent of United States manufacturers employ fewer than 100 workers and that 98 per cent

of business—manufacturing, trade and service establishments—have less than fifty employees. The study also emphasises the mutual dependence of big and small units. They did not compete in the same market. The small firms had a secure place in processing, converting and distributing the products of big business. The small firms are also important as suppliers of the needs of big business, whether of stores or equipment. Small firms comprise more than 30.00% of the suppliers of the giant chemical concern. In this field, small firms have a great advantage. They are in a position to undertake orders for the supply of goods and equipment answering narrow specifications which may be changed from time to time. They can adapt their own equipment to the nature of the orders without having to undergo expensive retooling. This point is of particular significance in estimating the role of the Engineering Industries of Howrah.

Japan, however, is the more well-known instance of the happy co-existence of large scale and small scale industries. India is increasingly turning to Japan for technical assistance in improving the efficiency of our small industrial units. A number of Government sponsored delegations have visited Japan in recent years to study Japanese methods. The Chief Minister of West Bengal, who spent a short holiday in Japan two years ago, returned an enthusiastic advocate of small scale industries. The enthusiasm has led to practical results in the field of administrative action.

A Central Engineering Organization (CEO) was set up under the Department of Industries early last year. The CEO has drawn up an elaborate scheme for the development of the small industries of Howrah, with a view to rationalising the small units on a co-operative basis. Interest in the scheme was stimulated by an exhibition organized by the CEO in July 1957. The exhibition also afforded the general public a glimpse of the resources of engineering talent hidden in the hovels and shacks of Howrah.

These small workshops have grown by gradual stages during the last fifty years. The pioneers of this development were the more enterprising among the workers and mechanics trained in the large engineering establishments like the Railway Workshops for the maintenance of their plants. Starting with the manufacture of simple items of machine stores, hardware, spare parts for machines and so on, they expanded their activities to include manufacture of complete equipment like cane crushers, rice hullers, chaff cutters, etc., which found a ready market. Many readers may be surprised to know that, complicated machine tools

are now being manufactured in the diminutive and ill-equipped workshops concentrated in Dassenagar, Howrah.

At present, there are more than six to seven hundred small engineering firms in Howrah, engaged in the manufacture of a large variety of engineering products. Apart from the Smithy Shops, Gas Welders, Light Metal Sheet Workers, non-ferrous Moulders, Pattern Makers, Small Fitting Shops, etc., working manually operated plants, there are about 400 firms equipped with power connection which give employment to over 10,000 skilled workmen. These firms fall into the two main groups of Iron and Brass Founders and General Machine Shops.

Many of these started as small jobbing shops with lathes salvaged from scrap and other old second hand equipment rejected by the large engineering works or the Railways. In course of time, they have added to their equipment, which, however, remains in almost all cases old and obsolete. Some of the firms have also started manufacture of their own machine tools. And these are among the most impressive of their achievements.

There are small workshops in Howrah which manufacture lathes, both capstan and centre type, weighing machines, automatic nail and pin-cutting machines of a high degree of finish and precision which have to be seen to be believed. There are about six of these firms making lathes, and four manufacturers of weighing machines.

Manufacture of Machine tools is generally regarded as the key to rapid industrialisation. Government have established large scale units in the public sector for mass production of machine tools. These have achieved a limited measure of success at a heavy cost in terms of investment and foreign exchange. The small engineering firms of Howrah have shown that, by their own unaided efforts and without expenditure of foreign exchange, they could manufacture complicated machine tools fitted with automatic drive which can

meet part of the demand of the metal working industries which are bound to grow in step with the heavy industries planned in the public sector. A larger output of steel or aluminium will require a corresponding expansion in the number and capacity of concerns fabricating metals. These will require adequate metal working equipment. This alone will provide an indication of the contribution that the engineering industry of Howrah can make to industrialisation, given proper encouragement and facilities.

The products listed in the box will give a cursory indication of the variety of equipment which the small firms of Howrah are supplying or can supply to India's industries. When imports of many vital items of engineering equipment were cut off during the last war, these firms stepped into the breach and performed marvels of improvisation. They can render the same service for maintaining the tempo of the industrial effort, at a time when imports have to be restricted on account of the shortage of foreign exchange. But the impetus to expansion received during the war years has not been followed up by consolidation of the ground gained by efficient organisation. These firms have been kept going by orders farmed out by the big organisations. But there is large scope for rationalising the flow of orders and the programmes of manufacture to subserve the ends of the overall industrial plan. Before this can be done, the industries in Howrah must be enabled to overcome their weaknesses which hamper further development.

Dr B. C. Roy, Chief Minister of West Bengal, has drawn attention to the strong points and weaknesses of these industrial units in his message to the Engineering Industries Exhibition held in Dassenagar last year. "Their strength," he observes, "lies in the marvellous skill, resourcefulness, ingenuity and inventiveness of the workers." The weaknesses, on the other hand, stem from "the low capital investment, the lack of

HOWRAH MANUFACTURES

Agricultural Equipment, Augers, Automobile Parts, Bandage Rolling Machines, Bearings, Boiler Fittings, Bolts & Nuts, Bobbins, Brackets, Burners (Gas), Castings, Cable Boxes, Chain Sprockets, Chucks, Circuit Breakers, Cisterns and Fittings, Coal Tubs and Colliery Stores, Cotters, Cooking Ranges, Couplings, Crank-Shafts, Crab Winches, Cycle Parts, Drilling Machines, Drill Sieves, Electric Fittings and Accessories, Fencing (Railway), Flanges, Flour Mills, Fly Press, Hinges, Hose Fittings, Lathes (of different types), Links, Municipal Requisites, Nail and Panel Pin Making Machines, Oil Mills, Oil Pumps, Pipe Fittings, Pipe Making Machines, Pinions, Plastic Injection Moulding Machine, Pulleys and Power Transmission Equipment, Pumps (centrifugal and piston type), Railway Coach and Wagon Fittings, Railway Permanent Way Stores, Railway Signalling and Inter-locking Materials, Railway Springs (Coil and Laminated), Rice Hullers and Accessories, Riding Machine, Rope Making Machine, Semi-steel Castings, Seed Treating Drum, Shackles, Shaping Machine, Shafts, Sheet Folding Machine, Silencer Box for Automobiles, Soap Plodding Machine, Soap Stamping Machine, Solid Joints, Sprockets, Springs, Taps and Dies, Tanks, Tar Boiler, Tablet Making Machine, Tipping Wagon, Treadle Printing Machines, Tube Cutter, Tube Expander, Tube-well Pumps, Valves (water, steam etc.), Vices, and Weighing Machines.

standard materials, the unsatisfactory financial arrangements, the general signs of obsolescence of machinery employed and the lack of proper designing, servicing and testing facilities which alone can produce quality products; the weakness also lies in the lack of a central marketing organisation for the purpose of securing orders and fulfilling them."

In a seller's market, these units may not experience difficulty in marketing whatever they make, but they are not always able to secure standard materials. There is also the temptation to take the line of least resistance by concen-

trating on manufacturing easily saleable products which can be made with the materials available. The sellers' market is likely to be sustained by the growing demand emanating from the large scale projects under way. The small units of Howrah have a vast field for expansion. But it is of importance that the plans for expansion should be carefully drawn up, keeping in view the requirements of the Plan, and production should be geared to meet those requirements. It will also be necessary to guard against diversion of resources to manufacture of items like cane crushers, chaff cutters, etc., which will lead to glut of

these items, while there is a shortage of essential items like loco and carriage fittings, industrial machinery and machine tools whose manufacture calls for greater effort and resources. The aim of planning should be to avoid such lopsided development. The individual units should be prepared to work according to a common plan and to pool their resources on a cooperative basis.

This ticklish job has been taken up by the Central Engineering Organisation. The scheme drawn up for the development of small engineering industries proposes to affiliate these industries as constituent units of the Organisation.

INDIAN FINANCE

The Mineral

Wealth

of

West Bengal

EXCEPTING for coal, West Bengal is far from rich in mineral resources, and this is a matter about which little can be done. If Nature has not provided an abundance of them in the womb of West Bengal's earth, it cannot just be willed into being. The augmentation of mineral wealth is beyond human contrivance, but what man and machinery can do is being done and shall be done.

NEED FOR MINERALOGICAL SURVEY

Meanwhile, it is possible to take comfort that perhaps the situation is not as bleak as the above remarks may imply. In the first place, there are no detailed maps—and this applies to India as a

whole—of our mines and mineral resources, and in their absence no realistic assessment of our subterranean wealth is possible. When our geologists and geophysicists prepare detailed regional mineralogical maps and undertake comprehensive test drilling and prospecting, it is not unlikely that quite a few unsuspected wells of prosperity may be revealed. This hope cannot be ruled out, and we note with pleasure that, at the ECAFE meeting of geologists held in Calcutta last November, proposals have been accepted of a detailed mineralogical survey of the entire south-eastern Asian region. This links up with the Indian programme of a systematic survey and detailed investigation of the mineral resources of the country envisaged by the First Five-Year Plan and, when this programme is intensified under the Second Plan, we can expect a good deal of progress in mapping as well as exploratory drilling by the most advanced geophysical and geochemical methods. In fact, the Geological Survey of India and the Indian Bureau of Mines have already undertaken some large-scale investigations.

PROSPECTS

So far as West Bengal is concerned, it is hoped that some mineral deposits may be located in the submontane Himalayan regions of the State, and at the present time exploratory drilling for oil is going on in the Burdwan district under the Indo-Stanvac Petroleum Project. The addition of Purulia to this State has also raised hopes that some important mineral reserves may be spotted there.

With the abolition of the zamindari system in West Bengal, all estates, except a few in Purulia, have vested in the Government. As a result of a recent amendment to the West Bengal Estate Acquisition Act, 1953, all mine workers in the State now come directly under the Government, and thus all intermediary interests between the Government and an actual mine worker have been abolished. The Government, eager to develop the mineral resources of the State as quickly as possible, have sanctioned the establishment of a Directorate of Mines and Minerals with different branches for prospecting for minerals, assessment and collection of royalties, securing collaboration with

the Government of India and the education of the subordinate cadres of mining officials. As soon as this apparatus is completed, we can expect to see in this State a rapid tempo of progress in the development of mines and minerals.

COAL

Coal is by far the most important mineral of the State. Its productions, i.e., about 32 per cent of the total output for the whole of India. During the Second Five-Year Plan period, a target of about 18 million tons has been fixed for this State out of the total all-India target of 20 million tons. As a result of the recent re-survey of the Raniganj coalfield, a vast reserve of all grades of coal has been discovered and it is expected that this coalfield will continue to supply a substantial percentage of the total requirements of India for many years to come.

OTHER MINERALS

Apart from coal, good fire-clay deposits occur in the Raniganj coalfield and a number of mines are being worked there. The only important mine of tungsten deposit in India is being worked at Bankura and the chances of finding more deposits in the adjacent areas cannot be ruled out. A large number of good china clay deposits are known to exist in the Bankura, Purulia and Birbhum districts, but at present only two are being worked. There is a large deposit of dolomite limestone in the Himalayan region of the Jalpaiguri district. Two mines are working there for the manufacture of lime. A small deposit of dolomite limestone also occurs in the Bankura district. Apart from these sources, limestone, low in magnesia content, also occurs in quantity in the Hansapathar area near Raghunathpur and in the district of Purulia. The deposits in the Jhaldia area in the latter district are under investigation.

Extensive deposits of mica are known to exist in the Bankura and Purulia districts. But only one mine in Purulia is known to have been worked to a good depth. A number of other veins have been worked in the past by "oopathala" method and are now lying abandoned, underground working not having been tried in them. Proper and systematic work in this direction is

The CEO will provide technical assistance and research facilities, advance working capital, secure orders and raw materials, and rationalise marketing and manufacture, so as to ensure that the goods manufactured with the financial assistance and materials supplied by it are those which meet the essential requirements of industrial development. When the scheme gets into stride and enlists the cooperation of a substantial number of these independent units, the Engineering firms of Howrah will be able to meet the great expectations that have been aroused by a preliminary survey of their potentialities.

likely to establish West Bengal as an important mica-producing State.

Bladed and semimassive kyanite deposits of fairly good quality are known to occur extensively in the Purulia district. Although there is no ready market at present for this variety of kyanite, it is likely to find one in cleaned and calcined state.

A radioactive belt extending from the west of Purulia to the east is known to occur. Evidence of radioactivity can be found in the rocks. But how important the deposits are can only be determined after proper prospecting. The Atomic Energy Commission had been doing some work in this direction some time ago. Graphite schists are known to occur in fairly large quantities in the Purulia district. If the results of the investigation now in progress prove successful, this State may become an important source of graphite. There is an old mine of galena in Purulia now lying abandoned. Local enquiry reveals that it was abandoned many years ago owing to inadequate arrangements for pumping water. Galena, is known to occur in other parts also, but no thorough prospecting has yet been done.

Copper ore is believed to occur at many places in Purulia, especially at Tamakhum. Large-scale prospecting by drilling, sinking of pits and driving of underground tunnels is necessary to prove these deposits. Low-grade manganese is known to occur in the Midnapur district but no thorough prospecting has been done yet.

Apart from the minerals mentioned above, large quantities of good quality feldspar are known to occur in the Purulia district. Quartz, moulding sand, baryte, etc., are also known to occur there. Good quality stone for road metals, chips, etc., are known to occur at Rajgaon and Nalhati in the Birbhum district, at Gidni in the Midnapur district and also in various other places. Mines are being worked at these places where stones are believed to be of the same quality as at Pakur, very near Rajgaon. Other small stone quarries are being worked at various places. There is large scope for increasing the mining activities for the Pakur type of stone. Incidentally, quarrying and the preparation of stone chips, road metals, etc., has a high employment potential.

General Radio and Appliances

Serving Industry and Homes

G.R.A. distribute products ranging from radios to fluorescent fixtures—through a nationwide dealer organisation.

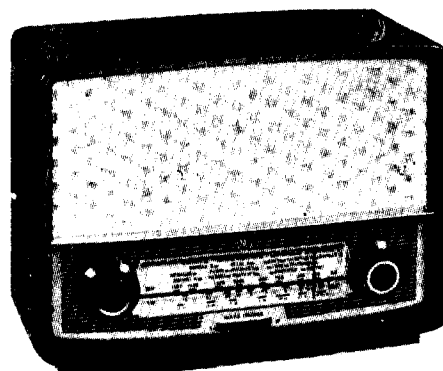
Distributors of some of India's most famous products, Messrs. General Radio & Appliances Private Limited have five branch offices of their own, and control a country-wide network of dealers—making these products available throughout India.

SAVING FOREIGN EXCHANGE

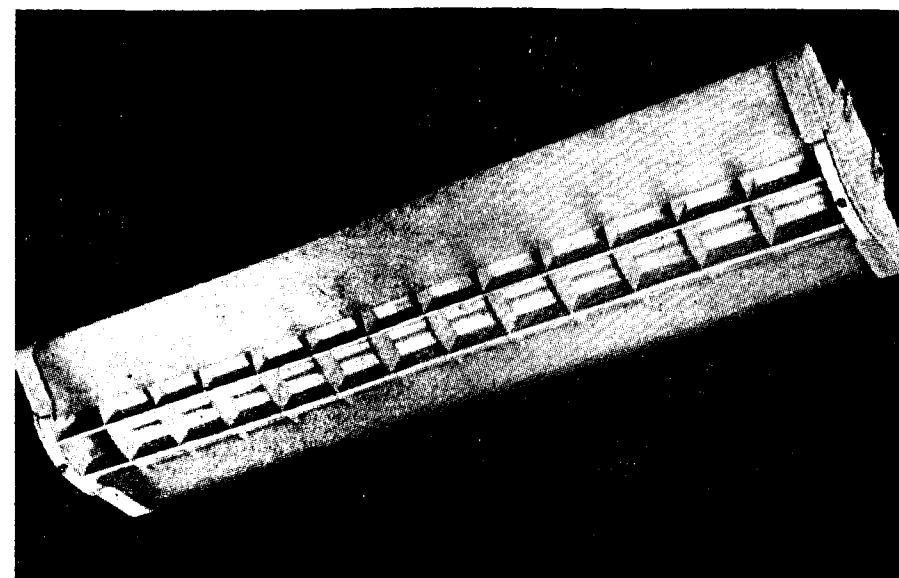
It is only eight years since the National-Ecko Radio and Engineering Company Limited was formed: the first company in India to manufacture and assemble radios and other electronic equipment. Today, the National-Ecko factory is one of the finest in the country and has a production capacity of 36,000 sets a year. It is fully-equipped with the most modern machinery, and is laid out for 'flow' production. The factory has plans for expansion during the next two or three years which will not only increase its production capacity, but will add the manufacture of essential components. In this way, the National-Ecko company is helping to save the country considerable amounts in foreign exchange.

A SPECIAL PROCESS FOR SPECIAL PROBLEM

National-Ecko manufacture twelve different models, for both



Wonderful value for money, this National-Ecko table radio, Model 241, has 5 valves, 2 bands with 3 band coverage, is housed in a handsome plastic cabinet—and costs only Rs 230.00.



KLEERTONE Lamps and Fluorescent Fittings have earned themselves the approval of the Insurance Association of India (Fire Section Committee) and of thousands who work in their clear, shadowless light.

mains and battery operation. The price range ensures that everybody can find a National-Ecko set to suit his pocket and his requirements. And every National-Ecko radio, whatever its price, has been through a special process known as 'Monsoonising'. This process, evolved by National-Ecko, protects the sets against the climate conditions of the country. These conditions, with the extremes between heat and cold and the excessive humidity of the tropical climate, are dangerous to radios, but National-Ecko's 'Monsoonising' process provides complete protection, and ensures long life for each set.

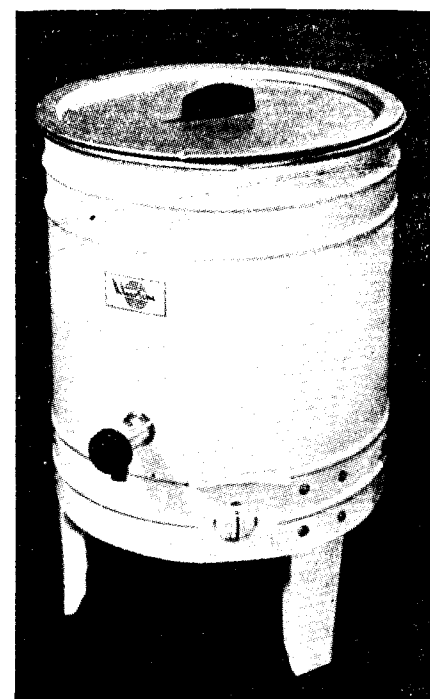
RIGOROUS CONTROLS AT EVERY STAGE

To ensure that every National-Ecko set is of the same high qua-

lity, rigorous controls are carried out at every stage of manufacture. On an average, each National-Ecko set undergoes seven distinct checks—one reason why the manufacturers are able to offer a year's guarantee with every set! Expert after-sales service is available to the owner of a National-Ecko set, too, and there is little wonder that these fine radios are such a popular choice.

AT WORK AND IN THE HOME

In addition to National-Ecko radios, Messrs. General Radio & Appliances Private Limited distribute KLEERTONE electrical aids and appliances which are widely used for both industrial and domestic purposes—helping to improve work and conditions in industry,

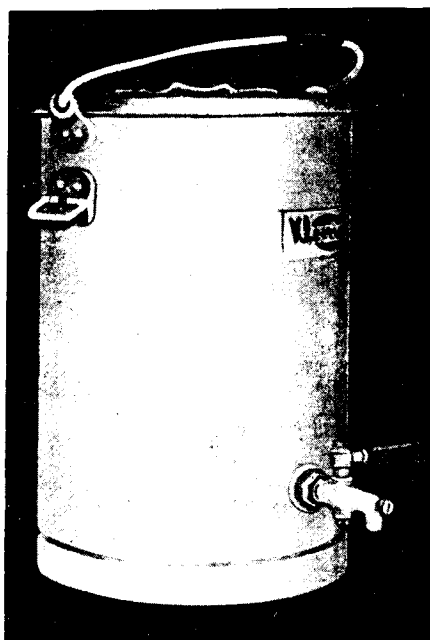


A boon to every housewife, and to industrial establishments too—the KLEERTONE Water Boiler supplies boiling hot water and has a capacity of eight gallons.

and to lighten the daily tasks of the housewife.

FROM WATER BOILERS TO CLOCKS

The KLEERTONE Appliance range includes water heaters, boilers and electric clocks and also include thermal jars to keep drinks hot or cold for hours, without fuel or electricity. In addition, for correct lighting in offices, workshops and at home KLEERTONE offers lamps, fluorescent tubes and all types of lighting fixtures. Finally a complete range of loud-speaker systems, much in demand for industrial establishments as well as for the large gatherings so usual in this country, is also available.



Aptly named 'the ideal travelling companion', the Kleertone Thermal Jar keeps drinks hot or cold for hours, without fuel or electricity, has no breakable parts.

The Story of Texmaco

THE outbreak of the second world war and the import difficulties that followed, brought into sharp focus the need for industrial development of India. There was a dearth of heavy engineering and machine building industries. It was at this stage that the House of Birlas with their usual zeal and foresight turned their attention to the manufacture of industrial machinery to make India self-sufficient in this sphere. Cotton textiles being India's largest industry, the natural choice was to set up a factory for the manufacture of cotton spinning and weaving machinery. The manufacture of jute textile machinery at a later date was also kept in view. Thus was born the Textile Machinery Corporation Ltd.

Many were the initial set-backs, and progress was not easy. The Government of those days was not anxious to encourage machinery building industries. Foreign industrialists, whose collaboration was sought, did not favour projects for the manufacture of industrial machinery in India.

The attention of the Government was mainly occupied with war efforts, which hampered progress and delayed putting into operation the earlier plans.

The Birlas were, however, undaunted, and the factory was set up at Belgharia, near Calcutta. It was ready to go into production in 1941, when it was requisitioned by the Government and set to the task of aircraft maintenance and manufacturing of shells and hand grenades. The Birlas, determined to pursue this project, arranged to have a portion of the plant at Belgharia transferred to Gwalior. This became the nucleus of another factory which developed into Texmaco (Gwalior) Ltd., now known as Central India Machinery Manufacturing Co., Ltd.

When the factory at Belgharia was eventually de-requisitioned in 1945, Textile Machinery Corporation Ltd. lost no time in getting the entire plant and equipment overhauled; and the factory relaid and re-equipped. Two years later the factory was again ready to launch its initial plan of production.

Texmaco, as the organisation is now popularly known, has since grown; it has taken into its fold the production of other major engineering items. The chief aim being to contribute to India's progress, it began to undertake the manufacture of machinery for key and basic industries. Today, Texmaco comprises four manufacturing divisions, Cotton Textile Machinery, Jute Mill Machinery, Steel Foundry and Boiler and Heavy Engineering. The factory in the locality of Belgharia and Agarpara, is spread over an area of 112 acres employing over 4,800 workers, 750 administrative staff and 80 engineer-

technicians. With the implementation of its expansion programme and new projects, this factory in the space of a few years will be spread over about 200 acres, employing approximately 10,000 workers with an invested capital of about Rs 15 crores.

First Cotton Ring Spinning Frame:—The initial reorganisation completed, once more there was the urgent need for technical know-how and designs. Resistance from foreign manufacturers continued. Texmaco's designers and engineers, however, got together to design the first prototype of a cotton ring spinning frame in India. This was in 1946. It was indeed a great day when India's first ring spinning frame came off the assembly line at Belgharia—a product of the skill and ingenuity of Indian technicians and workers.

From 1948 the factory went into mass production of ring spinning frames, spare spindles, fluted rollers, rings, etc. In this year work also began on the development and design of drawing frames and carding engines. In 1949 an agreement was reached with S.K.F. Ball Bearing Co., Ltd. for licence to manufacture roller bearing spindles for cotton ring spinning and twisting frames to their specifications and designs. This was followed in 1952 by an agreement with The Indian Casablancas High Draft Co., Ltd. to manufacture to their designs and specifications high drafting systems for ring frames, drawing frames and speed frames. In 1953 the first prototype of a drawing frame was completed. Late in 1954 an agreement was reached with Howa Machinery Ltd. of Japan to manufacture to their designs and specifications the complete range of spinning machinery for cotton and staple fibre. Production of Carding engines was undertaken and twenty of them have been delivered so far. An agreement has been reached with Kanai Juyo Kogyo Co., Ltd. of Japan for technical collaboration, and a new project is being planned to set up a separate factory for the large scale manufacture of card clothing.

Todate Texmaco has supplied over 2600 cotton ring spinning frames to Indian mills. Together with spares, they account for nearly two million spindles out of India's 12 million running spindles.

Work is afoot in expanding the capacity for Ring Frames and Carding Engines and also for manufacturing on a substantial scale of Drawing Frames, Speed Frames and Blow Room Machinery under a programme phased over a three year period, ending in 1960.

Lancashire Boiler:—Having achieved success in the field of cotton textile machinery, Texmaco branched out to a new field of industry. During 1949-50 was

organised the Boiler and Heavy Engineering Division for the manufacture of boilers, superheaters and chimneys. In 1952 was produced India's first Lancashire type industrial boiler. This was made to the specifications and designs of Babcock & Wilcox Ltd. under a technical agreement with them. The designing and manufacture of vertical boilers followed shortly after.

In 1955 Texmaco made an agreement with E. Green & Sons Ltd. of England for technical assistance for the manufacture of certain parts required for the construction of Vertical, Gilled and Plain Tube Economisers.

Today Texmaco's range of products in this field has increased considerably. It is producing various types of industrial boilers including Cornish, economic and vertical cross tube boilers. Over 20 Lancashire boilers and 30 vertical cross tube boilers have been erected at a number of industrial establishments both in the public and the private sectors. In technical collaboration with Combustion Engineering Inc. of the U.S.A., one of the world's leading boiler manufacturers, Texmaco has recently undertaken to produce Water Tube Boilers, the first of its kind to be manufactured in India.

The manufacture of locomotive boilers was first taken up in 1954. The Railway Board encouraged the venture by placing an order for 20 boilers. The first boiler was made in October, 1955 and exhibited at the Indian Industries Fair at Delhi. Nineteen locomotive boilers have been so far delivered to the Indian Railways. Production at the rate of one Boiler per month has now been achieved.

Railway Rolling Stock:—It was in 1954, that Texmaco began to manufacture railway wagons. Four wagons were made in April, 1954. The output was very soon raised to ten wagons a day and the actual capacity to 12. So far over 6000 goods wagons and 250 petrol tank wagons have been delivered to the Indian Railways. Another order for 2900 goods wagons is under execution. Texmaco is working hard to help the Indian Railways to ensure a smooth flow of industrial and agricultural commodities throughout the country. Plans are now well ahead for the manufacture of passenger coaching underframes, EMUs and electric locomotives. An order from Railway Board for 288 Passenger Coaching under-frames is under execution at present.

Jute Mill Machinery:—One of the earliest expansion plans of Texmaco took concrete shape in 1955. It was in this year that an agreement for technical collaboration was reached with Fairbairn Lawson Combe Barbour Ltd. of the U.K. for the manufacture of jute textile

machinery. Latest type sliver spinning frames are already coming off the assembly bay. The ultimate capacities planned are 300 spinning frames, 288 drawing frames and 180 engines per year.

Sugar Mill Machinery:—In November, 1956, a collaboration agreement was finalised with Nonink-like Machinefabrick Gebr. Stork & Co. N.V., and Werkspoor N.V. of Holland, for the manufacture of sugar mill machinery in India.

Steel Foundry:—During the last three years Texmaco has indeed made rapid progress. With a view to achieving a measure of self-sufficiency in steel castings and special alloy steels required for its own varied lines of production, the Steel Foundry Division was started. In 1955 a three ton Electric Arc Furnace was installed. Steel castings for railway wagon axle boxes are now being made at Belgharia. Billets are also being manufactured for sale to rolling mills.

A steel rolling mill will shortly be installed to roll mild and special alloy steel mainly of the specifications required for Texmaco's own lines of production. The installation of an additional furnace is also under active consideration.

Texmaco Serves Major Projects:—With a view to the further development of engineering products essential to the country's progress, Texmaco, in collaboration with foreign manufacturers of world repute, has gradually opened up new lines of manufacture, such as hydraulic dam equipment, bridges, overhead cranes, mechanical handling plants for coal and other solid materials, pressure vessels and plants for chemical, paper, sugar and cement factories, etc.

As its range of products increased the services of Texmaco began to be utilised more and more by the Government and leading industries in India. When the fertiliser factory was set up at Sindri, Texmaco was asked to help. Using the designs of Firma Carl Still of Germany in 1954 it manufactured and erected gas coolers, bubble washers, tar separators, storage vessels, tar accumulation tanks, naphthalene melting vessels, air receivers, water quenching tanks, etc., for the Benzol and Ammonia Plants, which are part of the Sindri Coke Oven By-Product Plant.

The generation of electric power is a matter of vital importance to India's economy. The fast flowing waters of our mighty rivers are being harnessed in different parts of the country to bring power to the wheels of industry and light to village homes. Texmaco is also serving India in this important field of national reconstruction. In collaboration with Voest of Austria, in 1955, it fabricated and erected at site some of the largest

(Continued on next page)

Tea Board-in the Life of the Tea Industry

By S. M. MOOKERJEE

TEA now tops the list of India's foreign-exchange-earning commodities, having earned over Rs 142 crores in 1956 by way of foreign exchange, which is so vital today to the economic development of the country. In fact, the 523.5 million lbs of tea exported during 1956 represent an all-time record so far as export of tea is concerned. The great and growing importance of tea to India's internal economy may readily be assessed from the fact that the Indian tea industry contributed to the national exchequer: Rs 19 crores as export duty and over Rs 3.5 crores as Central excise duty in 1955-57. The tea industry is the largest single employer of labour in India and employs well over one million workers in the tea gardens alone. There are more than 6,000 tea gardens, covering nearly 790,000 acres, in India. The total yearly production of these gardens is about 660 million lbs. of tea.

In recognition of the importance of the tea industry, the Government of India has all along been keen on taking steps to foster its growth. In 1903 the Tea Cess Committee was set up under the Indian Tea Cess Act for the purpose of carrying on propaganda in the interests of increasing the internal consumption of tea, the cost of its activities being financed by a cess levied on exports of tea. Such activities have been continuously maintained and gradually expanded.

CONSTITUTION OF BOARD

In 1937, the Indian Tea Market Expansion Board was set up and it was replaced by the Central Tea Board in 1949. In 1953, the Government of India passed comprehensive legislation known as the Tea Act of 1953, under which the Tea Board was constituted. According to the Tea Rules, 1954, the Tea Board consists of a Chairman and 40 other members appointed by the Union Government representing the following interests:

- Six members representing Governments of the principal tea-growing States;
- Thirteen members representing owners of tea estates and gardens and growers of tea;
- Seven members representing persons employed on tea estates and gardens;
- Five members representing dealers in tea, including both exporters and internal traders, and manufacturers of tea;
- Seven members representing consumers and other interests; and
- Two members representing Parliament.

Wide powers and functions have been conferred by the Government on the Tea Board, which is now entrusted with ensuring the all-round development of the Indian tea industry, instituting measures of labour welfare, carrying on pro-

paganda, organizing research, improving quality and production, regulating exports, supplying tea garden stores, etc. In fact, the Tea Board has been empowered to promote any measure calculated to make for the development of the tea industry and the tea trade under the control of the Union Government.

BOARD'S FUND

How does the Tea Board derive its fund? In addition to the export and excise duty, a cess at Rs 4 per 100 lbs. is levied on all teas exported from India. A licence fee at the rate of Re 1 per 1,000 lbs. or part thereof is levied by the Tea Board for every export licence, special export licence or permit issued. The combined receipts from the cess and licence fees totalled about Rs 2.07 crores in 1956-57. The proceeds of the cess and fees collected are mainly utilized for the development of the tea industry by the Tea Board.

The progressively intimate character of the Tea Board's connection with the tea industry—at most levels—is perhaps reflected in the increasing grants made over the last few years by the Tea Board towards tea garden workers' welfare measures. While the grants made in 1955-56 and 1956-57 were Rs 2,79,450 and Rs 8,88,504, respectively, the amount allocated for the purpose for 1957-58 is Rs 15,00,000. The measures of labour welfare initiated with financial aid from the Tea Board cover educational stipends for children of tea garden workers; hostels; vocational training facilities; training in mid-wifery; welfare centres; and provision of free beds and specialized treatment in hospitals.

The Tea Board assists the industry in the procurement, importation and movement of important items of stores for the tea gardens, such as coal, cement, iron and steel, fertilisers, tea chests, tea garden machinery and components, fuel oils, tea seeds, etc.

In the field of statistics, sample surveys are conducted all over India in respect of incidence of tea drinking, and statistical figures relating to production, acreage, export, prices, etc., are collected and interpreted for the benefit of the tea industry and trade.

The Tea Board also makes allotment of export quotas and issues export licences as well as permits to tea estates for the extension and replacement of tea areas, including permits for planting by "new-comers".

Considerable research work has been undertaken, with the help of funds made available by the Tea Board, to improve the efficiency of the Indian Tea industry and extend the benefits of the applied research to small tea-growers in North and South India.

One of the objectives in which the Board is vitally interested is

the development of internal propaganda, which is primarily carried out by its six zonal offices located in Calcutta, Delhi, Nagpur, Bombay, Madras and Lucknow.

As part of its internal propaganda, the Tea Board opened in 1956 a highly modern Tea Centre—the first of its kind in Asia—in Bombay. At the Tea Centre, which has an air-conditioned lounge and film auditorium, correctly prepared tea is served, and the setting is at once elegant, pleasing and educative (on various aspects of tea). Demonstrations are given at the Centre on the proper methods of preparing tea. The Board will open early next year a second Centre in Madras and has plans to open Centres in the other major cities of India.

Propaganda activities of the Tea Board consist, among others, in educating the public on the art of preparing a good cup of tea, informing citizens of the basic importance of the tea industry in the national economy of the country, helping industrial establishment to open canteens for the benefit of their staff, undertaking (with the help of local authorities) drives against adulterated and bad tea, participating in exhibitions, giving educative talks in educational institu-

tions. These activities are strengthened by intensive publicity through the Press, films, neon signs, hoardings, posters, maps, illustrated charts, leaflets, calendars, biotters, etc.

FOREIGN PROPAGANDA

In so far as foreign propaganda is concerned, this is largely carried out at present through the help of tea councils or corporations in certain selected countries as the U.S.A., Canada, West Germany, Eire, the Netherlands. In such joint councils the local tea trade of the importing countries and the producing countries co-operate in the promotion of tea consumption.

The contributions made by the Board in 1956-57 to the different tea councils in foreign countries are indicated below:

	Lakhs Rs.
(i) Tea Council of the U.S.A. ...	28.38
(ii) Tea Council of Canada ...	11.77
(iii) Tea Bureau for the Netherlands ...	1.51
(iv) West German Tea Corporation ...	3.33
(v) Tea Council of Ireland ...	1.00
Total ...	46.35

THE STORY OF TEXMACO

(Continued from previous page)

sluice gates in India for the Rupar Head Works of the Bhakra-Nangal Project. In the same year penstock liners of a diameter of up to 25 ft. were manufactured and erected at the site of the Hirakud Dam. Texmaco is also engaged in the fabrication of radial gates, bridges, gearing, etc., for the Panchet Hill Dam of the Damodar Valley Corporation. Structural parts of the plant required by the Iron and Steel were also supplied by Texmaco.

Texmaco Looks Ahead:—Today the import of engineering goods in India is valued at Rs 350 crores which is 45 per cent of India's total imports. With the new development plans in the country the requirement of engineering goods will substantially increase further. Consequently there is a vast scope for the expansion of these industries in the country. The Engineering Industry is of strategic importance and is indispensable for defence purposes. It will also prove a foreign exchange earner when India is in a position to manufacture enough machinery for export purposes. The export of engineering goods at present is valued at only Rs 4 crores out of the total export trade of Rs 600 crores.

A well developed Engineering Industry is the backbone of industrial advancement of a nation. This explains the importance attached to and the high targets

set for it in our Second Five Year Plan. It is, therefore, the aim of Texmaco to expand its present production capacity and widen its field of activity. An agreement is being finalised with Messrs. H. W. Ward & Co., Ltd., U.K., for the manufacture in India of Machine Tools, to their specifications and designs.

Texmaco Serves India:—The successful pioneering activities of Texmaco in the field of engineering have increased in foreign countries the prestige of Indian industry technology and workmanship. Today manufacturers of world repute in Japan, Germany, Austria, the U.K. and the U.S.A. are readily offering their designs and technical know-how to Texmaco for the manufacture of a wide range of products. Training facilities have been made available for Indian personnel in these countries. Thus Texmaco is not only playing its part in the mighty adventure of rebuilding our national economy on modern lines, but is also helping to increase our fund of technical knowledge and trained personnel. More land is being acquired at Belgharia and Agarpara, and new buildings are going up to meet the ever expanding requirements of Texmaco. The old villages of Belgharia and Agarpara are today getting a new look, and are humming with activity in line with India's plans for prosperity and plenty.

THIS is the story of over half a century of remarkable pioneering activities in the Nation's service.

It began in 1897, when A. B. Godrej, banding together a group of skilled workers from Gujerat, established a workshop in a small shed. Godrej experimented and devised improvements on imported locks. The range was increased and the foundations of a large-scale industry were laid.

Three years later, Godrej turned to the manufacture of safes. Godrej safes, too, gradually won popular approval after overcoming doubt and discrimination.

BETTER SOAPS

Godrej thereafter lost active interest in his workshop. Characteristically, his attention turned to soap, perhaps the commonest of article in daily use and his brother, P. B. Godrej, acquired the lock and safe business.

The new head tempered his late brother's enthusiasm with hard practicality. Consolidation rather than fresh enterprises were, he decided, called for by the times.

To-day Godrej rank as a full-fledged large-scale secondary industry of national importance. An extremely high degree of technical efficiency has been achieved in security engineering. Godrej safes have withstood severe tests. But security equipment comprises a wide range of products. The development of manufacturing techniques has made it possible for safe-vaults and security cupboards to be produced at a reasonable cost.

There is also steel furniture—a major industry in itself. Although steel furniture is now standard equipment in all progressive countries for institutions, Godrej were the first to design and manufacture steel cupboards for the home. The range of production has been progressively extended from the manufacture of security equipment and home and office furniture to special equipment for hospitals, canteens, libraries, printing presses and for other institutions. Another advance has been the development of steel window and door industry.

The Godrej steel fabricating unit is run on a modern assembly line basis with its products subject to strict control and quality. To ensure a durable finish on steel equipment, so prone to rust in tropical climate, every piece of steel is subjected to thorough anti-rust treatment, which is unique in our country.

NATIONAL ASSET

Installed productive capacity, such as the Godrej plant, is a national asset in an emergency. It can be switched over to the production of goods then greatly required. During the war Godrej turned out field equipment of all kinds. More re-

cently, Godrej supplied many lacs of ballot boxes in record time for both the general elections—at an extremely low price and without interrupting their normal manufacturing programme.

Godrej, who pioneered, had to build their productive capacity the hard way. Precision machine tools were just not available from abroad during the war and Godrej, left to

mand for typewriters in the country is small is ample evidence that Godrej are led into the field by the primary aim to end our reliance on any foreign country.

Of the 1800 components, only four items costing a trivial amount are imported. Indian skill has produced the machine comparable to any make in the world but at a far economical cost—being available at

has to play in the economic development of the country by complementing the State-sponsored projects under India's Five-Year Plans. While State enterprise provides the products of heavy industry, units like the Godrej works use these basic materials and convert them into finished products for the consumer and provide equipment or component parts for other manufacturers.

It is also a vindication of the new spirit in modern industrial outlook. Profits are ploughed back into the business, taxes are paid to the State, increasing benefits including more leisure and greater purchasing power given to labour, more jobs provided and quality goods offered to the consumer at lower prices.

With increased production Godrej expect to further their export markets in neighbouring countries.

NO PROTECTION

Godrej policy has developed along sound ethical lines. Service to the consumer has been the keynote of this policy. It finds expression in the making of standardised products, manufactured strictly according to specifications, at the lowest possible prices, even in boom periods. There are instances where Godrej brought down the price-level to one-third of the prices of the imported articles.

A cardinal principle of Godrej policy is to show Indians the way to do things for themselves. Crores of rupees have in this way been saved the country. No protection or financial assistance has ever been claimed from the Government.

LABOUR BENEFITS

And what of the thousands of workers Godrej employ? Godrej consider human relations the first responsibility of management. Godrej have been far ahead of legislation in labour benefits. Long before any one thought of labour laws, Godrej introduced such benefits as holidays with pay, provident fund, bonus, gratuities, medical and canteen facilities for factory workers.

In a rural setting a new Godrej project is taking shape. New factories are rising along with comfortable and sanitary houses at subsidised, low rents for the workers. Welfare work is receiving due attention. A school for workers and their families has already come into existence, while a full-fledged technical school will soon be built on land donated by Godrej with facilities for training and possible employment.

Vikhroli is a proof of the pioneering spirit of Godrej and a promise that Godrej will continue to serve the Nation and help India to take her rightful place in the industrial communities of the world.

Here is a striking example of the great part which free enterprise

Godrej in the Nation's Service

Story of a Remarkable Achievement :
From Small Beginning to
Giant Factories

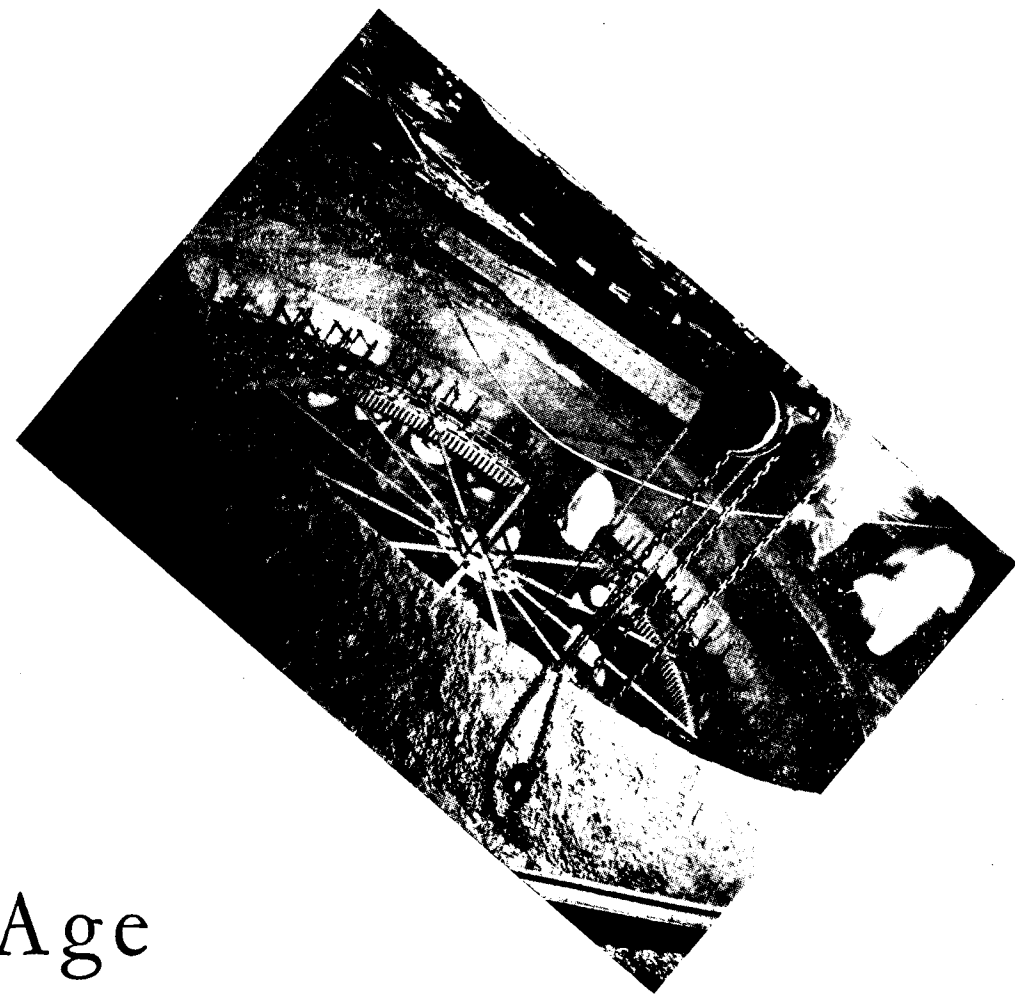
their own resources, began designing and manufacturing them in their own factory. They will now make sheet metal and plate working machinery on an extensive scale to meet the growing needs of industries in the country.

THE ALL-INDIAN TYPEWRITER

These facilities, which they have created for themselves, and their technological experience enabled Godrej to take the trail-blazing decision to manufacture typewriters for the first time in India. This decision was made at a time when foreign firms were not in favour of actually manufacturing typewriters completely in India. That the de-

The revolutionary
change occurring in
India's economy is best
exemplified by what is
transforming Joda.
Where India was once
content to export
manganese ore, today
steps are being taken to
produce ferro-manganese
at Joda—a sign and
symbol of the gradual
shift in India's export
potential from raw
materials to more and
more advanced stages of
finished goods.

Joda Comes of Age



A year ago a visitor to Joda would have remarked on its quality of primeval silence. Nestling in the hollow of a valley ringed by the green hills of Keonjhar, in Orissa, this tiny mining settlement seldom saw a stranger—even today it has neither a telegraph office nor a telephone. The adbas of Joda hunted and tilled, as they had done for generations, and a few worked in the manganese mines. Periodically the vintage engine—sole symbol of the mechanical age—issued out of its rustic shed to haul the tubs of ore sixteen miles to Bara Jamda, the nearest rail read, en route to Jamshedpur. Apart from the occasional dull boom of explosives in the ore mines, nothing disturbed the brooding quiet of the jungle.

But today Joda is vibrantly alive. All at once things have started happening. The railway is creeping forward to Joda at the same time as engineers force a major highway through the jungle, connecting Keonjhar with Barabil on the way to Sambalpur. Telephone and telegraph lines will follow soon, linking Joda firmly with civilisation. The transformation now in progress can be seen from the fact that the area can no longer be lumped together; you must refer separately to Joda East and Joda West.

GROWING WITH STEEL

The reason for Joda's rapid transformation is Tata Steel's Two Million Ton Programme. By 1960, the production of steel at Jamshedpur will be doubled, and its raw material needs will increase proportionately. One of the most important materials needed for steel-making is ferro-manganese. The manganese mines at Joda, therefore, receive a high priority for expansion.

Until now, all the manganese mined at Joda had to be sent to Jamshedpur, where it was converted into ferro-manganese in the same blast-furnaces which make pig iron, thus inevitably reducing the production of the latter. Now that Tata Steel are putting up a new plant at Joda, it will be possible to meet entire demands of Jamshedpur, and perhaps leave a surplus as well.

The ferro-manganese plant will have an initial capacity of 30,000 tons a year. With an eye to the future, the plant is being so designed that output can be later stepped up to 100,000 tons a year.

FEEDING THE GIANT

Tata Steel's mines at Joda West are being equipped with improved facilities for supplying ore to the plant. Each day, 215 tons of manganese ore will be fed into the furnaces together with 70 tons of coke from Jamshedpur and 60 tons of limestone. The charge will be melted down in two electric furnaces. Tapping, or drawing the molten charge, will take place every two hours, each furnace delivering about 50 tons per day. Until transportation arrangements are complete, raw materials will be transported to the plant by trucks from either the ore mines close-by or the rail head at Bara Jamda.

Though the setbacks at the beginning were many, the plant will come to operation ahead of schedule, say the consulting engineers responsible for the project. The site, although it had belonged for many years to Tata Steel, had been let out to local villagers for cultivation. Persuading them to move was not easy. An exceptionally heavy monsoon followed which caused a further setback so that the work on the site did not

gather momentum until November, 1956.

OVER 70 PER CENT COMPLETE

In the ten months since, work has progressed at top speed. Almost all the plant and equipment has been ordered and 45 per cent of it is already at the worksite. With excavation and concreting nearly finished, erection of structures and equipment is under way. More than 70 per cent of the Rs 214 lakh project today stands completed.

One feature of the Joda project deserves special notice. Consulting engineers on the project are an Indian firm, the first of its kind in the metallurgical field. Head of this firm is a young Indian engineer, an alumnus of the Jamshedpur Technical Institute, who has advised on projects as far afield as Iran and Venezuela.

PUSH AND PULL!

Simultaneously with the progress on plant construction, men from the Hirakud project are busy building the hundred miles of transmission lines, scheduled to be ready before October, along which power will flow to Joda. From one jungle location to the other, these transmission men shift their tiny white tents as work proceeds even in mid-summer heat or monsoon downpours. Already a 25,000 KVA transformer weighing 40 tons has arrived at the plant site. Its precarious journey from Barabil on a trailer pulled and pushed by tractors at both ends is a major achievement in itself. This transformer is for the temporary installation which will in time be replaced by a sub-station. The railway men too are busy on their part of the job—extending the broad gauge branch

line from Noamundi to Joda. A siding from this new line will come right into the plant itself. At the present estimate, the rail connection to Joda will be completed by the beginning of 1958.

FIRST IN ORISSA

When this plant comes into operation within the next few months, it will be the first Tata industrial unit in the State of Orissa. It will provide direct employment to some 150 persons—for whom houses have to be built, water supply and other amenities laid on. Work on the township has commenced. Some staff quarters and workmen's houses are ready. A small dam has been built across the Kundra Nala, a nearby stream, from which both township and plant will draw water.

The plant now taking shape at Joda reflects in many ways, the direction in which the country's economy is advancing today. Where India was content to export manganese ores, it is now all set to export ferro-manganese after manufacture. And the attempt is to make a high grade product suitable for the world market. The only method of manufacture open to us in India is the smelting of the ore by electricity. Thanks to the multi purpose river projects, an abundant supply of power at low rates is fortunately assured.

Apart from Joda there are now a number of other ferro-manganese plants being put in those parts of the country where manganese is mined viz. Madhya Pradesh, Andhra, Orissa and Bombay. Together these will produce a quantity of ferro-manganese which will leave a considerable surplus for export after meeting domestic requirements to the full.

NATIONAL CARBON

NATIONAL CARBON CO. (INDIA) Ltd., 18A, Brabourne Road, Calcutta (1). Metals & Ores Co., Division of National Carbon Co. (India) Ltd., Transport Depot Road, Alipore, Calcutta (27). The Eveready Flashlight Co., Division of National Carbon Co. (India) Ltd., Mill Road, Aishbagh, Lucknow.

Directors:—James Edward Potts, Dara Pirojshaw Antia, Francis Jack Drane, David Platt Dunderdale, Raymond Vincent Farrell, John Kendall Grassle, Kailash Chandra Mahindra, H. H. Maharaja of Mayurbhanj, Jennis Roy Galloway (Mg. Director).

The Company was incorporated in Bengal as a Private Company in 1934. It acquired in June 1934 and has since carried on the business in India of the Ever Ready Company (Great Britain) Ltd., including the sole right to use in India the "EVEREADY" Trade Mark as well as other known Trade Marks including "MINI-MAX", "LAYERBILT", "MASTERLITE", "AIR CELL" etc.

In 1935, the installed capacity of the production plant was approximately 15,000,000 cells per annum, with an area of 25,000 square feet being used for manufacturing and storage purposes. A new plant at Cossipore commenced operations in 1940 by which time production had doubled. In 1952, the Company increased its productive capacity by the installation of a modern factory in Madras. Today, the Company has a capacity of almost ten times that of 1935 and utilises over 300,000 square feet of space for the manufacture of components and finished batteries.

In 1949, the Company installed a manganese ore crushing and grinding mill, the first of its kind in India, enabling the Company to use basic raw materials direct from the mine in bulk for further processing.

The dry cell for many of its components relies on small punched and formed metal and paper parts. Prior to 1948, practically all of these were imported. Today, in its well-equipped

punch press shop, a large volume of components is produced annually. This department also now produces multiple connection sockets for radio batteries, etc.

In its effort to keep up a high standard of quality the Company maintains laboratories for examination of raw materials, finished products and for research. In 1940, it installed first air-conditioned constant temperature and humidity laboratory for dry cell testing in India and most of the specification data evolved from information collected in this laboratory and from the Company's overseas associates was made available to the INDIAN STANDARDS INSTITUTE for developing its dry cell and battery specifications.

In 1953, the Company introduced into India for the first time the large scale manufacture of a special design of flat cell which is assembled into batteries known by the Trade Mark "MINI-MAX". Because of its shape, this cell lends itself readily to the requirements of the radio battery and hearing-aid trade.

In 1956, the Company erected a zinc rolling mill at Alipore, Calcutta, for the production of high quality zinc alloy strip. The mill is operated by Metals and Ores Company, Division of National Carbon Company (India) Ltd.

The erection of a factory at Lucknow, UP, for the manufacture of flashlight cases was undertaken in 1957 and it is expected that production at initial rated output will be achieved early in 1958.

The Company has also received sanction from the Government of India to erect a chemicals and plastics plant in Bombay. Plans are nearing completion for construction of this modern chemicals plant to begin early in 1958. Products from this plant will consist of polyethylene, ethylene dichloride and some industrial solvents, which have a good demand in India.

The Company was converted into a Public Company on December 23, 1955.

THE fact that till five years ago there had been no dye-stuff industry worth the name will give an idea at once of the leeway to be made up in our country in industrialisation and the magnitude of the task involved in establishing a highly specialised industry such as Dye-stuff industry. With the attainment of independence, the pioneering spirit of our industrialists, which was erstwhile somewhat dormant, took up the challenge and Atul Products Limited came into being in 1952.

Atul had its teething troubles like all new ventures but thanks to liberal Government assistance and protection, it has progressed from strength to strength.

The importance of a Dye-stuff industry to a growing economy needs no emphasis. In the first place, our imports of dyes amount annually to Rs 15 crores and it is estimated that they will reach Rs 20 crores by the end of the Second Plan. Apart from the savings in foreign exchange and other advantages inherent in its establishment within the country, the Dye-stuff industry is an essential national industry because it is the basis of other highly important industries such as pharmaceuticals etc.

As many modern drugs are synthetic chemical substances just as dyes are, Atul Products with its subsidiary Atic Industries manufactures a wide variety of dyes as well as drugs. The company has also entered into an arrangement with ICI (India) Limited and ICI Limited (England) for the manufacture of several kinds of Vat Dyes and their intermediates. On the

drug side it has schemes to include in its already important list many new items like Acreomycin, Folic Acid etc.

Atul's plants are ideally situated for the type of operation carried on there. It has an assured supply of abundant fresh water from the river Par and the sea is near enough to take care of the large quantities of dirty water that is discharged.

An indication of the growing stature of Atul may be had from the fact that during last year sales of the company's products increased by over Rs 54 lakhs to Rs 183 lakhs. It is expected that the full effect of the additional outlay on expansion

manufacturing industries developed on a large scale in Germany, Italy, Britain and USA. The synthetic dyestuffs proved to be quite superior and cheaper to vegetable dyestuffs and Indian export of vegetable dyestuffs was completely wiped off. Since then India started importing synthetic dyestuffs. During the recent years, we had to import dyestuffs worth Rs 12 to Rs 15 crores per year.

In the year 1947, the noted industrialist Shri Kasturbhai Lalbhai decided to establish a dyestuffs industry in India. With the collaboration of American Cynamide Co. USA, Atul was floated in the year 1949. In March 1951 the factory went into production at the hands

Second Five-Year Plan. A well planned dyestuff and chemical industry will then come into being, thereby saving our foreign exchange to a considerable extent.

Together with the dyestuffs manufacture, the Company has set up plants for the manufacture of important Pharmaceuticals. With the collaboration of Lederle Laboratories Limited of American Cynamide Co. a plant has been set up for the manufacture of Acreomycin, Achromycin, Sciphadiazine and Folic acid. With the collaboration of Messrs Ciba Pharma plants have been set up for the manufacture of Sulphathiazole, Coramine and Vloform. Thus, India is now making the most important antibiotic drugs required in the country.

A third division has been set up for the purpose of manufacturing chemicals and fine chemicals. At present the Company has placed in the market photographic Hypo of superior quality and hope to place very shortly a number of fine chemicals useful for Laboratory and research work.

The establishment of the industry on the present site has been a very wise step. Land admeasuring about 800 acres has been acquired about eight miles from Bulsar, on Par river. The most important requirement of a chemical plant is the supply of fresh water and facility to dispose off waste water. This has been solved in a very successful manner. A bund about 1000 feet long has been thrown on river Par, thereby creating a very big reservoir of fresh water. At the same time the sea is about two miles from Atul (Continued on page 112)

Spotlight on Atul

plans will be reflected fully in the accounts for the current year. Recently Government have issued licence to Atic Industries for the manufacture of several other Vat Dyes.

After the advent of freedom, our country has taken magnificent strides in the field of industrial development. Dyestuffs and Chemical Industry is one of the main industries in India, and Atul has contributed to a very large extent towards its development.

In the 19th century India was one of the biggest exporters of Indigo and other vegetable dyestuffs. However, in 1856 British Scientist Perkin made a discovery of synthetic dyestuffs and since then dyestuffs

of Shri Jawaharlal Nehru. Thereafter the factory has made very rapid progress and have by now placed on the market large range of Direct and Acid Dyes, Sulphur Black, Naphthols, Developing and Printing Salts, Rapid Fast and Rapidogen types of dyes. Atic Industries was established in collaboration with Messrs Imperial Chemical Industries Ltd. for the manufacture of Vat Jade Green Dyes. These dyestuffs are made from the imported raw materials. Therefore, the Company has now decided to expand its activities and set up plants for the manufacture of these raw materials in India. It is expected that these plants will start production during the course of

Standard Batteries

Messrs. Standard Batteries Limited save India vital foreign exchange with special batteries made in the country.

PIONEERS in the field of battery making, Messrs. Standard Batteries Limited supply India with batteries of all types made in the country, thereby helping to save valuable foreign currency.

Within the short space of fourteen years, Standard Batteries Limited have grown into the finest and most versatile battery manufacturers in India. From a modest start in 1943, when they commenced operation as makers of battery plates only, their plant has developed until today it covers 15 acres and employs over 600 technicians and workers. Installed with the latest machinery and equipment, and having its own laboratory and testing rooms, the Standard Battery factory at Santa Cruz, Bombay, is now the largest and most modern national battery factory in the country.

VERSATILE BATTERIES

Standards have a technical collaboration with the world-famous firm of Messrs. A. B. Tudor, Sweden, and one of the most important results of this collaboration has been the manufacture in India of the Pg patented series of batteries. In use throughout the world, these batteries are the result of years of research and experience and their uses range from train-lighting to telephones and electric trucks.

MANY-SIDED DEMANDS ON MODERN BATTERIES

The full value of the Pg battery can best be understood when one considers the many-sided demands made on the modern battery. For use in the railways, batteries must provide a steady source of power for lighting, fans and air conditioning for long uninterrupted service; used in trucks and buses, they are subjected to heavy strain



Ingredients for the 'Mitex' microporous rubber separators are thoroughly mixed in cooled mixers.

because of the innumerable stops and starts—often sudden—in heavy traffic; when working for the telephones or as emergency equipment in power houses, the battery must supply power unflinching and instantly as soon as a breakdown in the main supply occurs. Thanks to their unique construction, Pg batteries are able to meet every one of these demands.

TUBULAR PG POSITIVE PLATE

The Tudor positive Pg plate, patented throughout the world, consists of a number of tubes containing the active material. The tube of the Pg design has double walls; the inner sleeve tube being of woven, acid-resisting glass fibre and the outer cover of perforated plastic. Though very strong, the tube walls are very thin and the tube therefore contains a larger quantity of active material—the capacity of the battery being consequently very high. The plastic coating effectively resists the internal pressure of active material, and this prevents the plates from expanding. The woven glass fibre tube prevents sedimentation but allows an ample supply of electro-

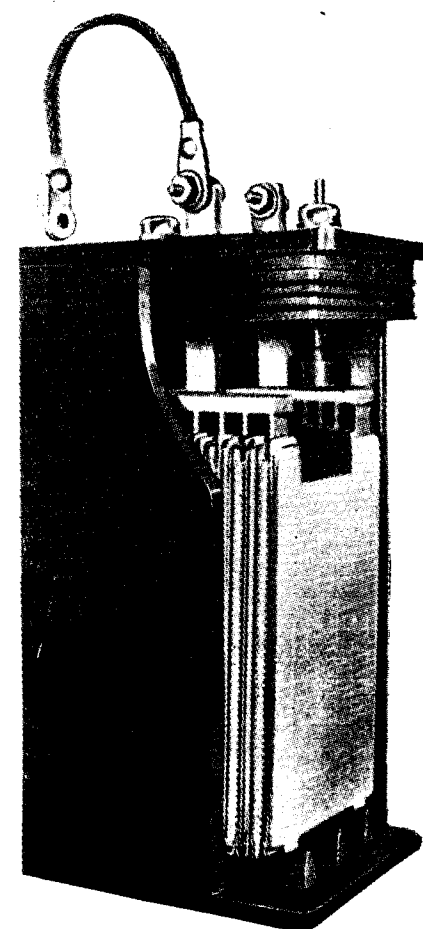
lyte to come in contact with the active material.

LONG LIFE AND EASY STORAGE

Manufactured under Indian Patent No. 47394, the Pg battery offers long life, low internal resistance, even discharging voltage, low self-discharge and weight. They are manufactured with capacities ranging from 30 Ah to 260 Ah, and supplied in 6 or 12 volt systems. They can also be delivered in a dry-charged condition; a new advance which means they need only the addition of acid and a short charging period before use. This represents a great advance since it means these batteries can be transported and stored easily, without fear of leakage or deterioration.

YET ANOTHER GREAT DEVELOPMENT

Standard are now introducing to India yet another improvement in battery manufacture—with the 'Mitex' microporous latex rubber separator, with glass-wool mat reinforcement. These new separators, which have proved themselves in use all over the world, give maximum life—even longer than



The Standard patented RPg battery (cut-away view), used for train-lighting purposes. Thanks to their unique construction, these batteries offer long life and low self-discharge. By making them in India, Standard Batteries Limited are helping to save the country valuable foreign exchange.

that of the battery itself! Their construction is unique, and overcomes many of the disabilities suffered by older-type separators.

ECONOMIC BENEFITS

To supply a country with the finest in batteries is, in this modern world, a great achievement by itself. That Standard produce these batteries within India is of even greater importance for, by doing so, they are helping to save the country scores of lakhs of rupees in foreign exchange—a fact of immense significance at this stage of our industrial development.



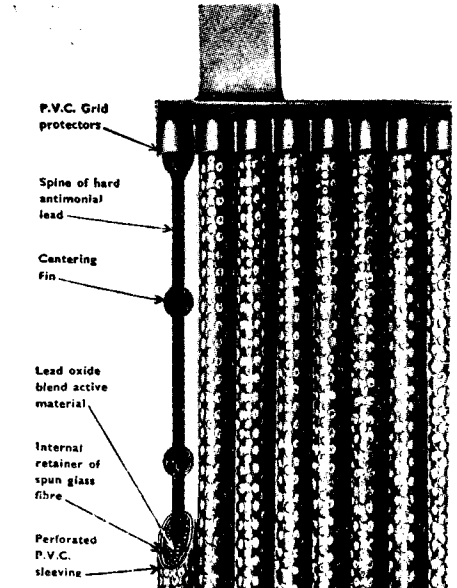
After they have been vulcanised, the prepared 'Mitex' strips are rinsed and cut into large sheets—which are later further cut to required sizes.



Positive plates of the Pg battery are provided with grid protectors, attached by rubberstrings.



Intercall connecting wires are fitted and the RPg cell (railway battery) is complete.



Patented construction of Standard RPg tube for Positive Plate (Indian Patent No. 47394)

THE idea of establishing a modern ship-building yard in India was conceived by the late Shri Walchand Hirachand, almost immediately after the formation of the Scindia Steam Navigation Company Limited in 1919. But it was during the period of the war when the shortage of shipping and the need for increasing the tonnage was acutely felt, that the then Government of India agreed to the project being undertaken by private enterprise. Accordingly, the project was pioneered by the Scindia Steam Navigation Company with the object of building ships in India to meet its own requirements.

Early in 1940 the Company sought the assistance of Sir Alexander Gibb & Partners, a well-known firm of consulting engineers for such large projects, to examine the sites available in Visakhapatnam and Calcutta. This firm undertook the survey and investigation of the sites and after a detailed examination ultimately selected the present site at Visakhapatnam.

In June 1941 the foundation stone of the shipyard was laid in Visakhapatnam by Dr Rajendra Prasad, who was then the President of the Indian National Congress.

The shipyard was designed by Sir Alexander Gibb & Partners who chose the site for the Scindia company and their original scheme envisaged the provision of eight slipways on which ships could be built with adequate workshops and jetty to serve them.

The construction of the shipyard by the Scindia Company had to be executed during the peak years of the war when the company had to contend with numerous difficulties which persisted throughout.

The first stage of construction was well under way in 1942. In April 1942 came the unfortunate air raids of Visakhapatnam Port as a consequence of which all activity in the shipyard was suspended at the behest of Government of India. The whole of the plant, machinery, equipment and personnel was ordered to be transferred to Bombay for putting up a temporary repair yard there. This decision at a very crucial stage in the development of the project gave a serious setback to the establishment of a modern shipyard in India.

The Company erected a temporary yard in Bombay where construction of certain types of small craft for war purposes and repair jobs were executed for some time. Work was later resumed at Visakhapatnam and the first stage of construction of the shipyard with the slipways was completed only in 1947.

The keel for the first ocean-going ship of 8,000 tons deadweight, built at the shipyard, was laid in June 1946 and this vessel was launched in March 1948 by the Prime Minister. In the following years, till 1952, the company built eight more ships of similar type in the shipyard. The management of the shipyard was taken over in March 1952 by Hindustan Shipyard Limited a new Government sponsored company in which two-third of the share capital is held by the Gov-

Hindustan Shipyard

ernment of India and the remaining one-third by the Scindia Steam Navigation Company.

The shipyard entered into an agreement with a reputed French firm of shipbuilders, Ateliers et chantiers de la Loire, Paris to afford advice on the organization, development and management of the shipyard. Early in 1953, the French firm submitted a project report for the development of the Shipyard.

This was examined by a special Committee of Directors appointed for the purpose who finally recommended that the first stage of the development programme suggested by ACL should be divided into two phases so as to postpone unessential items, which would either seriously affect the output of the Shipyard or interfere with its future expansion, to the second phase.

The first phase of development was so conceived as to secure, when completed, a production capacity of four to six ships per year. This development plan is now under execution.

The principal features of the plan are the extension of the Shipyard to the south by 16 acres, construction of a fourth berth, a Prefabrication Shop with auxiliary bays and extended gantries, a Plumbing shop, a new Stores building, an additional office building and timber storage building extension of the Blacksmith shop, renewal and augmentation of machines in the various shops, provision of travelling cranes to serve the berths, installation of more cranes in the shops, etc. The estimated cost of the scheme is about Rs 2 crores.

The shipyard is now equipped with four large-sized slipways on which ships up to 550 feet in length and 15,000 tons in deadweight could be built, a fitting out jetty 1200 feet long with a heavy-lift fixed crane of 125 ton capacity, a large mould left floor, hull shop, a machine shop, a smithy, a foundry, a plumbing shop, a sawmill and carpentry shop, a stores building and extensive storage accommodation, an electric sub-station and various other small units necessary for ship-building and office buildings for the administrative and drawing offices. A housing colony designed according to modern principles of town planning and extending over an area of 145 acres has also been constructed. About 1500 employees live in this colony.

As an adjunct to the Shipyard a project for the construction of a drydock capable of accommodating large-ocean-going ships has been sanctioned at an estimated cost of Rs 2.15 crores and a preliminary project report for the drydock has been received. The existence of a drydock will enable the shipyard to save the extra expenditure now incurred in sending a completed ship to Calcutta for drydocking before delivery to the owners, besides securing substantial repair jobs for the shipyard. The drydock, when completed by the end of 1959, will

meet a long-felt want at the Visakhapatnam Port.

The shipyard has adequate technical staff. About 20 selected men were trained in different branches of ship-building by deputation to shipyards in the United Kingdom, and a batch of 9 technical officers have been trained in the French shipyards of Ateliers at Chantiers de la Loire. Apart from the experts deputed by the French firm, the shipyard is manned entirely by Indian personnel.

The shipyard has already built fifteen ships, twelve of which are steam ships of 8000 deadweight tons each and the remaining three are of modern design of 7000 tons deadweight. Fifteen more ships are at present on order. The workmanship of the shipyard has received high praise from all concerned.

The ships are built under Lloyd's supervision to their highest classification. The Shipyard will soon be ready, both by virtue of its equipment as well as its technical personnel, to build up to 50,000 DWT, a year, as envisaged in the Development Programme which is now under execution.

Shipbuilding essentially is an "assembly" job. Each ship has to be equipped with propelling engine and its auxiliaries, electrical fittings, wireless, cargo handling gear, furni-

ture and a whole host of articles needed for the day to day house keeping and running of the ship. The steel has to be manufactured to special specifications individually for each ship.

Other industries, which produce the equipment for ships have not developed so far in India and the shipyard has to depend on foreign countries to obtain them. Even the ship-building steel available from the only plate rolling mill in India is neither obtainable in the most economical sizes nor in adequate quantity. It has, therefore, been necessary for the shipyard to import foreign steel. So far, the production of the shipyard has been much below its "economic" capacity. As a consequence of all this, the cost of building a ship at Visakhapatnam is higher than the competitive foreign cost of a similar ship.

To ensure that the Indian shipowner does not have to pay a non-competitive price, the Government of India accepted the principle of selling the ships built at the Visakhapatnam shipyard at a price approximately equal to the cost of building a similar ship in the U.K., the difference being borne by the Government of India as a subsidy.

In the second Five Year Plan, provision has been made for the manufacture of engines and auxiliaries. Government have accepted in principle the establishment of such a factory in the public sector and the technical problems of this project are now under examination.

SPOTLIGHT ON ATUL

(Continued from page 110)

site, and it gives very nice facility for the disposal of chemical water into the sea, so that there is no injury caused to anybody. Further, the site touches on one side the Bombay Ahmedabad high way and on the other side Bombay Ahmedabad Delhi Railway line.

About 400 acres of land has been reserved for the expansion of the factory and the rest is being developed into ideal industrial town. At present the Company has put up about 150 small and big bungalows for the accommodation of the working staff. Labour is available from round about villages. Town planning has also been made providing for the community open air theatre, site for post office, police station, and a very big plot of land for the sports and recreational activities. The Company is generating its own electricity by operating two generating sets capable of 5000 Kws.

It will be thus obvious that with the establishment of the industry, a well planned industrial town is also developing side by side. Cultural activities are also being carried out in the form of a club and the institution run by the women of Atul colony. Looking to the future, it is definite that Atul will be making a very great contribution towards healthy establishment of dyestuffs, chemical and pharmaceutical industry in India, and also will pave the way for an ideal industrial township attached to such industry.

The authorised capital of the Company is Rs 5,00,00,000 divided into 5,00,000 shares of Rs 100 each. The subscribed capital is Rs 1,89,00,000 made up of 1,89,177 ordinary shares of Rs 100 each (less allotment and calls in arrears of Rs 17,300).

During the past year (year ended 31st December '56) the Company has made a profit of Rs 30,95,549 subject to depreciation which has been allotted Rs 12,68,490. There thus is left a net profit of Rs 18,27,059 which with Carry Forward from last year's account appropriated the amount as follows:—

	Rs.
Towards arrears of depreciation.	6,91,996
Provision for dividend at the rate of Rs 6 per share on 1,89,390 ordinary shares	11,36,340
Balance to be carried forward to next year's account.	24,255
On the request of the Directors the Managing Agents of the Company have waived their commission for the year.	

It may be remembered that Atul has been granted a loan of Rs 3 crores by the Government of India. Out of this, the Company had already taken one instalment of Rs 75 lacs. Towards the end of last year the Company had applied for another loan of Rs 57 lacs and it has been sanctioned.

Jeewanlal (1929) Limited

AS suggested by the name itself, this Company was formed in the year 1929 with a capital of Rs 36,00,000 under the joint management of Canadian and Indian entrepreneurs. Originally started in 1911 as a trading unit dealing in aluminium goods, it was converted into a manufacturing concern after 1918 with a factory installed in Calcutta. After some time another factory was erected in Rangoon and in 1930 they had a factory in Bombay and another one in Madras. In 1932 this company became a full-fledged Canadian company as the Indian capital was entirely withdrawn. In 1946 a factory was opened in Aden.

It was in 1951 that this company was completely Indianised when it was taken over by Rai Bahadur Himchand K. Shah, the present enterprising Managing Director of Jeewanlal (1929) Ltd., who is associated with this establishment from

1921. At the end of 1952 it was made into a public limited company with a paid-up capital of Rs 72,00,000. The additional money was capitalised out of reserves ploughed back from profits. It is greatly due to Rai Bahadur Himchand Shah's indefatigable efforts and business acumen that the company has made rapid progress and reached its present status.

The 'Crown Brand' aluminium goods produced by this company or manufactured from pure virgin aluminium and have earned for themselves an excellent reputation because of their superb workmanship and finish and guaranteed purity of metal and fine management. They are not only popular in India but also in the Middle East, Ceylon, Singapore and Penang, the requirements of which countries are also catered by Messrs. Jeewanlal (1929) Ltd. Approximately 50 per cent of the requirements of aluminium utensils in India are supplied by this company. The present output of its factories with an installed capacity of 500 tons amounts to 300 tons a month as against 50 tons produced in the beginning. The total strength of



the company's present employees comes to about 3,000, including labourers, clerical staff, officers and directors. The factory in Calcutta has the largest plant while that in Bombay is the second largest in India, next comes the factory in Madras and then that in Aden.

The main products manufactured by this company are the cooking utensils of many varieties and sizes e.g. pots and pans, Degchies, Handies, tumblers, tiffin carriers, baking dishes, frypans, buckets, teapots, teacups and spoons, mugs, cookers, jugs, jelly moulds, pudding bowls, egg cups, etc., etc.

Other things manufactured by this company are:—suitcases, loudspeaker horns, service wagons, peg tables, railings, name and number plates, street signboards, picture frames, paper weights, stationery racks, ink stands, fruit and flower baskets, bird cages, towel racks, light reflectors and many more needed by the Railways and other Govt. establishments.

In addition a limited number of articles for industrial use are manufactured: blades of electric fans, fan canopies and regulator covers, hexagonal tubes for collapsible gates, radio chassis, funnels specially made for aviation petrol, rivets, ingots and wires, besides Railway carriage roof tanks and it goes much to the credit of Jeewanlal (1929) Ltd., that it is the first company in India to manufacture anodised coloured articles with a high degree of precision. Their present specialities are: ashtrays, scrap boxes, coat hangers, jewellery boxes and trays. Anodising, apart from giving a decorative look to the articles, increases their corrosion resistance.

Utility and beauty are the two criterions by which the equipment and utensils of the modern household are appraised. Aluminium utensils have high heat capacity, excellent thermal conductivity, durability and good corrosion resistance. In addition, aluminium is very light in weight, it being about 1/3 the weight of the common metals. Aluminium utensils do not require re-plating and can be easily cleaned with soft clay or steel wool. They do not rust, nor do they chip off. They are strong and serviceable. The comparative ease with which aluminium can be cast or fabricated makes it an excellent material from the design standpoint, with the result that beauty of line and form added to its characteristic silvery colour give it an aesthetic appearance.

In spite of all the advantages that aluminium and its goods possess, there is still a little prejudice left in the minds of some people about using aluminium goods. The possible relation of aluminium cooking utensils to the health of those eating food cooked therein has been discussed by many individuals. However, extensive technical researches in this connection have proved that aluminium utensils are quite hygienic, the more so as they prevent loss of vitamins and thus retain maximum food value. That is why aluminium utensils are used even in hospitals, dairies and other important public services such as military establishments for food and supplies.

It is hoped that given some time, whatever little prejudice is still left will vanish and that more and more people will start buying aluminium utensils. With the anticipated increased demand, this company hopes to be able to utilise its total production capacity of 500 tons per month as compared to their present total output of only 300 tons.

This is the age of aluminium; all sections of industry use it in one form or another. It is used in aircraft industry, gramophone industry, in the manufacture of radio apparatus, in the transport industry and in the manufacture of office equipment and modern furniture etc. During the short period of its life, its uses have been in legions. No wonder it is called the wonder metal and a poor man's silver.

The 'Crown Brand' aluminium utensils manufactured from this wonder metal are superior in quality, modern in shape, elegant in design and beautiful in finish and cheap in price. What more would any one want?

NATIONAL RUBBER

National Rubber Manufacturers Limited, "Leslie House", 19, Chowringhee, Calcutta 13. Directors: Mr Sudhir Kumar Sen, Mr A. V. George, Mr Jal. H. Mehta, Mr D. N. Kapur, Dr Dasarathi Banerjee, Mr Nirode Gopal Mookerjee, Mr Milan Kumar Mookerjee, Dr Bireswar Mookerjee, Mr Kedar Nath Mookerjee. Managing Director: Mr Kedar Nath Mookerjee.

National Rubber is a company that owes its creation to the Second World War when, with a growing indigenous demand for various defence needs, Messrs A. K. Sarkar Ltd conceived the idea of developing and manufacturing such items as Stirrup Pumps, Hoses, Steel Helmets, etc. In 1941, a rubber factory was established, its products being standardised according to British specifications. By 1942, it had attained the status of being one of the foremost organisations for supplying such equipment to Government. During 1942-43, the output of hoses touched a record of 10 million feet.

With the gradual decline in the demand for war time goods, a reorganisation scheme was taken in hand in 1944 for the manufacture of a large variety of mechanical rubber goods. Lines of production that were developed included petrol hoses, flame-thrower hoses and aircraft rubber pumps.

Further expansion was planned in 1946, and it was at this juncture that the company under its present name came into existence. The products of National Rubber include railway rubber components like vacuum brake hoses and engine feed pipes, vacuum brake fittings, buffer springs and miscellaneous carriage and wagon fittings. National Rubber also pioneered in the manufacture of a wide range of automobile rubber parts.

The policy of expansion continued and, in 1954, production of modern improved types of industrial belting was commenced under a joint manufacturing scheme with Goodyear-India.

National Rubber also figures as a prominent manufacturers of cycle tyres and tubes, and the company has undertaken to expand production to 2.4 million cycle tyres and 1.2 million cycle tubes annually.

With all this development in view, the company recently issued Rs 42 lakhs worth of shares, raising the issued and paid-up capital to Rs 60 lakhs. The new issue was a triumphant success, with applications working out to more than two and half times the offer. The company bids fair to sustain in the future its past record of continuing and steady expansion as well as pioneering efforts in new fields to meet new demands for new products arising in India.



Looking north-west showing the Propane Deasphalting Unit on the left, the Poly Plant and the Fluid Cat-Cracker Unit to the right. The Power Plant is in front of and to the right of the Fluid Cat-Cracker Unit. The three tanks in the foreground are the Fluid Cat-Cracker Unit feed tanks.

Oil Goes Through Four Units

pumped to a furnace where it is heated to about 650°F and then flows into the atmospheric fractionating column which separates

the crude oil into various "cuts" of different boiling ranges. The lowest boiling components are drawn off from the top of the column as a mixture of straight run gasoline and gases. Below this kerosene is drawn off, then still further below light diesel oil, heavy diesel oil, and at the bottom reduced crude oil. A fractionating column contains trays equipped with "bubble-caps", which are designed to ensure intimate contact of descending liquid with the rising vapors in a fractionating column. As the vaporised crude oil enters the column, it travels up bubbling through the bubble-caps and contacting the descending liquid. Each tray condenses some of the crude oil components and allows the lighter components to rise as vapor to the next tray. This provides a degree of separation at each tray so that each increasingly higher tray contains an increasingly lighter product. The heavier fractions that collect on a tray pour down to the

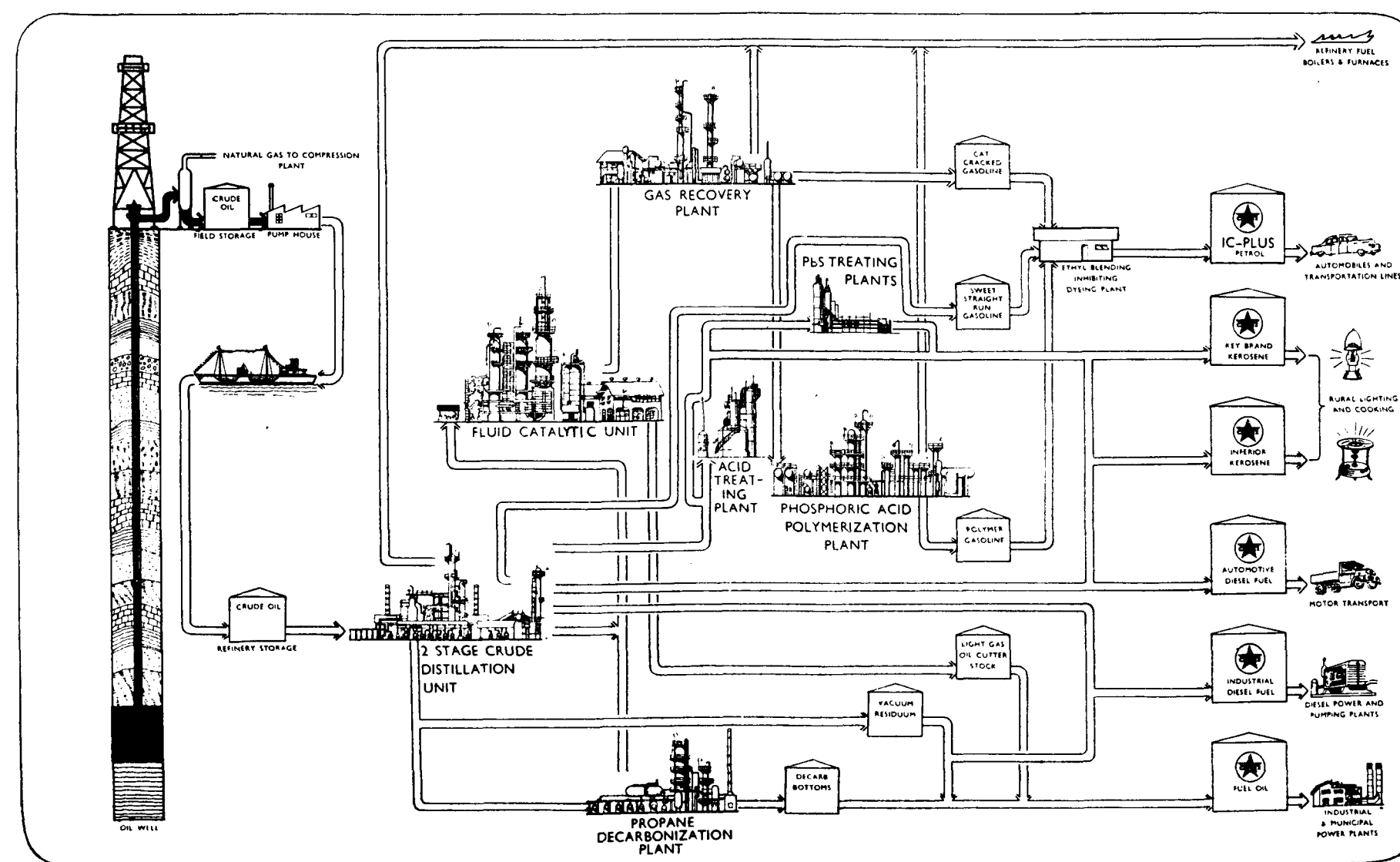
tray below, so that the heavy crude components may be drawn off from the bottom of the column.

The reduced crude oil obtained from the bottom of the atmospheric column is again heated and passed into the vacuum column which, similarly to the atmospheric column, separates the residuum and heavy diesel oils. When processing Minas Crude, this residuum contains many components which are particularly suitable for conversion into gasoline by cracking. However, the residuum mixture of waxes and asphalts requires further processing to effect separation by "solvent extraction".

PROPANE DECARBONISATION UNIT

This unit is a "solvent extraction" unit for the separating of the asphalt and wax in the residuum obtained from the vacuum of the Crude Unit when processing Minas Crude. The residuum is mixed with a propane-butane solvent which separates into two layers. The upper one is waxy gas oil containing most of the wax, and the lower one is asphalt. The waxy gas oil mixed with the sol-

FLOW CHART-CALTEX VISAKHAPATNAM REFINERY



vent passes from the top of the treating tower, and the asphalt mixed with the solvent passes from the bottom. The solvent is then removed in evaporators and recovered for further use. The asphalt is blended with other stocks to be suitable as a fuel for bunkering ships and for normal industrial use.

The waxy gas oil is further processed in the Fluid Catalytic Cracking Unit to make high quality gasoline blend stock and some fuel oil blend stocks.

FLUID CATALYTIC CRACKING UNIT

The waxy gas oil from the Propane Decarbonization Unit together with gas oil from the Crude Unit is fed to the "Cat Cracker" or Fluid Catalytic Cracking Unit (F.C.C.U.). This, the largest unit at the Refinery, mixes the gas oil with a catalyst at high temperatures to break the large molecules into smaller molecules. The catalyst used in this reaction is a white powder consisting primarily of silica and alumina. Like all catalysts, it is not appreciably altered by the reaction, but only assists and accelerates the reaction.

After the reaction has taken place, the oil vapors are separated from the catalyst by special devices fitted in the top of the reactor chamber. The oil vapors then pass to a fractionating column which separates the gas, the petrol fractions, and the heavier cycle oil which can be used as a component for fuel oil. The gas formed is

further processed in the Polymerization Unit.

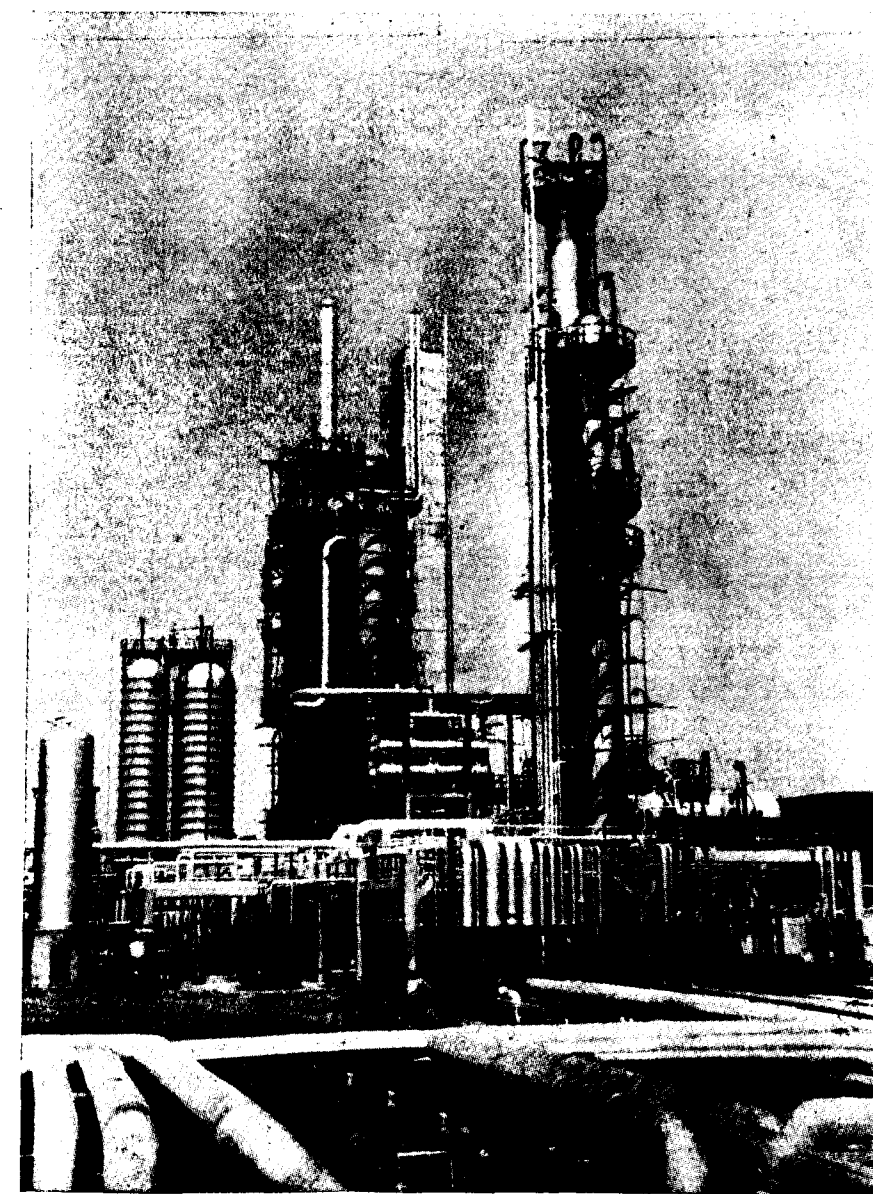
POLYMERIZATION UNIT

The unit, commonly called the Poly Plant, takes the unsaturated hydrocarbon gases from the F.C.C.U. and polymerizes them to form a high quality component for petrol. This process is another catalytic process and in this case phosphoric acid is used as the catalyst. This process results in the combining of small molecules in the gas to larger ones which are in the gasoline boiling range. This is separated out by subsequent distillation in bubble-cap columns.

Finished petrol is a blend of the Straight Run gasoline from the Crude Unit, Cracked Naptha from the F.C.C.U. and Poly Gasoline from the Poly Plant. By judicious blending of these three components, a superior motor petrol can be produced which is designed to fully meet the specific requirements of the Indian market.

Other facilities at the refinery include PDS Treating Plants and an Acid Treating Plant for the removal of sulphur compounds from the straight run gasoline and the kerosene. Facilities to add anti-knock compound and other additives to the petrol are also used to further raise the quality of the petrol supplied to the motorist.

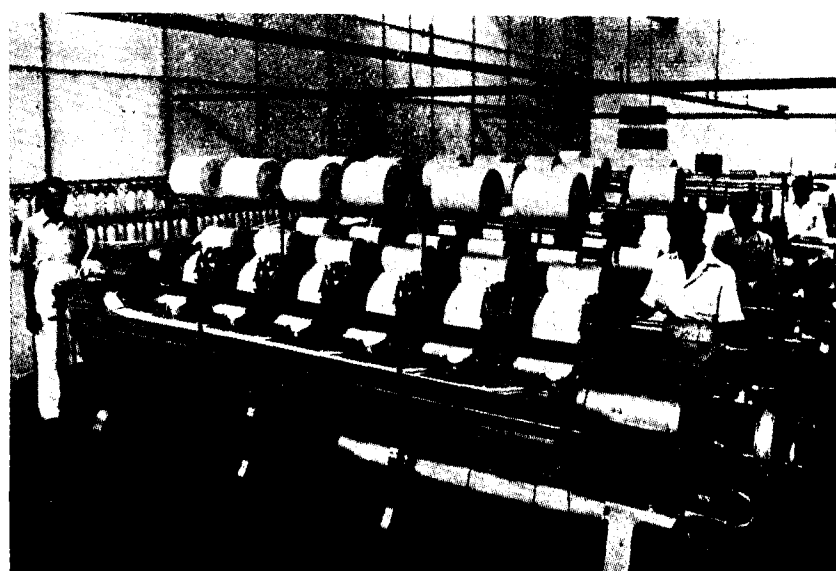
The refinery is one of the most modern in the petroleum industry, and has been especially designed to process the crude oils most needed in India, and to yield the products required by the Indian consumer.



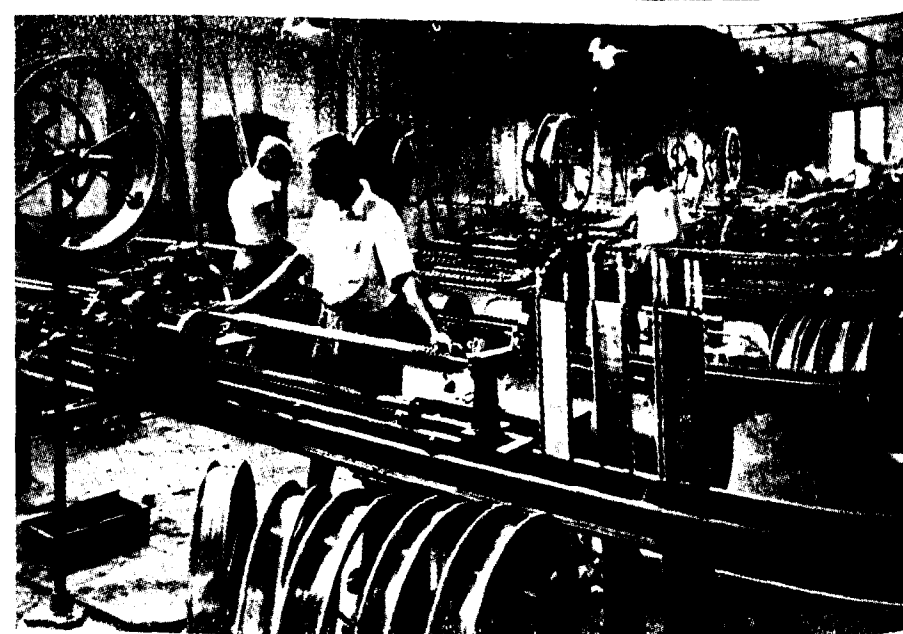
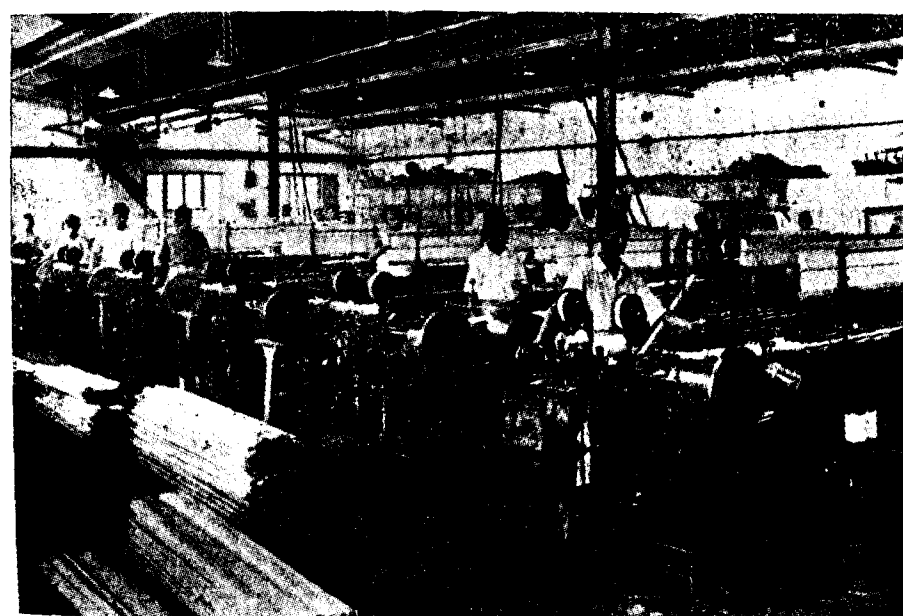
The Fluid Catalytic Cracking Unit of the new Caltex Refinery at Visakhapatnam.



The New India Industries Limited



We present on this page a pictorial profile of The New India Industries Limited. The illustrations comprise a view of the factory, combers, spinning plant, heald knitting machine, varnishing machine and wire reed making machine.



Shipping—Problems and Tasks

TRANSPORT, along with personnel and food, are commonly mentioned as the three hurdles which the country will have to surmount if the Second Plan is not to founder. It is easy to appreciate the correctness of this appraisal. If the basis of an industrialised India is to be laid along the lines and within the period chalked out in the Plan, the volume of movement of men and materials that the Plan must necessarily generate can be imagined. Sceptics may, therefore, be pardoned if they entertain doubts as to India's ability literally to lift the Plan on the strength of its resources, present and anticipated, in transport.

DIFFICULTIES

The difficulties of increasing the transport capacity within a matter of a few years to a level at which the demands likely to be made on it will be adequately met, are indeed enormous. Several recent conferences which discussed the problems of transport have helped to spotlight the nature and extent of these difficulties. Of the three main means of transport, the problems of shipping present the greatest cause for concern. This is not surprising. The development of shipping and shipbuilding has been neglected to such an extent in the past that, perhaps of all the nations with a comparable sea coast, India has been the least developed in this respect. In fact, before Independence, India had no maritime fleet worth the name. The leeway, therefore, that has to be made up in the case of shipping is very much greater than in the case of roads and railways. At the beginning of the First Plan India had about 390,000 GRT. The target under the First Plan was to add 215,000 tons after allowing for obsolescence to the extent of about 60,000 tons. In the Second Plan, it was proposed to add another 300,000 tons so as to reach a target of 900,000 tons by 1960-61.

SHORTFALL

Will this target be reached? Mr Lal Bahadur Shastri, in his inaugural speech at the Transport Conference convened in New Delhi by the Federation of Indian Chambers of Commerce and Industry, made no secret of the fact that the Government entertained apprehensions as to the shipping industry's ability to reach the target. With his usual candour, he said, "The fact nevertheless remains that although the entire financial allocation for shipping in the Second Plan, viz., Rs 37 crores has been earmarked for ships already purchased or ordered, the total tonnage arranged for is only 181,000 GRT leaving a gap of 210,000 GRT."

The Union Minister for Transport and Communications did not go into details at the New Delhi Conference as to the steps the Govern-

ment proposed taking for filling up the gap.

Later, however, while inaugurating the annual meeting of the Indian National Steamship Owners Association at Bombay, Mr Shastri made the important declaration that the Government of India had taken, with the concurrence of the Planning Commission, a firm decision to establish a non-lapsable Fund for the development of the shipping industry. The immediate effect of the Fund, to be built up through annual contributions from the consolidated Fund of India, will be that a sum of Rs 7 crores, representing repayment of loans and payment of interest charges during the Second Plan, would be available for further investments. In other words, the allotment to shipping would go up to Rs 44 crores.

WELCOME

This is most welcome news for the Indian Shipping industry, and will go a part of the way at least to meet the insistent demand made by shipping interests for a larger allocation than had been given to it in the Second Plan. The Union Minister also indicated that, in addition to the resources which will be made available from the fund, contributions would be made from the general revenues from 1958-59, if not earlier. The quantum of such contributions has not yet been decided, but it can be hoped that it will be large enough to enable the industry to acquire the tonnage necessary to reach the target figure.

Reaching the target figure, very necessary and highly desirable though that is, is not, however, enough. Even assuming that the target figure is reached, the resultant tonnage will carry only some 10 per cent to 15 per cent of the country's overseas trade and about 50 per cent of its trade with adjacent countries. This is far behind the national shipping objective of carrying cent per cent of the coastal trade, seventy five per cent of adjacent trade and fifty per cent of overseas trade in Indian vessels.

At the present moment, Indian vessels carry about six or seven per cent of our foreign trade, and the Government have to pay a toll of about Rs 140 crores as freight to the foreign flag. This drain on the foreign exchange reserve is something which the Government can ill afford, particularly at the present juncture.

The shortage of foreign exchange indeed is the most formidable obstacle in the path of the development of the shipping industry. The New Delhi conference pleaded strongly for a more generous release of foreign exchange for the industry, just earlier by Sir A. Ramaswami Mudaliar in his Chairman's address at the share-

holders meeting of the India Steamship Company.

In his Bombay address, Mr Lal Bahadur Shastri did not hold out any assurance that the Government would be able to arrange for more foreign exchange for the industry. At the same time, however, he stated that, "if any deferred payment scheme can be arranged under which foreign exchange payment would commence only after 1961, it will be possible for the Government to accept any such arrangement and allow the companies to go forward even though the ships may be intended for the coast, where they would not earn any foreign exchange".

HAZARDOUS

It will be hazardous to predict how far the shipping companies will be able, within a short time, to effect such arrangements but the assurance is a measure of the Government's anxiety to help the industry to reach the target figure of tonnage, and is in itself a valuable boost for the confidence of the private shipping owners.

A further boost was provided by the assurance, given by the Union Minister in the same speech, that the development rebate rate would be revised from its present figure of 25 per cent. Mr Shastri did not say what the new rate would be, but added significantly that "the example of the UK is of course there". In the UK the rate, called the investment allowance, was recently raised from 20 per cent to 40 per cent. Indian shipowners have been claiming that the Indian rate should at least be the same as the UK. It will not be surprising if the Government decided upon a similar rate.

The recent conferences have demonstrated that there is a new awareness and a sense of urgency, both on the part of the Government as well as on the part of the representatives of private industry, about the role of transport and of shipping in particular, in the remaining years of the Second Plan. The shipping industry can play that role effectively only if the feeling of confidence, which of late has become clearly discernible, is allowed to grow. The speeches of the Union Minister for transport and communications at the two conferences at New Delhi and Bombay clearly show that the Government are eager to do all they can to strengthen this feeling.

Even the administrative structure is being geared to the mighty tasks that have been set for the industry under the Second Plan. The leakage of cargoes that was caused by the lack of coordination between the Ministry of Transport on the one hand and other departments of the Government on the other is sought to be plugged by the setting up of a coordinating agency to ensure effective liaison

between the department of Transport and other Ministries and by the appointment of liaison officers in the private and public sectors.

REALISTIC

In all these, the outlines of a new and realistic policy in regard to transport, especially shipping, are discernible. And the internal climate has also taken a turn for the better. But the mist of uncertainty in regard to the availability of the foreign exchange complement is still to clear. In the absence of the necessary foreign exchange, development in shipping would be limited to what the Vishakhapatnam shipyard is capable of doing with the materials and finance that are available in the country.

UNCERTAIN

It is still uncertain how far the Second Plan targets in respect of shipping would be achieved, though the whole provision of Rs 37 crores made in the Second Plan remains fully committed. If one were to go by what happened under the First Plan, a note of pessimism is inescapable. For, the First Plan target of 600,000 GRT is yet to be achieved, the present tonnage being only 570,000 GRT. The target for the Second Plan is fixed at 900,000 GRT. The financial bad weather into which the industry had run is far from completely cleared and the industry is still in mid-sea with no sufficient help to make its way safely to harbour.

When the Government are so serious about reaching the target fixed for shipping under the Second Plan, and have come out with very generous gestures so as to create a climate of confidence, it is only fair that the shipping companies should pull their weight with the former and strive their utmost to secure the foreign exchange to the extent they can on the lines indicated by Mr Shastri in his Bombay speech—arranging for deferred payment schemes and mortgaging their assets to foreign banks or leading financial institutions. Similarly, the Government's far-sightedness in being prepared even to consider the question of paying a construction subsidy on a percentage basis in respect of ships built in the Vishakhapatnam shipyard needs to be emulated by the shipping companies who, as pointed out by Mr Shastri, could make valuable contributions to the internal resources if only they would divert part of the profits for being ploughed back or contribute it to the new shipping development fund for being reinvested in the purchase of ships.

In this atmosphere of a growing sense of confidence it may not be too much to expect that the shipping industry will not only be able to reach the target set for it in the Second Plan but, perhaps, to surpass it.

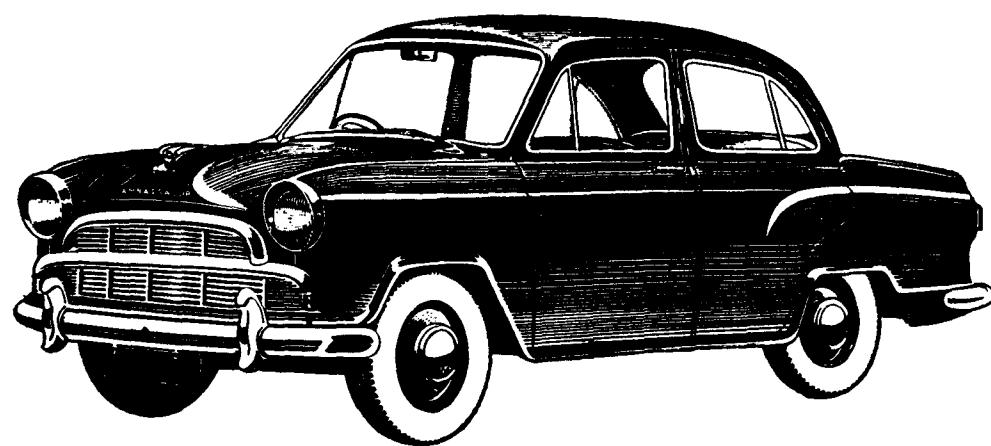
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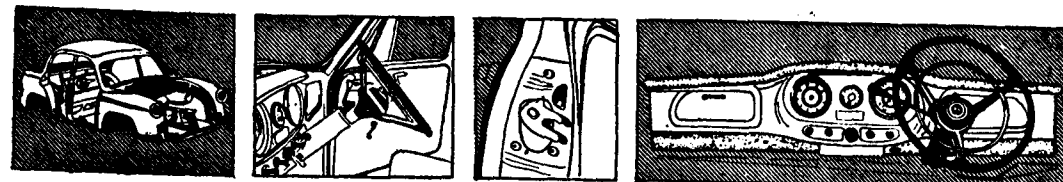
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The New Strides in Steel

THE expansion of the iron and steel industry is one of the most important features of India's Second Five Year Plan. The industrial Policy Resolution places new iron and steel plants in the State sector. Of these, three are being established and are expected to start production before the end of the Plan period. The first State owned plant in India is located at Rourekela in Orissa and is taking shape in collaboration with the Krupp-Demag combine of Germany. The second at Bhilai in Madhya Pradesh is being constructed with the technical and financial assistance from the USSR. The third at Durgapur in West Bengal, on which final decisions were taken after the Second Plan was formulated, is being built with the help of a British Consortium, named the Indian Steel Works Construction Company Limited. The beginnings of a fourth plant are also envisaged during the Second Plan. Its location has not been finally fixed.

The expansion of steel production during the Plan is comprised by the steel plants in the State sector and the increase in capacity of the two older units in the private sector, the Tata Iron and Steel Works and the Indian Iron Steel Works. In this national effort, the Mysore Iron and Steel Works which, though comparatively small in dimensions, is the oldest unit in the public sector in India, is also to be expanded within the limits permitted by the occurrence of raw material resources around its location. The total annual output of finished steel is expected to go up from 1.3 million tons in 1956-57 to 4.5 million tons in 1960-61; there is a broad division of finished products among the various steel plants falling within both the sectors. The installed capacity of all the plants is to increase from 1.3 million tons to 4.7 million tons. At this figure, Indian steel production is expected not only to meet domestic requirements in full but to make available 200,000 to 300,000 tons for export. The increase in production will be distributed roughly as follows: the Tata Works will be producing 1.5 million tons of saleable steel in 1960-61. The Indian Iron and Steel Works will be producing 800,000 tons. The capacity of Rourekela will be about 720,000 tons; Bhilai 770,000 tons and Durgapur 790,000 tons. It is expected that the State steel plants will be able to produce to their full capacity, a little beyond the Plan period. It is also noteworthy that the lay out of these three plants is in such a way as to allow for substantial further expansion in later years. Bhilai can expand to 2.5 million tons of ingots per annum and Rourekela and Durgapur to 1.25 million tons each. There is a programme for the development of the secondary producers, the steel rolling mills, furnaces and foundries, which too occupy a significant place in steel production in the country.

Total investment on the steel industry over the Plan period was originally estimated around Rs 460 crores, which represented roughly 43 per cent of the new investment on large scale industry. A substantial part of this investment had come in the form of foreign participation and loans. For the Tata Works, the World Bank has given two loans; to the second, a few US commercial banks have also contributed. Total World Bank contribution to Tata's expansion requirements amounts to about 92 million dollars, roughly equivalent to Rs 46 crores. The Indian Iron and Steel Works has likewise secured a loan of 31½ million dollars. For the rest, the two units have been financed by loans from the Government of India and their own internal funds.

Since the Plan was drawn up, the estimates of cost for the three steel plants in the State sector, have undergone revisions; for Rourekela the estimate is now placed at Rs 170 crores as against Rs 128 crores as originally planned; for Bhilai it has been raised from Rs 110 crores to Rs 131 crores; and for Durgapur from Rs 115 crores to Rs 138 crores. The foreign components of expenditure have been raised from Rs 72 crores for Rourekela to Rs 103 crores, for Bhilai from Rs 54 crores to Rs 78 crores and for Durgapur from Rs 67 crores to Rs 77 crores. It is apparent that, at the time of framing the original estimates, the Planning Commission could not secure all the necessary data for the purpose.

Perhaps the most outstanding event on the organisational side of the steel industry during the year is the Government of India's decision to bring the management of all the three steel plants in their care under the Hindusthan Steel (Private) Limited. The company which was till then in charge of only the Rourekela plant was asked to take over those at Bhilai and Durgapur. In order to ensure proper coordination of work, while at the same time leaving ample freedom for the men on the spot, functions and powers have been divided between the Union Ministry now in charge of Steel, Mines and Fuel, the Company's Board of Directors and the local managements. This body, Hindusthan Steel (Private) Limited has thus become the biggest industrial enterprise in India, controlling an investment of over Rs 400 crores and a steel production which would reach in due course 5 million tons.

Whatever, might be the physical revisions awaiting the Plan, there is a categorical assurance from the Prime Minister and the Finance Minister that the steel projects will in no way be affected thereby. Steel has been taken within the unassailable hard core of the Plan. According to present estimates, the production of finished steel would rise to 1,385,000 tons in 1957-58 against 1,335,000 tons in 1956-57; in 1958-59, the production would go up to 1,510,000 tons and in the next year, i.e. 1959-60, it would rise further to 2,085,000 tons. For the last year of

the Plan, the production is expected to go beyond 4 million tons. Alongside the annual increase in production, the imports which in 1956-57 amounted to more than 1.8 million tons will be gradually reduced and in the final Plan year, imports are expected to come down to 200,000 tons.

For a little, it appeared as though work in Bhilai was progressing slower than scheduled. Mr Dymchits, the Soviet Chief Engineer at Bhilai was reported to have expressed dissatisfaction with the pace of work. To some extent the monsoon was responsible; the need to divert from one port to another certain materials imported in bulk at the time of the mid year congestion was another factor contributing to delay. By now, these problems have been got over; and work in all the three units is known to be proceeding satisfactorily. Even at the time when a certain dullness in progress was sensed in some quarters, Sir Charles Goodeve of the British Iron and Steel Research Association who then visited India gave expression to the feeling that all the three steel works could be completed within the allotted period of time and that even an annual production of 15 million tons of steel was by no means beyond realisation in India.

In Bhilai, house construction has been proceeding briskly, a few hundreds of houses have already been built. The development of iron ore mines around the site of the steel works has started in its preliminary stage and a railway line linking Bhilai to the major group of mines, 60 miles away at Dalli Raghara, has been completed; a railway line to Deroghal, where from limestone has to be brought, has also advanced to its final stage. The foundation of the first blast furnace for the steel project was laid on June 10. This was the first of the three furnaces to be constructed for the project. On June 25, the Chief Minister of Madhya Pradesh laid the foundation stone for the Thermal Station at Korba, from which power has to be drawn to the Bhilai steel plant and the Korba coal mines. This Thermal Station costing Rs 12 crores will supply power to Bhilai by December 1958, when the steel plant's first phase of construction will be completed. The Kargall coal washery plant is also making good progress. This washery would supply coal to Rourekela and Bhilai. From Russia there have been periodical reports of the completion and despatch of machinery and plant intended for the Bhilai Project.

In Rourekela, the township is nearing completion and about 2,300 houses have already been built. A dam across the river Sankh to ensure adequate water supply to the steel works and a railway line from Rourekela and Dumaro are among the other important construction works deserving of special mention. At Durgapur, where work started more recently, arrangements have

been made with the Damodar Valley Corporation for a common system of water supply for the steel plant and for putting up a big thermal station for the supply of power. About 500 houses have been completed in the township. The Bolani mines in Orissa, have commenced work; from these mines, Durgapur expects to draw its supply of iron ore.

Turning to the private sector, the Tata Iron and Steel Works installed a new continuous Skelp and Strip Mill last year. This mill is the first of its kind in India, and is expected to meet a substantial proportion of the domestic demand for skelp and strips. This October, a new coke oven battery was installed at the Works; the battery consists of twenty-six 20-ton ovens. A similar battery was inaugurated at the Indian Iron and Steel Works at Burnpur, early in November. The Company Chairman described the event as the first step toward the Second Plan expansion programme.

The inauguration of the lignite mining project at Neivell by the Prime Minister on May 20 is another highly significant event for the steel industry. The Project, estimated to cost about Rs 70 crores, is under the management of an independent Corporation functioning as a private limited company under the Union Ministry of Steel, Mines and Fuel. The emergence of this project has enabled decisions on a full scale iron manufacturing plant in Salem (Madras), where low grade iron ore is abundantly available. The National Metallurgical Laboratory in Jamshedpur is now working on a pilot plant for this purpose and bulk samples of Salem ore are being tested in sintering and reduction. A Madras Government Press Note has announced that industrialists have come forward with proposals for erecting small pig iron plants in the Salem District, each with capacity not exceeding 15,000 tons a year and the Government of India are reported to have already granted licence to one such company for the installation of a plant. The lignite project may bring in its train a number of small steel plants in South India.

No review of India's steel industry at present would be complete without a reference to the acute shortage being felt in technical personnel, especially at the higher ranks. Barring the training given at the Tata Steel Works for selected batches of engineers periodically, the Government of India are now having a scheme for higher technical training, particularly for the steel plants. Select groups are now undergoing training in the UK, USSR, USA and West Germany under separate arrangements with the Governments or under certain special grants. The Ford Foundation, for instance, has allotted a grant of 1.5 million dollars to the Government of India for training 200 Indian engineers in steel production and management methods.

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Textile Industry's Serious Position in 1957

1957 will go down in the history of Indian cotton textile industry as a year of unprecedented crisis. During the latter half of the year, several marginal units in the country had to close down due to financial difficulties, which arose as a result of the enhanced excise duty as from 1st September 1956. Employment was correspondingly affected and the trend of production also remained lower. The position deteriorated gradually as prices sought lower levels following accumulation of goods. The credit squeeze measures also played their part in aggravating the situation. Despite repeated pleas for giving relief in excise duty, the Government, however, did not think it wise to do the needful, though the duty on medium cloth has been temporarily reduced by half an anna from 13th December 1957. The incidence of taxation on this industry has reached a stage when it finds itself in a crippled state. Apprehensions are held that, as most of the units in the country are of a marginal nature, the position will continue to give serious headache to all concerned.

The cotton mill industry is the biggest organised enterprise in the country. There are 465 cotton mills equipped with more than 12 million spindles and 206,580 looms. The industry has a paid-up capital of Rs 115 crores and employs a much bigger labour force—around 800,000 than any other single mechanised industry in the country, while the number of persons depending upon the industry runs into many millions. The performance of the industry during the last few years is brought out in the following table:

Year	Yarn	Cloth	Exports
1952	1,449	4,508	586
1953	1,505	4,879	628
1954	1,561	4,998	834
1955	16,71	5,094	735
1956	1,671	5,306	721
1957*	1,624	4,877	773

* In million lbs. (in million yards, eleven months)

Cloth consumption per capita is estimated around 16.5 yards a year and is expected to go up to 18.5 yards by the end of Second Five-Year Plan. Some two years back, the industry's view was that this target was not enough. But, for some reason or other, and especially consumer resistance, cloth consumption seems to have remained on the low side during 1957. The Finance Minister, in announcing a steep increase in excise duty on 31st August 1956, had made it clear that the increase was meant to mop up excessive profits and to restrict consumption. Despite the fact that both objectives have been fulfilled long back, the continuance of the heavy burden has left an impression that Govt. are mainly interested in revenue and that the interests of the industry are being thrown to the winds. The dogmatic

outlook of the Government has baffled the industry, while the handlooms as well as the power-looms continue to enjoy many other benefits at the cost of the organised industry.

It may be noted here that the rates of excise duty on cloth were all of a sudden substantially increased by the Central Government with effect from 1st September 1956. As a result, the cloth market, which was quite healthy till then, met with a heavy setback. While the cost of production increased due to the enhancement in the rates of excise duty, prices of cotton textiles, on the other hand, declined considerably. Again, in spite of the fall in prices, the offtake has remained very poor, resulting in heavy accumulation of stocks. Some of the marginal units in the country had been forced to close down while

others were obliged to curtail their production. This has told upon employment, while heavy inroads in profit of the industry have been made with the result that the Exchequer would receive very much less returns on the profits. It is estimated that, as against the increase in excise duty, which was expected to bring in annually a revenue of about Rs 75 crores as against Rs 44 crores, the loss in direct taxation out of the profits would be at least 50 per cent of the gains by way of excise duty. It may be recalled that the consumers were exhorted not to pay the additional excise levy which, it was insisted, should be borne entirely by manufacturers and dealers while orders were issued by Government calling upon banks to restrict credit to cloth dealers to discourage hoarding of stocks. The demand for cloth all over India rapidly dwindled with a preceptible

decline in prices. Thus, the year was characterised by a complete crisis of confidence which is bound to be reflected in lower income tax as well as corporation tax returns from both the trade and the industry.

Mr N. H. Tata rightly pointed out recently that the incidence of taxation had ceased to be a marginal factor in the price of cloth. It has assumed the proportions of a major element in industrial costs and represents a substantial factor in the inflationary trend which the Government are expected to combat. Since the prices of cotton, stores, fuel and power, as also labour costs and taxation are beyond the control of the manufacturer, how long can the much maligned millowner in India be held guilty of profiteering, when his profit, according to a Reserve Bank report, does not ex-

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ceed 6.5 per cent of gross sales, taking the average of the years 1951-55?

The Government of India, having realised the difficulties of the industry, decided to reduce the excise duty on medium cloth by half an anna per square yard with effect from 13th December 1957. This relief is, however, to remain in force up to 31st March 1958. While announcing this relief, the Government also decided to merge the sales tax with the excise duty by additional duties. These changes have been brought out in the following table:

(Excise Duty per square yard in nP).				
	Coarse.	Medium.	Fine.	Super-fine.
From 1st Sept.				
1956	9	12	19	25
Latest	9	9	19	25
Additional	3	4	8	13
Total	12	13	27	38

The new incidence of additional duty of 13 nP on superfine variety irrespective of the price level is found to be excessive. The principle of excise duty should be in fact ad valorem, so that the various classes of consumers have to bear the duty according to their capacity. But it appears that the main consideration with the Government is collection of revenue as much as possible without much difficulty. The industry has now to pay the sales tax on its purchases of raw materials, machinery, parts, stores, etc., which the industry had not to pay

up to now. This is another handicap. It is to be seen as to whether the position of the mill industry will be bettered to any degree by the integration of sales tax with the excise duty. Hopes are entertained in certain quarters that mills will be able to clear off their stocks gradually following the latest measures. However, it is too premature to say anything definite on the prospects of offtake as other factors, such as high foodgrain prices as well as the high cost of living, are proving detrimental to the normal offtake in cloth. However, the integration of the sales tax with excise duty will be welcomed by the trade as it would end all complications with regard to sales tax as well as the necessity of keeping elaborate account books. Moreover, as the sales tax in the form of additional excise duties will be collected at source, the evasion which was taking place hitherto will now be completely checked, while the simplification of the procedure in the light of the heterogeneous sales tax structure and legislation in the various States hitherto may help to a small extent in expediting movement of goods. For several months past, wholesale trade in textiles was at a standstill mainly on account of the suspense which was created as a result of the expectations of relief in excise duty as well as the amalgamation of the sales tax with excise duty. However, the State Governments should do well to compound the sales tax on the cur-

rent stocks with the trade so as to end the anomaly.

The main consideration which has weighed with the Finance Minister in reducing the excise duty by half an anna on medium varieties up to 31st March 1958 is to induce the trade to buy as much as possible from the mills, so as to reduce the redundant stocks. It would, however, be in the fitness of things if such a relief was granted at this stage on other varieties too, though it is widely known that medium variety forms the bulk of production. In 1956, out of total production of 5,307 million yards, medium variety accounted for 3,796 million yards, coarse 719 million yards, fine 444 million yards and superfine 347 million yards. The cotton textile industry's annual production is valued around Rs 450 crores to Rs 475 crores. Now, with the additional excise duty, the consumers will have to foot an overall bill of about Rs 100 crores annually, which comes to about 22 per cent. Such fiscal policy in the long run can hardly create conditions for the Government's objective of an expanding industrial economy.

The new cloth policy of the Government of India under the Second Five Year Plan which was announced on 18th June 1956 does not make any provision for increased cloth production in the mill sector for domestic consumption. Very few mills, however, have taken advantage of the automatic looms

mainly for export in view of the penalties. The salient features of this policy are:

	Million yds.
Present production of cloth	6,700
Anticipated per capita consumption of cloth in 1960-61	18.5
Total internal demand by the end of the Second Plan for a population of 400 million	7,400
Exports	1,000
Total quantity of cloth required to be produced	8,400
Present output	6,700
To be produced—	1,700
(a) Handloom (mill yarn)	700
(b) Powerlooms to be introduced in the handloom sector (35,000 powerlooms would be permitted to be installed in 1956-57 and 1957-58)	200
(c) Handlooms from Ambar yarn: 75,000 Ambar Charkas installed in 1956	300
(d) Mills: for export only with 14,600 automatic looms	350
(e) To be allocated later	150
Additional Mill equipment envisaged:	
Looms automatic (to produce 350 million yards for export only)	14,600
Spindles (to produce yarn to give cloth output of 1,400 million yards (1700-300 Ambar cloth))	2.1*
Million spindles inclusive of 1.9 million spindles outstanding against licences already issued.	

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During the war period and the immediate post war years, due to circumstances beyond the control of the industry, it received a setback as a result of which production went into the doldrums. The days of the latter thirties seemed so dreamy against the background of the long queues in front of the retail shops for the little quantity of sugar that was doled out. But history has repeated itself and, under the First Five Year Plan, the industry went into a new spell of progress and, at the end, exceeded the targets fixed for it in a way that looks almost dramatic.

When the First Plan was framed, the target for the sugar industry was fixed at 1.5 million tons which was to be achieved without increasing the rated capacity either by the erection of new mills or by expanding the capacity of existing ones. The industry almost exceeded expectations by realising the target in the very first year of the Plan itself. Production stood at a level of 1.483 million tons, which represented an increase of 380,000 tons over that of the previous year, and this it was able to do with almost the same number of factories as in the previous season. Subsequently, the target was raised to 1.8 million tons to be reached at the end of the Plan. The circumstances under which this increase was announced would have given little ground for optimism about the target being realised. For, in the following two years production declined as precipitously as it had increased in the first year of the Plan, and had touched a low of 1.001 million tons in 1953-54. But this was short-lived and only served to provide a magnifying background to its achievements in the next two years.

Thus, the 1955-56 season was a season of fulfilment for the sugar industry. Production of sugar from vacuum pan factories stood at 1.862 million tons, which was a record never before reached. Production had almost doubled itself since the immediate post war years. The chief contributory factor for this increase in production was the stimulus which the industry received from the release of

the pent-up demand consequent on the complete withdrawal of all quantitative restrictions on the consumption of sugar in the country in 1952. The increase in the price of sugarcane announced in the 1952-53 season had also a stimulating effect on the cane acreage, which gradually rose from a level of 34.98 million acres in 1953-54 to 44.46 million acres in 1955-56. The abundance of sugarcane which this ensured near the factory areas enabled them to report a record crush. Thus, during 1955-56, the vacuum pan factories crushed about 18.869 million tons of sugarcane against 16.01 million tons and 9.933 million tons in 1954-55 and 1953-54 respectively. As a natural corollary to this supply position, the crushing season also lasted for as many as 139 days against 119 days in 1954-55 and 84 days in 1953-54. The expansion plan announced following the revision of the target also contributed to the increase in production and the number of factories which worked in 1955-56 was higher at 143 against 136 in the previous year.

With the single exception of Madras, almost all the States contributed and shared in the increase in production as will be evident from the statement given below.

STATEWISE PRODUCTION OF SUGAR		
	(In tons)	
UP	1954-55	1955-56
Bihar	303,300	986,915
E. Punjab	225,000	319,203
Madras	9,949	26,177
Bombay	114,900	48,000
W. Bengal	173,500	203,000
	9,500	10,000

The increase in production was not uniform in all States. While production nearly trebled in East Punjab, it increased only by 9 per cent in the UP. Even in terms of absolute figures, the increase was greater in Bihar than in U.P. The sugar industry had further added colour to its performance under the First Plan by emerging as an exporter of sugar. The target having been exceeded, it found itself in a position to set apart a quantity of nearly 100,000 tons for purposes of export, which is expected to realise an amount of Rs 20 crores in terms of foreign exchange. About 80,000 tons of sugar had already been sold to a number of countries as follows:

	(Tons)
East Africa	28,350
Persian Gulf and Red Sea Ports	21,600
Malaya	13,750
Ceylon	8,250
Burma	6,000
United Kingdom	1,000
Total (tons)	78,950

The advantages of a regular scheme of exports as a safety-valve for years of over-production and as a stabilising influence on internal production and prices are matters which have to be given due weight in the planning of the sugar industry. Such exports are of immediate importance when the country is finding itself unable to lay its hands on the requisite

amount of foreign exchange and hopes of carrying the Plan through are solely pinned on the availability of foreign exchange. Thus, the sugar industry provides a bright patch, a silver lining in the dark clouds that are gathering on the foreign exchange front. The Indian Sugar Mills Association had, in a resolution passed at its meeting on 5th April 1957, pointed out that exports of sugar are likely to become a permanent source of foreign exchange for the Indian Exchequer and had, in this connection, urged the need for fiscal incentives such as refund of all internal taxes on sugar meant for export, removal of existing anomalies in the sales tax laws of the State Governments, simplification of central excise procedure and concessional rates on the movement of sugar by railways. In the light of the poor quality and yield of sugarcane in India, on the improvement of which alone the Tariff Board of 1938 saw hopes of the country being able to compete with other countries on equal terms, the significance of such concessions is too obvious to be ignored. It is worth noting that the profits arising out of the exports in the 1956-57 season have been credited to a special fund by the Indian Sugar Mills Association so that they could be utilised for meeting losses on future exports. By emerging as an exporter of sugar, the industry has added a new chapter to its history.

The other side of this story is the dwindling of imports which became a superfluity consequent on the attainment of self-sufficiency. Imports of factory sugar which ran to about 675,498 tons in 1954-55 valued at Rs 37.36 crores, was reduced to 80,691 tons valued at Rs 3.86 crores. While most of the imports took place before April 1956, exports began to flow from the country mainly after March 1956.

The Second Plan envisages a total production of sugar to the tune of 2.25 million tons to be achieved by 1960-61. The increase of 4,500,000 tons which this implies is made up of a quantity of 270,000 tons by way of allowance for the shift in consumption from gur to sugar which is expected to occur at the end of the Second Plan and a quantity of 180,000 tons being the allowance for the increase in population, which is expected to rise to 410 millions in 1960-61 from 375 millions in 1953-54. For this purpose provision had been made to raise the rated capacity to 2.5 million tons by 1960-61. Under this programme of expansion, licences have already been granted for the expansion of 69 existing factories for a total additional crushing capacity of 35,863 tons of sugarcane a day amounting to 380,000 tons of sugar a year. Besides, licences have also been granted for the establishment of 57 new factories for a total crush-

ing capacity of 52,000 tons a day amounting to 600,000 tons of sugar a year. Further, two factories have been set up in Punjab by utilising old plants and one factory is due to be established similarly in the UP, which would add about 28,000 tons of sugar to total production. To ensure adequate supply of sugarcane to the factories, the total production of sugarcane is expected to be increased to 71 million tons by the end of the Plan. The emphasis on the agricultural side is purely on intensive methods and on these lines a development plan had been formulated.

The expansion plan has already got into its stride and the 69 factories which were allowed expansion have taken the necessary steps for increasing their capacity except for 12 factories which were granted expansion licences only in December 1956. Progress in the erection of new factories was also hampered by the Suez crisis as a result of which shipments of machinery could not be effected. All the same, four of the new factories, including two mills shifted, have gone into production in the last season itself. By the end of 1960-61 the total number of sugar factories in the country is expected to reach a figure of 220.

In the distribution of the new factories, the Development Council had been guided by the desire to rectify the existing imbalance in the location of the sugar industry.

	Number of factories	Total sugar made working (1000 tons)
Uttar Pradesh	68	989
Bihar	28	319
Bombay	15	202
Andhra	8	76
Madras	4	54
E. Punjab	1	26
W. Bengal	1	10

The location of the sugar industry had hardly conformed to canons of geonomic efficiency concentrated as it was in the Gangetic belt which has put it at a climatic disadvantage as compared with the Peninsular region. In the interest of a rational location, out of the 43 factories licensed upto the end of 1955-56, 17 have been allotted to Bombay, 7 to Madras, 4 to Andhra, 3 to Punjab, 4 to Mysore and two each to UP, West Bengal, Assam and Hyderabad.

The role of the sugar industry in the Second Plan is not one of mere mechanical quantitative improvement in the production of sugar. It is to be the instrument for effecting a qualitative change in the institutional set-up of the economy. This is what is aimed at by providing for the erection of 22 cooperative sugar factories. These factories are expected to be set up partly with share capital raised by the cane growers and partly with the assistance given by the State Governments and the Industrial Finance Corporation of India. The IFC has agreed to ad-

vance as much as Rs 5 crores to sugarcane factories formed on the cooperative basis during the year ended 1955-56. Two cooperative factories have already commenced working. By lending itself to such a development on cooperative lines, the sugar industry has blazed a new trail in the evolution of the socialistic pattern of society in the country.

That the Second Plan, so far as the sugar industry is concerned, has got off to a flying start would be evident from indications of a record crop in 1956-57. Production of sugar in 1956-57 is expected to be well over 2 million tons. Thus, if the 1955-56 season was a season of fulfilment, the 1956-57 season is a season of promise—that the industry will deliver the goods.

Though present indications would warrant optimism about the possibility of the targets being realised, the most crucial test for the industry—if in the term the agricultural side of sugarcane growing is also included—would lie not in the excellence of its performance on the manufacturing side but in its capacity to respond to schemes for raising the per acre yield of sugarcane. Sugarcane cultivation in India has been the

subject of adverse comparison with sugarcane cultivation elsewhere in the world. This was because of the very wide difference in the per acre yield in India and other countries. Protection has induced practically no improvement in sugarcane yields. The growth of the sugar industry had the effect of locking up vast areas of land under sugarcane cultivation which, had there been a parallel development in sugarcane yields, could have been released for other purposes.

It would serve to put the problem in its perspective if it is related to the consumption and cost of production of sugar in the country. The per capita consumption of sugar in the country had been deplorably low and even in the season in which production was at its highest did not exceed 11 lbs. Though sugar is a necessity with an almost inelastic demand, that there is a difference in reaction in the matter of increase in the consumption of sugar between the lower and higher income groups, would be admitted by all. Cheaper sugar can certainly increase sugar consumption to a very great extent, and in the interest of greater consumption, sugar has to be made cheaper.

The essence of the problem of reducing the price of sugar can best be stated in the words of the Tariff Board of 1931: "Considering that the cost above raw material forms the smaller part of the total cost of sugar manufacture it is obvious that the scope for any substantial reduction of cost in this direction is very limited." In the light of the negative approach implied in the statement, the question of improving sugarcane cultivation assumes the greatest importance.

In the conditions in which sugarcane has been and is being grown in India, no agency other than the Government could have been able to take the initiative and give the lead and direction in this matter. It is only too well known that in the days of the British beyond the granting of protection, the relationship between the industry and the Government was in the nature of a one-way traffic. Only with the advent of the national government had the first steps been taken toward implementing developmental schemes for sugarcane. In 1948, the Indian Central Sugarcane Committee inaugurated a five year scheme for improvement of sugarcane growing in the country which was later extended

to 1955-56 so as to co-terminate with the First Plan. The limited nature of the scheme, which covered only a small area under sugarcane, militated against any substantial improvement and overall per acre yield remained unaffected.

Under the Second Plan a bolder scheme covering almost the entire area has been drawn up for implementation. The details of the scheme are given below.

PLAN ENDING 1960-61		
States	Average* (Tons)	Area† (Lakh acres)
UP	22.0	11.00
Bihar	22.0	2.00
Bombay	34.5	1.91
Madras	36.5	0.51
Punjab	24.7	0.60
W. Bengal	32.0	0.52
Andhra	35.5	0.53
Mysore	35.0	0.09
Orissa	19.0	0.09
PEPSU	22.6	0.12
		17.37

*Yield of cane target for 1960-61.

Whether the development scheme would be able to achieve the targets would depend on the approach of the Government and the cultivators to the problem. Actual experience with sound methods would certainly lend support to the feasibility of the targets.

Jute Industry in Sight of Solution of Major Problem

ALTHOUGH 1957 has not been productive of any sizable improvement in the economic condition of the Indian jute industry, it has nevertheless witnessed the laying of a secure foundation for its future prosperity. For, for the first time since the attainment of independence all sections in the Indian world of jute have begun to speak with one voice as regards the need for one hundred per cent raw jute self-sufficiency. Every spokesman of the industry and trade without exception is now convinced that the key to the problem facing the jute industry is to be sought in increased production of raw jute. The Government and the Planning Commission have also come round to a similar view, as will be evident from the revision of the target for jute production after the publication of the draft of the Second Five Year Plan.

Thanks to the rapid depletion of our foreign exchange resources Authority has perforce been obliged to rely heavily on the traditional sources of foreign exchange. The jute industry consequently has attracted special attention. The industry's key role in the Second Plan has received renewed emphasis in official pronouncements. A concrete instance of Government's abiding interest has been the raising of the target of jute production in the Second Plan from 50 lakh bales to 55.4 lakh bales. Moreover, since the revision of the target Government have been actively engaged in devising ways and means of attaining it. A conference on jute production was held in New Delhi early this year presided over by Dr Punjab Rao Deshmukh and attended by representatives from the main jute growing States. The conference decided that it was necessary to bring additional area under jute in order to achieve the target and that 50 per cent of the area should be fertilised by the Second Plan period. Speaking at a high level conference on promotion of jute production held in Calcutta in April, Dr M S Randhawa, Vice-President Indian Council of Agricultural Research and Additional Secretary Union Ministry of Food and Agriculture exhorted the representatives attending the conference to treat the problem of jute production in India on an emergency footing. Government have since set up a Central Supervisory Body to review periodically the progress of achievement of the new jute production target. Expressed in simple terms the revised target for jute production will mean an increase in yield of 1/4 bale from the present 2 1/4 bales to 3 bales per acre. The Jute Enquiry Committee which submitted its report in September has opined that India is quite capable of attaining self sufficiency in its raw jute requirements both for internal consumption and export, by the end of the Second Plan

period. According to the Committee, India can produce the entire quantity of about 80 lakhs bales that will be required by 1960-61 within its own borders.

The progress of jute production (including mesta) in India in the past few years has indeed been remarkable. From 3,946,000 bales in 1954-55, total jute (including mesta) supply in the country has increased to 5,356,000 bales in 1955-56 and to 5,695,000 bales in 1956-57. About crop prospects for 1957-58, Dr Randhawa is of the opinion that the output for the current crop may be the same as in the past year. Though some reduction in acreage is expected due to unfavourable weather conditions during sowing time, it is believed that it will be more than compensated by the higher yield due to the beneficial effect of extensive distribution of fertilisers.

The importance of making available to the industry good quality jute in adequate quantities and at an equitable price has been hammered home by the progressive deterioration in the financial position of jute companies which, having been caught between high production cost and consumer resistance to higher price levels are in no position to meet the challenge without the active help of Government.

If the industry is to survive it is essential that ways and means are found expeditiously to reduce substantially its cost of production. It is, therefore, gratifying to note that efforts are now being made to bring this about. As raw material cost accounts for nearly 75 per cent of the cost of production, it is but natural that the greatest possible attention is bestowed on increasing jute production in India. That this awareness has already yielded rich dividends is borne out by the fact that during the last jute season, Indian mills have been able to get on fairly comfortably despite the drastic shrinkage in raw jute imports from Pakistan. By the same token the industry is not much worried about its raw jute supply during the current year also notwithstanding the late start of the season due to delay of the monsoon and the subsequent drought in many of the jute growing areas in India. Such a consummation has been rendered possible by the active steps taken by Government to promote jute production. There is now functioning a Government Committee to watch the progress of the steps taken for the promotion of jute production. Jute cultivators are given all facilities like good seeds, fertilizers on easy terms and readily available knowledge on improved methods of cultivation. Their credit needs are being taken care of by the State Bank of India. All in all there is every likelihood of the Indian jute cultivator

obtaining a sizably increased crop from his land in the next one or two years than he has been getting hitherto. Over and above increasing the total crop of the country these measures will go a long way in bringing down the price levels because of the higher yield.

Turning to the other components in production cost we find that atleast in one there is little scope for economy. We mean labour. The continued demand for wage increase and for amenities makes it futile to look for any relief from this direction. We are, therefore, left with only one other aspect which may be expected to help and that is increased efficiency of our mills. Thanks to the generous financial assistance from the National Development Council and thanks to the foresight of many a mill, the modernisation programme of the Indian jute mills has almost been completed. This is bound to give a certain measure of flexibility to mills in the near future.

From the foregoing it will be evident that the long term outlook for the industry is indeed bright. When once the industry is able to extricate itself unimpaired from the vice like grip of the high cost of production, it will not be difficult for it to establish itself firmly once again in world markets and what is more, to launch into new fields and markets as well. For the Indian jute industry is still the largest of its kind in the world and has the rich experience of over a century of working.

It is, however, to be remembered that the Indian Industry will have to be perennially vigilant and vigorously active if it is to remain as a prosperous industry. For not only had the days gone for ever, never to be repeated, when it figured as the only supplier of jute goods to world markets, but also consumers are more prone to turn to substitute packaging materials now than ever before. The emergence of Pakistan as a rival to India in world markets was inherent in the situation when partition became a reality. Only the rivalry has come to light much sooner than earlier considered possible. Moreover, a number of countries which have been solely dependent on India for their jute goods in the past have now started thinking of attaining self sufficiency by putting up jute mills in their own territory. These developments will naturally bring about a shrinkage in the sphere of activity for our industry against which it can hardly complain.

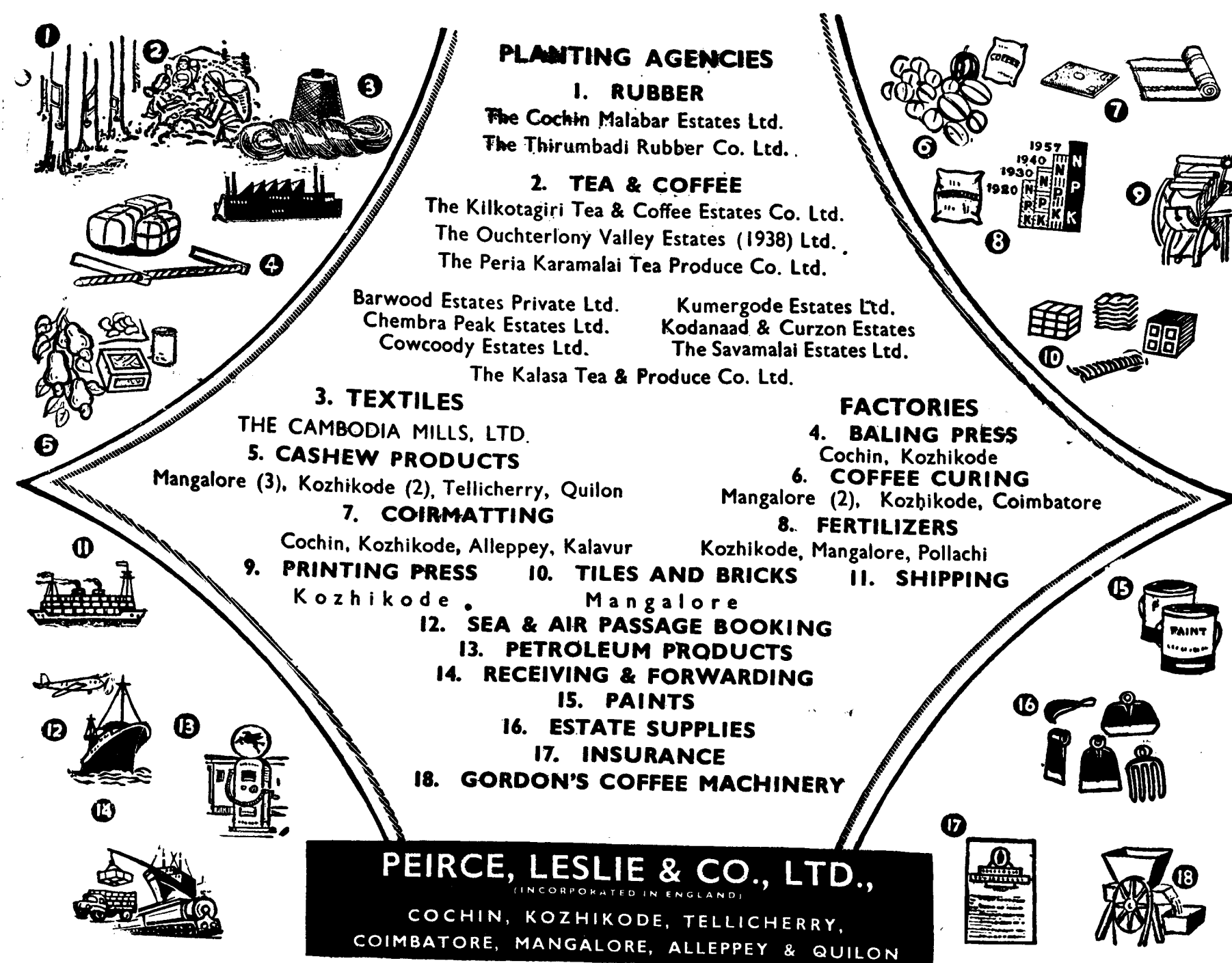
The threat from substitutes can be ignored only at the risk of ultimate self annihilation. Here the Indian industry has many an advantage which if properly pressed can help it score easily over substitutes. An essential prerequisite is to ensure that jute

goods are always available to the foreign consumers in adequate quantities and at equitable prices. A revitalised Indian jute industry which is assured of its raw material requirements at a cheap rate may be depended upon to satisfy the two conditions. The rest can be taken care of by its vigorous overseas propaganda wing which can transmit to it from time to time the changing needs and preferences of overseas consumers. It will also become incumbent on our industry to diversify its production in order to meet the new needs. Continuous innovations as regards new uses to which jute goods can be put may also go some way in compensating the loss in offtake due to the self sufficiency move in some of the hitherto importing countries.

It would be unduly pessimistic to think that the world market for jute goods will progressively shrink in coming years. For this will amount to restricting our vision to a narrow compass for which there is no warrant. In the first place, there is a large unsatisfied demand in the communist countries. Moreover, with the economic development of erstwhile undeveloped countries, the demand for jute goods from these regions will increase. There is also another development which augurs well for the stability of the Indian industry. In recent years the domestic demand has recorded a sizable increase and it is quite on the cards that in coming years this trend will further strengthen thereby providing a desirable cushion for the Industry in times of slack overseas demand.

Talking about stability of the industry one is inevitably reminded of the bane of speculation in the jute markets. It is not rare to hear in the Indian world of jute that overseas business in jute goods has been gravely jeopardised by the depredations of the speculative elements who have come to attach themselves like leeches to the markets. Attempts have been made from time to time by Authority and others to rid the markets of these undesirable elements but the efforts are yet to bear fruit. It is admitted on all hands that if unbridled speculation is to be effectively suppressed there should come into existence a proper futures market which can provide much-needed hedging facilities for the mills. Though it is now more than a year since Government announced their decision to allow Forward Trading in jute and jute goods under the auspices of the East India Jute and Hessian Exchange, futures trading is yet to commence. It is to be hoped that the Commission will soon be in a position to inaugurate futures trading in jute and jute goods.

Looking back at the performance of the industry in the past eleven months one may not find it a disappointing one consider-



ing the severe handicaps it has had to put up with. Perhaps the most outstanding feature is the

Month.	STOCKS (In Tons).			1956.		
	Hessian.	Sacking.	Total.*	Hessian.	Sacking.	Total.*
January	23,800	67,700	103,200	25,600	45,300	78,400
February	25,200	61,600	97,400	28,200	52,500	89,700
March	29,800	56,500	97,700	30,300	55,200	95,000
April	35,100	58,300	104,200	35,900	62,700	107,300
May	40,400	58,000	109,400	40,600	71,100	119,100
June	42,400	64,800	116,000	37,500	82,000	125,900
July	38,300	63,500	108,400	38,500	93,200	137,900
August	34,800	51,100	92,500	28,200	88,600	123,500
September	30,300	39,100	77,000	29,400	88,200	124,700
October	29,500	37,500	76,000	30,800	77,300	116,700
November	26,000	35,500	71,300	24,700	67,100	101,700
December	...	...	...	19,700	64,700	95,700

*Includes also Other Varieties.

It will be evident from the above that total stocks in the past four months have been steadily declining with sackings accounting for a major portion of the fall.

If it is remembered that the continued heavy stock of sackings has been one of the constant headaches of the industry, it will be possible to appreciate the nature of the relief afforded to it by the small sacking stock figures in the past few months. With sackings meeting with such good demand, a rumour was set afloat some time back that the IJMA was considering the unsealing of at least part of the sealed looms in order to augment the supplies of heavy goods. However, none in the Indian world of jute took the rumour seriously having regard to the rather uncertain raw jute supply position at the time.

The fall in production of goods in the 11 months ending November 1957 as compared with that in the corresponding period of last year is explained by the fact that for nearly 7 months of 1956 mills had worked with a larger complement of looms. A significant point to be noted is the increased production of sackings goods in the past three months. The improved demand for this category of goods has necessitated the switch over of some hessian looms to the production of sackings.

	PRODUCTION (All in Tons)		
	Hessian	Sacking	Total†
1957*	382,200	494,000	937,100
1956	415,200	615,500	1,092,800

	PRODUCTION (In Tons).			1956.		
	Hessian.	Sacking.	Total.*	Hessian.	Sacking.	Total.*
January	38,800	43,500	88,800	30,300	52,600	88,900
February	35,000	39,600	80,200	32,000	54,700	92,800
March	36,000	43,100	84,700	34,800	57,800	99,300
April	36,200	44,800	86,800	32,900	55,000	93,900
May	35,600	45,000	87,300	35,800	59,600	101,700
June	32,300	42,300	80,100	35,000	57,300	98,900
July	35,600	45,000	85,900	34,300	52,800	94,100
August	33,900	43,100	81,900	35,400	48,200	89,600
September	33,700	47,300	86,000	35,500	43,800	84,500
October	31,700	47,100	83,500	34,700	40,500	80,400
November	33,400	53,200	91,900	36,800	41,800	83,800
December	...	...	...	37,700	41,300	84,900

	PRODUCTION TREND		
	1956	1955	1954
1956	415,200	615,500	1,092,800
1955	401,440	574,700	1,027,200
1954	388,700	506,100	927,700
1953	388,900	450,500	869,200

*Includes also other varieties.

†For 11 months.

steep decline in the stocks of heavy goods during the Second half of the year as will be seen from the following table:—

There is every indication that 1957 will compare quite favourably with its predecessor in the matter of demand for jute goods. During the 11 months ending November 1957, total despatches have amounted to 955,572 tons as against 964,400 tons in the corresponding period of the previous year. A detailed analysis of the figures will reveal that the fall has been brought about largely by the steep decline in internal consumption which amounts to 160,307 tons as against 176,700 tons. On the

GUNNY DESPATCHES (In tons).

	1957			1956		
	Exports.	Internal Consumption.	Total	Exports.	Internal Consumption	Total
January	64,069	14,716	78,785	65,879	17,006	72,884
February	71,431	14,520	85,951	69,680	18,388	79,996
March	68,793	15,771	83,964	72,356	20,408	92,764
April	69,703	18,309	79,102	62,632	19,717	81,349
May	65,863	16,769	82,632	73,716	15,305	89,021
June	62,945	10,221	73,166	77,387	13,312	90,699
July	80,555	12,144	92,699	70,894	13,303	84,197
August	87,596	10,536	98,132	92,078	13,554	105,632
September	86,237	14,517	100,754	68,215	13,708	81,923
October	70,501	12,878	83,379	73,394	15,150	88,544
November	76,572	20,436	97,008	80,527	16,925	97,452
December	...	...	...	78,756	16,710	90,466

*For 11 months.

A matter that is causing some apprehension lately is the trend of burlap consumption in US. Though compared to the corresponding 11 month period of last year, total burlap consumption in US during the first 11 months of 1957 is quite satisfactory (760 million yards against 766 million yards) the slowing down in the tempo of

export part, however, there are good indications because total exports are higher at 795,265 tons as against 787,700 tons. Analysing the figures further, it will be seen that export of sackings during the past 11 months has been at a higher level (404,429 tons) than in the corresponding period of last year (399,400 tons). Export of hessian has been only slightly lower at 353,770 tons as against 356,800 tons. A significant point is that total despatches in the 11 month period of the current year at 955,572* tons are higher than total production at 936,900 tons during this period. The relevant figures for the corresponding period of last year are total despatches 964,400 tons and production 108,900 tons.

	EXPORTS		
	Hessian	Sacking	Total†
1957*	353,770	404,429	795,265
1956	400,738	430,751	861,441

	INTERNAL CONSUMPTION		
	Hessian	Sacking	Total†
1957*	21,282	120,282	160,307
1956	21,923	148,486	193,483

	EXPORTS INCLUDING INTERNAL CONSUMPTION		
	Hessian	Sacking	Total†
1957*	375,052	524,711	955,572
1956	419,661	579,220	1,054,927

*For 11 months ended November.

†Also includes other varieties.

	1957			1956		
	Exports.	Internal Consumption.	Total	Exports.	Internal Consumption	Total
January	64,069	14,716	78,785	65,879	17,006	72,884
February	71,431	14,520	85,951	69,680	18,388	79,996
March	68,793	15,771	83,964	72,356	20,408	92,764
April	69,703	18,309	79,102	62,632	19,717	81,349
May	65,863	16,769	82,632	73,716	15,305	89,021
June	62,945	10,221	73,166	77,387	13,312	90,699
July	80,555	12,144	92,699	70,894	13,303	84,197
August	87,596	10,536	98,132	92,078	13,554	105,632
September	86,237	14,517	100,754	68,215	13,708	81,923
October	70,501	12,878	83,379	73,394	15,150	88,544
November	76,572	20,436	97,008	80,527	16,925	97,452
December	...	...	...	78,756	16,710	90,466

*For 11 months.

consumption during the past four months which are usually high consumption months (last year the relevant figures were Aug: 83 million yards, September 80 million yards, October 86 million yards and November 81 million yards) is somewhat disturbing. The fact that stocks in these months have also been at a low level has deepened the gloom further because of the implication of the two sets of figures. It is surmised that a decided swing toward

	PRICE TRENDS.							
	1957.*				1956.			
	Opening	Highest	Lowest	Closing	Opening	Highest	Lowest	Closing
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Hessians:								
40" x 10 ozs.	45.75	45.87	39.12	40.00	42.00	48.50	37.31	47.06
40" x 8 ozs.	37.25	37.25	32.50	33.25	33.75	38.75	31.00	37.25
40" x 7 1/2 ozs.	34.12	34.25	30.25	30.62	31.50	35.50	29.00	34.00
Heavy Goods:								
B. Twills	120.00	122.00	105.50	111.25	114.50	124.87	102.25	119.25
Heavy Ceers (Green)	120.25	121.50	109.37	111.00	112.50	124.25	101.25	119.75
Cornsacks	121.25	122.75	108.50	109.50	114.50	126.75	103.00	121.62
Cutbans	146.00	146.00	131.00	142.00	132.00	149.50	128.00	146.50
A. Twills	144.00	146.50	130.50	134.50	137.00	148.00	124.00	143.50
L. Twills	134.50	139.00	124.00	128.25	130.60	139.00	114.75	134.75
D. W. Flours	141.00	141.75	129.00	131.00	140.00	144.25	117.00	140.00
Sugar Twills	136.50	137.25	120.00	127.25	131.00	141.50	115.50	137.00

Raw Jute (Bottom Basis):

Assam	32.00	33.50	27.00	27.25	27.50	33.50	25.75	31.50
Indian Northern	32.00	33.00	27.00	27.00	27.50	33.00	25.75	31.50
Bimil	28.50	28.50	23.00	23.00	23.00	30.00	24.50	27.50

*Up to November.

greater use of substitutes may have taken place in the USA in the course of the past three, four months. Such an inference would, however, seem to be a little farfetched because there is a simple explanation available and that is that in view of the high prices prevailing in the past few months consumers in US should naturally have decided to limit their purchase, to their day to day requirements in the hope of building up a comfortable stock position when prices reach lower levels. They might have been encouraged to take such a view because the jute markets were yet to see the new jute crop moving in bulk.

US BURLAP CONSUMPTION (In Million Yards)

	1957		1956	
	Con-sump-tion (at end of)	Stocks (at end of)	Con-sump-tion (at end of)	Stocks (at end of)
January	75	267	72	243
February	62	266	68	245
March	73	263	71	253
April	68	267	69	255
May	73	261	73	247
June	71	252	82	240
July	61	246	61	244
August	68	232	83	259
September	73	227	80	250
October	75	219	86	262
November	63	224	81	268
December	...	...	72	267
Total	*762	...	878	...

*For 11 months ended November.

Turning to the raw jute supply position we find that the industry has passed through the 1956-57 season fairly comfortably though the last few months of it have proved to be a somewhat trying period for the mills due to the late onset of the monsoon. With the arrival of the rains and the satisfactory progress of the crop it became clear that the worst that could happen was a delayed harvest of the new crop which was, however, expected to be as big as that of the previous year's, if not bigger.

Arrivals of raw jute into Calcutta and mill station so far in the new season are still somewhat slow compared to the corresponding period of the previous season. But, if it is borne in mind that this year the season has had a late start, the slower tempo of arrivals in the earlier months will not cause much concern.

THE expansion of the Plastics Industry since the commencement of the Second World War has been so phenomenal that, in the US and in a few other Western countries, it has become the fashion to describe the present as the Plastics Age. Many of the new uses for plastics developed out of war-time needs and quite a few of them were actually materials useful in the war like parts of shells, bombs, boats, handgrenades and binoculars. In the UK, there has been a fifty per cent increase in the output of the plastics goods over the last twenty-five years. During this period, the consumption of steel in the UK rose only by two and half times and of rubber by four times. The progress of plastics production in the UK has yet to take big strides and it is expected that another 40 per cent increase from the 1956 level will be attained by 1962. In the USA, the production is about four times that of the UK with West Germany taking its place in between, leaving out USSR whose output remains unknown. The manifold and the rapidly developing uses to which plastics materials are now being put reflect a trend whose potentialities belong more to the future than to the past.

The plastics industry in India is still in a comparatively undeveloped state. Till this year, the raw materials were almost fully imported; proper designing and producing of specialised articles still remains a keenly felt need. It is not as if basic raw materials are not available in the country. Coal, molasses, lime and various types of petroleum products are extensively available; but the processed chemical materials such as phenol, formaldehyde and butyl have only been recently taken up for indigenous manufacture. Among the natural resins which form one of the two important groups of raw materials utilised in the industry, India has abundant shellac, rosin and turpentine. But even these natural resins are not capable of being utilised in the absence of other processed chemicals. The Sindri factory would be producing some of these as its major by-products. Products using synthetic resins, the second group of raw materials consumed by the industry, are not better placed.

A few firms are already manufacturing phenol formaldehyde which is the most important item in the synthetic group consumed by the industry, but the quality of the Indian product is not universally accepted to be sufficiently high. Phenol is being manufactured by one firm at Calcutta and another in Bihar. Urea is a by-product of Sindri. Two Research Institutes at Kanpur, the H. B. Technological Institute and the Indian Institute of Sugar Technology, have done considerable work on the production of cheap resins from sugar molasses and cresylic

acid materials which might turn out to be very economic sources for the laminated industry. The Council of Scientific and Industrial Research has recently taken a patent for the manufacture of ethylene as a by-product of ether from alcohol. The oil refineries are also of considerable help for the supply of similar products to the plastics industry.

A wide range of goods are also manufactured out of thermo plastics resins such as polystyrene, cellulose acetate and polyvinyl chloride resins. For these materials, too, the industry is now largely dependent on imports. Early this year, a polystyrene factory was opened in Bombay by Polychem Limited.

Another Company in Bombay has recently commenced production of PVC (Unsupported) sheetings and films by the calendaring process. The Government have issued licenses for the manufacture of several other materials such as PVC resins, PVC compounds, Cellulose Acetate and Polyethylene. A brief indication of the programme of production envisaged in the Second Plan Period is given below:

A Calcutta firm is to produce PVC compound and Cellulose Acetate by 1959, at the rate of 1,500 tons per annum. The Calico Chemicals is to commence production of PVC resin by the same year; the local-

	1955.	1956.
P. F. Moulding Powder (000 lbs.)	...	1600.8
Plastic moulding (000 gross)	...	2478.8
Plastic laminated sheets (tons)	...	140.3
Tooth brushes (million pcs.)	...	4.6
Fountain Pens (million pcs.)	...	6.0
Spectacle Frames (million pcs.)	...	0.7
Buttons (million pcs.)	...	1.3
P.V.C. Cables and Wires (million yards)	...	10.87
Leather Cloth (million yards)	...	2.62
P.V.C. Sheets (square yards)	...	614,045
Plastic Radio Cabinet (Nos.)	...	N.A.
Polythene Films and Layflat Tubings (million lbs.)	...	0.85

During 1956, the production of plastic goods in major units was as follows:—

	Bombay	Calcutta	Amritsar	Kanpur	South-Hyderabad
Moulded Goods:					
Quantity in Grosses (million)	19.6	0.5	0.6	28.00	0.8
Approximate value (In Rs. lakhs)	146.0	62.6	7.8	6.2	10.6
Porthane Films and Tubings:					
Quantity in lbs.	395,000	762,000	...	...	...
Approximate Value (In Rs. lakhs)	20.0	38.1	...	...	...

The Two Sectors in Coal

WHEN the draft of the Second Five Year Plan was published, a great volume of opinion expressed itself against cold shouldering the private sector in the coal industry. Originally, out of the additional target of 22 million tons, the private sector was allowed only 8 million tons, later, the allotment of the private sector was increased to 10 million tons and the target for public sector fixed at 12 million tons.

Even then, it was felt that the private sector, which was producing 35 million tons of the total output of 38 million tons, should be given a bigger allotment in consideration of its capacity, services and past performance. In fact, this sector expressed its willingness to produce the entire additional output without any financial help from the State. In spite of this, the Government did not relent in their attitude. The State sector, which was producing only a little over 3 million tons, was assigned an additional target of 12 million tons, a four hundred per cent increase within five years and involving an initial investment of about Rs 60 crores. It was stated that further sums would be necessary at the final stage of reaching the target. A big element of foreign exchange requirement is also included in the Plan for this sector.

Now, the first two years of the Second Plan are running out, but one can scarcely be enthusiastic about the progress of the coal industry, on which indeed the whole superstructure of the Second Plan is based. Against the target of an additional 22 million tons, during 1956 and upto September 1957, for which figures are available, the additional output has barely exceeded 3 million tons. And all these additional 3 million tons have come from the private sector, notwithstanding the fact that the first year of the plan was totally wasted for the private sector, due to delay in granting permission of expansion plans of the collieries, as alleged by the spokesmen of the industry.

The public sector so far has not been able to exceed its normal rate of production and, on this level, it will not be able to exceed the last year's output figure of 3 million and odd tons. That means the public sector will have to produce over and above the normal production an additional 12 million tons by another 3 years, a formidable job by any standard.

The private sector's position is also unenviable. The Government have found nowhere a more fertile field for experimental legislation than in respect of coal. New laws are in sight, while the industry feels that already there is a surfeit of legislation affecting the collieries. Production, distribution, price and for that matter every phase of it is under control, and

the new legislation now coming up threatens the very existence of the collieries.

For example, the sweeping recommendations of the Balawantra Committee on Amalgamation, which Government are now trying to implement, have created considerable uneasiness in the mind of the colliery owners. Once amalgamated, a colliery loses its individual existence once for all but regarding such vital issues like boundary revision and shares of amalgamated units, the Committee has remained conveniently vague. Besides, bigger and efficient units producing higher grade coal have the additional worry of the prospect that some small units producing low grade coal might be tagged to them causing difficulties which may prove insurmountable.

Again, the Report has defined an ideal colliery as one having an area of 100 acres and producing 10,000 tons a month. If the figure of 10,000 tons a month were accepted, 666 collieries out of a total of 734 collieries in Bengal and Bihar would be affected. The production of the 666 collieries will be about 15 million tons and they are expected to produce an additional 5 million tons during the Plan period. So, if these collieries are to be amalgamated, that will cause considerable dislocation in their production plan which will be disastrous.

So, the suggestion of mining interests, that the limit should be fixed at 2,500 tons has the advantage of amalgamating 495 small collieries causing least dislocation to production. These collieries will produce only 6 million tons. Here it may be pointed out that the representative of the West Bengal Government in his dissenting note observed that "collieries with 2,500 tons per month or more with requisite reserves should not be disturbed".

The colliery owners suggested that the time table should be staggered to give the industry opportunity for voluntary amalgamation for which there is considerable scope. And for compulsory amalgamation, the time limit for implementation should be extended to 5 years so that the process of amalgamation may be smooth and gradual and the country can obtain the beneficial results of amalgamation without any disturbance to production.

Likewise, the sweeping revisions of Mines Rules & Regulations are mostly impracticable and, in many cases, unnecessary because the rate of accidents in India is one of the lowest in the world. Moreover, it is feared that if these rules are enforced in their proposed rigid form they will seriously undermine coal production. Again, if the management is really to abide by the new regulations, the very limitations inherent in the economic situation of the country will

render the rules impracticable of operation. First, there is an acute shortage of qualified technical personnel and the proposed implementation of the regulations will entail appointment of an army of technical hands throughout the mining areas. Apart from financial considerations, the recruitment of such staff itself will constitute a great problem to the collieries. So before the regulations are enforced, it would be necessary to provide greater facilities of training, but the paucity of training centres preclude the immediate possibility of it. Secondly, due to the chronic shortage of imported equipment and machinery, many of the provisions will remain unattended to for some more years to come.

Another equally shortsighted move is the inclusion of coal in the Mineral Concession Rules restricting the period of lease, because coal mining has to be carried on at times at great depths from the surface and the development of coal in most cases takes many years in the initial stages of sinkings shafts, installing costly and expensive machinery and equipment and in framing out galleries to bring it to a state of economic output. So, long-term leases are essential to justify the employment of large capital for the development of good coal mines.

Further, till recently the collieries in the private sector had the hope that, although all the surplus unworked coal bearing lands would be taken over and acquired by the Government according to the Industrial Policy Resolution 1956, the present working collieries would be free to operate and develop the contiguous areas. But the recent Coal Bearing Areas (Acquisition & Development) Act does not any more allow them that freedom and opportunity; it empowers Government to take over such lands for their own coal development plan.

Coming to the perennial question of transport, it seems that, in spite of the best efforts of the Railways, the wagon supply to the collieries will remain as inadequate as ever. At present, the wagon supply though better than last year occasionally falls short of the minimum guaranteed number of 3,500 per day which itself is not adequate. Will the Railways be able to match the wagon supply with the accelerated growth of coal production in the coming years, is a question which is agitating the minds of the colliery owners to-day. As production is inextricably bound up with the wagon supply, unless there is the assurance that enough wagons are forthcoming, it is idle to expect that collieries will go ahead with their production plans.

For the nine months, from January to September 1957, for which figures are available, the average pithead stock comes to 2.7 million

tons. A disquieting figure in itself and if the transport situation does not show immediate improvement, the pithead stock may grow and thereby cause further blocking of colliery capital. Significantly enough, the coal stock of the private sector accounts for 98 per cent or 99 per cent whereas the public sector only carries the infinitesimal balance. Besides, the Railways are in serious defaults in providing adequate facilities like siding, pilot capacity and depot capacity, etc.

Further, the shortage of essential items like steel, cement, etc., is crippling the efforts of collieries in such a way that they are unable to carry out the most essential activities, including welfare work. Difficulty in importing the machinery and equipment also is there. All these difficulties are obviously shared by many other industries but a comparative study made by one of the colliery owners' associations shows that the coal industry is the worst sufferer: the industry does not get more than 15 per cent of its requirements of steel, cement etc.

Lastly, the recent deplorable incidents in the coalfields show that, inspite of liberal increases of wages and emoluments of colliery workers, they are far from cooperative in their attitude, though the Tribunals granting the favourable award to the miners expressed the hope that it would give the collieries much needed stability by ushering in a period of industrial peace and greater productivity. But this has proved to be pious hope—there is no sign of increase in labour productivity and absenteeism is far from declining to any appreciable extent. Here, it may be noted that the wages of colliery workers are today much higher than the earnings of the average Indian worker in other industries; the unskilled worker for surface work gets a minimum salary of Rs 78-4 for 26 days' work, beside other amenities like festival holidays, railways fare to and from home, while on leave, pithead baths, creches, schools and the most up-to-date hospitals, etc. A huge housing construction programme costing crores of rupees and liberal canteen facilities is on the way.

However that may be, what is of immediate importance to the country today is that, from whichever source it comes, the public or the private sector, sufficient coal must be raised to feed the growing demands of the country; and, with that end in view, an immediate change in the attitude of the Government and also labour is immediately called for. For it must be realised that the extent of the success in the field will determine the success of the entire Second Plan, for, about 75 per cent of the commercial energy requirements of the plan will have to be supplied by coal.

Indian Tea

THE Indian tea industry is more than a century old. It was in 1852 that tea planting was started on a commercial scale under the auspices of the East India Company. During this period, the industry has had a chequered career, passing through many vicissitudes and hazards. Braving these hazards, Indian tea has carved for itself not only a popular place among the beverage, but a unique place in the nation's economy.

Today, the total area under tea, in India, is roughly 791,000 acres. An analysis of the State-wise distribution of acreage shows that cultivation of tea is concentrated only in four States, namely, Assam (386,582); West Bengal (195,620); Madras and Coorg (87,548) and Travancore-Cochin (84,122). There are six other States where tea is grown; but in none of these has tea cultivation being extended during the last few years. In other words, whatever extension of tea acreage has taken place, has been only in the first-mentioned four States.

The annual production is about 660 million pounds on an average. Production in 1956 was nearly maintained at 663.6 million pounds as against 663.2 million pounds in 1955. Assam produced the largest quantity

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Ceylon ...	October	33.5	30.1	318.6
Indonesia ...	September	73.5	67.3	70.9
Total ..	...	1,073.8	1,056.1	1,066.7

Despite a sharp fall in the North Indian and Pakistani tea output, the world tea crop, during the current year, is expected to exceed last year's record production by a fair margin, although the North Indian crop was arbitrarily reduced by the decision of the producers to stop plucking early. In addition to the main producing countries, East Africa and Japan are expected to make substantial contributions to the world tea crop, not to mention other countries which are making determined efforts to increase their output. There is a distinct possibility of stronger African competition. At current prices, producers in Africa are making profits, while those in India, Ceylon and Pakistan have been losing money. It is even estimated that, within eight to ten years from now, production in Africa will have reached an annual figure of 100 million pounds; and this may well be achieved at an early date as the new plantings, made soon after the last war, have come into full bearing. There is, therefore, little prospect of a shortage of tea this season unless consumption grows rapidly. But world consumption of tea, particularly in traditional markets, has not kept in line with the growing world crop during the current season. There has been some increase in internal consumption in India and Pakistan; but the increase has not

at 366 million pounds, having risen from 364 million pounds. Of this, roughly one-third is consumed in the country and two-thirds exported. As a result, tea has earned the distinction of being the foremost earner of foreign exchange for the country. During 1956, India exported nearly 79 per cent of its production of tea as against 55 per cent in the previous year. It will be interesting to note that, since 1950, while the quantity exported has risen by only 30 per cent (from 403.24 million pounds to 523.56 million pounds), the values of such exports has gone up by nearly 100 per cent, from Rs 71.3 crores to Rs 142.8 crores.

Again, the importance of the tea industry in the nation's economy can also be judged by the fact that it provides employment to a large number of persons other than any organised industry. The average daily labour force is 1,083,492 persons (provisional figure for 1954), having gone up from 1,054,102 persons in 1953. A State-wise distribution shows that Assam accounts for more than 561,003 persons; West Bengal 307,424; Madras 96,948 and Travancore-Cochin 88,655.

The following table gives the latest crop position as compared with the previous two years (figures in million pounds):—

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been large enough to absorb the surplus production.

The anxiety seems to centre mainly on the slowness of buying from the UK, which is the main customer for North Indian tea. The decline in stocks in Britain does not appear to have given any impetus to her purchases yet and the indications are that the UK can afford to take her requirements slowly. Even last year, a glut of tea was feared and North Indian producers were obliged to restrict production. The Suez crisis, however, came to the rescue of the market and all surplus tea was absorbed quickly. Moreover, Russia has made substantial purchases but Russian demand is not expected to continue for long. Furthermore, Russia buys only quality teas, while the surplus exists in Common tea. In view of the large tea stocks and financial stringency in overseas markets, there is no hope of any large-scale buying as was noticed in 1956. In the circumstances, there is every reason to believe that prices will ease unless some unforeseen developments take place that will lighten the weight of surplus tea in the world market. Naturally, the general behaviour of the market is fully reflected in the trend of prices.

From the beginning of the year to the end of April, the market moved sharply in buyer's favour and, except any teas with bright liquors

It remains to be seen whether slight improvement in prices, an accelerated rate in the trend towards the year-end, were under the impetus of sustained in the opening Second Five-Year Plan. Such the New Year. It also remains to be seen whether the expected expansion will lead to the line in output will be so large that a large concentration of result in a drop in world price. It may, therefore, be tion as a whole. Even if they hoped that, in future, shortfall in output, it is do me of internal consumption whether prices will recover to quite significantly. an extent as to make good the following table shows the earlier in the season in view (and the average price real- generally poor quality of teas, a few selected tea gardens against this background that India:— must study problem of exports.

	Average Price Per Pound.	
	1956.	1955.
Rs. a. p.	Rs. a. p.	Rs. a. p.
3 0 0	2 7 11	
3 1 11	2 9 3	
2 2 8	2 0 3	
2 12 0	2 7 2	
2 8 1	2 2 0	
2 2 0	1 15 0	
2 4 1	1 12 1	
2 14 6	2 3 5	
3 0 9	2 7 2	
2 11 4	2 6 6	
2 6 4	2 0 0	
1 15 6	1 13 0	
2 2 9	1 12 11	
2 12 10	2 3 1	
1 11 0	1 12 7	
2 10 7	2 5 5	
2 0 3	1 12 1	
2 11 0	2 3 0	
2 1 0	2 3 8	
3 1 1	2 6 10	

In the case of tea more than



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Indonesia	September	73.5	87.3	70.9
Total	...	1,073.8	1,056.1	1,066.7

Despite a sharp fall in the North Indian and Pakistani tea output, the world tea crop, during the current year, is expected to exceed last year's record production by a fair margin, although the North Indian crop was arbitrarily reduced by the decision of the producers to stop plucking early. In addition to the main producing countries, East Africa and Japan are expected to make substantial contributions to the world tea crop, not to mention other countries which are making determined efforts to increase their output. There is a distinct possibility of stronger African competition. At current prices, producers in Africa are making profits, while those in India, Ceylon and Pakistan have been losing money. It is even estimated that, within eight to ten years from now, production in Africa will have reached an annual figure of 100 million pounds; and this may well be achieved at an early date as the new plantings, made soon after the last war, have come into full bearing. There is, therefore, little prospect of a shortage of tea this season unless consumption grows rapidly. But world consumption of tea, particularly in traditional markets, has not kept in line with the growing world crop during the current season. There has been some increase in internal consumption in India and Pakistan; but the increase has not

at 366 million pounds, having risen from 364 million pounds. Of this, roughly one-third is consumed in the country and two-thirds exported. As a result, tea has earned the distinction of being the foremost earner of foreign exchange for the country. During 1956, India exported nearly 79 per cent of its production of tea as against 55 per cent in the previous year. It will be interesting to note that, since 1950, while the quantity exported has risen by only 30 per cent (from 403.24 million pounds to 523.56 million pounds), the values of such exports has gone up by nearly 100 per cent, from Rs 71.3 crores to Rs 142.8 crores.

Again, the importance of the tea industry in the nation's economy can also be judged by the fact that it provides employment to a large number of persons other than any organised industry. The average daily labour force is 1,083,492 persons (provisional figure for 1954), having gone up from 1,054,102 persons in 1953. A State-wise distribution shows that Assam accounts for more than 561,003 persons; West Bengal 307,424; Madras 96,948 and Travancore-Cochin 88,655.

The following table gives the latest crop position as compared with the previous two years (figures in million pounds):—

	1957.	1956.	1955.
North-India	509.5	538.6	525.8
South-India	120.4	108.8	110.3
Pakistan	36.9	45.3	41.1
Ceylon	333.5	301.1	318.6
Indonesia	73.5	87.3	70.9
Total	1,073.8	1,056.1	1,066.7

been large enough to absorb the surplus production.

The anxiety seems to centre mainly on the slowness of buying from the UK, which is the main customer for North Indian tea. The decline in stocks in Britain does not appear to have given any impetus to her purchases yet and the indications are that the UK can afford to take her requirements slowly. Even last year, a glut of tea was feared and North Indian producers were obliged to restrict production. The Suez crisis, however, came to the rescue of the market and all surplus tea was absorbed quickly. Moreover, Russia has made substantial purchases but Russian demand is not expected to continue for long. Furthermore, Russia buys only quality teas, while the surplus exists in Common tea. In view of the large tea stocks and financial stringency in overseas markets, there is no hope of any large-scale buying as was noticed in 1956. In the circumstances, there is every reason to believe that prices will ease unless some unforeseen developments take place that will lighten the weight of surplus tea in the world market. Naturally, the general behaviour of the market is fully reflected in the trend of prices.

From the beginning of the year to the end of April, the market moved sharply in buyer's favour and, except any teas with bright liquors

which were well competed for and sold at dearer rates, the bulk of the Common and Medium teas, on offer, declined each week and were offered at 25 to 37 nP per pound below the levels touched at the close of 1956. Although a fair enquiry from the UK buyers and increased internal buying helped to absorb the heavy quantities offered, the out-market buying was generally restricted. Even the first sale of the New Season's teas, started in June, met with restricted export enquiry, as the bulk of the first flush tea was generally below the 1956 standard due to the abnormal drought conditions which persisted up to the end of May.

The same general pattern of the market continued till the end of September. Although the overall sale average remained fully compensatory, the price differential for quality and non-quality teas was very wide. It was, therefore, feared that even the producers of best quality teas were not likely to show, this year, results which were so profitable as those of 1956.

The market, however, took a turn for the better in October when buying was more general and there was improved enquiry, especially after the "Puja" break. Even the Commonest teas, which remained neglected, were well supported. Also, Fannings, which were considerably discounted, met with an increasing demand. This improvement in the market sentiment was influenced, partly by the uptrend at the London sales and partly by the financial facilities available following the end of the strike by the local bank employees. In London, prices improved for two reasons. First, there was a dispute among the Tally clerks which, it was felt, would affect the arrivals there. Secondly, Colombo auctions were postponed due to a hold-up in the docks.

Again, the report, that Ceylon had postponed, until next year, her decision on the Russian offer to buy 40 million pounds, caused a speculation in the market whether Russia would buy such a large quantity in the open market. It was felt that, if she did buy, would help reduce the surplus to a considerable extent. There was also a report that Egypt had agreed to buy an additional quantity of 2,000 tons for immediate delivery in order to relieve the shortage in that country. Trade circles were also inclined to believe that the winter might set in earlier than usual and that the

current season's surplus might be lower than was anticipated earlier. These expectations were strengthened by the fact that the total output in North India, to the end of October, was only 462.6 million pounds as compared with as much as 491.0 million pounds in the corresponding period of 1956.

In spite of the improvement, prices were still far from remunerative for producers and the average price was well below that a year ago, mainly due to the fact that Assam teas fetched substantial lower prices on account of the fall in demand for poorer CTC Assams which were available in large quantity. In this connection, it may be added that many of the gardens had, in recent years, switched over their output to CTC teas, attracted by the very high prices fetched by these teas till recently. With the result, there was no scarcity of these teas, except for high quality sorts, and the expansion in their output was not accompanied by the improvement in their quality.

Again, in spite of fairly satisfactory sales, the average price realised for export teas was only Rs 2.33 per pound in the current season for the period ending 10th December 1957 as compared with 2.54 in the corresponding period of the previous season. Although lower than last year, Darjeeling and several Assam estates' averages were not, however, unremunerative. Prices for Doors, Cachar and the rest were between 40 nP and 50 nP per pound lower than last year and, in many cases, barely over the cost of production. The Dust sale had also been consistently running at much lower levels than last year and the sale average, to the end of 10th December, was Rs 1.91 per pound as against Rs 2.04 for the corresponding period of the previous season. The only relieving feature of trading was the improvement in demand from abroad towards the end of the year although prices showed little change. It appeared that the buying policy abroad was influenced by the threat to Indonesia's production, some in the trade attached importance to the possibility of a fall in output. It was felt that, with this factor combined with increased buying, could reduce the surplus substantially. It was also felt that the labour troubles at the docks in Colombo would cause a diversion of demand from the UK buyers to alternative markets. Following were the price trends during the year:—

		Year Opening	Highest	Lowest	Year Closing
Export Sale:		Rs.	Rs.	Rs.	Rs.
Clean Black Pekoe	...	2.34	2.40	2.12	2.30
Plain Broken Pekoe	...	2.25	2.25	1.48	1.52
Best Assam CTC BP	...	2.34	2.37	1.54	1.58
Medium Assam BP	...	2.87	4.00	2.12	2.80
Dust Sale:					
Medium Doors	...	2.00	2.12	1.40	1.62
Medium Assam Grainy	...	2.06	2.12	1.45	1.66
Medium Assam CTC	...	2.31	2.90	1.50	1.90
Best Assam CTC	...	2.56	3.20	2.60	2.70

It remains to be seen whether the slight improvement in prices, noticed towards the year-end, will be sustained in the opening sales of the New Year. It also remains to be seen whether the expected decline in output will be so large as to result in a drop in world production as a whole. Even if there is a shortfall in output, it is doubtful whether prices will recover to such an extent as to make good the fall earlier in the season in view of the generally poor quality of teas. It is against this background that one must study problem of exports.

While the Export Promotion Committee (EPC) has, in its Report, taken cognisance of some of the difficulties that stand in the way of tea exports, it has at the same time suggested implicitly that there is some scope for augmenting earnings from tea. However, the complexities involved are revealed in the fact that the Committee has not, possibly because it was unable to do so, come up with a specific figure as comprising the enhanced target for tea export. Our own view, which was advanced in the Export Plan, was that India should be able, by and large, to maintain its annual average over the Second Plan at Rs 142 crores, or the actuals for 1956. Such a target would appear to be inconsistent with our agreement with the Planning Commission that the scope for enlarged exchange earnings is small.

In the case of tea more than in

respect of any other commodity, the assessment of world production by consumers has had a powerful bearing on the price which they were prepared to pay. So, to a substantial extent, prices of tea have been at the mercy of a new set of laws, the operation of resistance by the important consumers to the belief that 'notional' supplies in particular seasons, exceeded estimated demand. In fact, however, such a stand is untenable, since the increasing outturn by the major producers has always been fully absorbed. Nevertheless, notional over-production has tended to be a psychological block affecting attitudes and policies in respect of tea. For example, world tea production has risen from a level of under 1,000 million lb in 1946 to 1,462 million lb in 1955. Over the same period of time, export shipments from the producing countries have gone up from 678 million lb to 946 million lb. While, at one stage, it was feared in this country that the resumption of tea production by Indonesia would severely affect Indian exports, this has not been the general experience in spite of Indonesia adding to the world supply by around 100 million lb. Simply stated, we would suggest that demand for tea, or tea consumption, has kept satisfactory pace with the increase in production. However, notwithstanding such an experience in export shipments, there is currently a wave of apprehension in this country about the strident increase in tea

production being achieved by East Africa.

Unfortunately, for all that world consumption may be rising, there is the prospect that the cheaper price of the East African common teas will inevitably depress the prices of Indian common teas. So much so, it may prove uneconomic for Indian tea gardens to export their common teas at prevailing prices. In a word, there is the danger that Indian common teas will be priced out of world markets. The qualification that we should make to such an assessment is that the process of prices of Indian common teas being adversely affected is likely to be more or less long drawn out. But it is significant that, over the short term, world demand will permit of Indian common teas being sold at economic prices. This is the first important consideration that we must bear in mind—namely, that East Africa has not yet quite spelt the deathknell for Indian common teas.

At this juncture, we should like to advance the view that, from a long term perspective, India's exports of tea will inescapably decline. On the one hand, there will be a reduction in shipments because of the price factor that we have referred to. On the other hand, there is also the fact that availability of surplus Indian tea for export will be diminished.

By the triennium 1945-47, the annual average of internal consumption had risen to 195.2 million lb; but this included figures for Pakistan, and so the annual average in the next triennium, for India after partition, declined to 153.6 million lb. In the six years since then, the annual average has risen by nearly 70 million lb to 221.9 million lb. If past statistics are any guide, we should anticipate the annual average of internal tea consumption rising to 291 million lb by the end of the Second Plan. There is the distinct possibility that this target will not only be attained but even exceeded. While, in this wise, internal consumption may rise to a level around 300 million lb, the target for tea production has been put down by the Second Plan at 700 million lb; that is to say, tea available for exports would, at 400 million lb, be less than the quantum exported from India in all the years since 1947-48, except 1955-56. This would suggest the need for revising upward the Second Plan target of 700 million lb, which indeed is a need clearly recognised by the EPC in its report. However, the Committee has warned against recourse to coarser plucking for increasing production. The EPC has consequently recommended that the acreage under tea should be increased. Unfortunately, this is easier recommended than implemented. Since independence and up to 1955, the area under tea has risen only by 141,000 acres, or a rise of less than 6 per cent in seven years. We are afraid that the apparent conclusion is that Indian production cannot prove to be sufficient for maintaining exports at, say, the 1956 level and, at the same time,

satisfy the full extent of internal demand.

There is, as we have stated, scope for placing the annual target of earnings from tea exports at the 1956 figure of Rs 142 crores. At the same time, there is evidence of stiffer competition for common tea which would presage declining shipments from India. In the third place, there is the prospect that estimated tea production in 1961 will be insufficient for catering to the enlarged internal demand while maintaining exports at the levels of recent years. This pinpoints the necessity for increasing production, but all available evidence would suggest that it would be hard for India to raise production over the short term. We may now proceed to indicate whether and how we may expect to maintain the exchange earnings at Rs 142 crores, the markets that we will be able to tap toward this end, the measures that will be necessary to foster exports in this wise, and the manner in which the problem of additional production should be tackled.

The first step must be to offset some of the advantage that accrues to East Africa by virtue of the cheaper cost of production of its common teas. This could be done, as the EPC has pointed out, by an understanding consideration of the plight of the common teas. Presently, the imposts which inflate export prices include: (i) the tea cess at 4 nP per lb; (ii) the Assam Carriage Tax and West Bengal Octroi, each at one anna per lb; and (iii) the export duty which now works out to 6 annas a lb. It would appear that not much can be done in respect of the first two, since the tea cess benefits the industry directly and since the two State levies are an important source of revenue for the respective State Governments. So, if at all some concession is to be obtained for common teas, it has to be under the head of export duty. The EPC has suggested that the first thing to do in this regard is to define common teas as being those varieties which sell below Rs 1.50 per lb. Obviously, a rider is necessary to the effect that the price level for determining common teas may itself have to be revised from time to time, in consonance with the changes in tea prices in the world. Once common teas are so defined, the next step is to effect a reduction in the export duty, say, by 12 nP per lb for common teas. However, Government will have to make the arrangements to ensure that no substitution occurs in respect of such common teas sold at the Calcutta auctions and shipped out of the country. To this end, the EPC has suggested that arrangements should be made for movement in bond of auctioned consignments up to the shipping stage.

While this concession of 12 nP may not be sufficient to render Indian common teas fully competitive with East African teas, it should nevertheless be obvious that the common teas will be more 'saleable'. It is in this manner that we can ensure that there is no untoward decline in Indian exports of common teas.

But, since there will inevitably be a reduction in the export earnings from common teas, we have now to see whether and how the exchange earning from all teas is maintained. We would suggest that tea gardens should be encouraged in every way to improve the quality of their tea, so that a steadily larger proportion of Indian output is of quality and medium varieties. In such a case, even with a lower volume of exports, the earnings from tea would still be maintained. In particular, in this context, we would suggest that replanting must be vigorously encouraged. The costs in this regard are heavy, and it is possible that many estates will not be able to afford it. The question should be examined whether a special government agency should be set up to afford financial assistance in replanting; and incentive to this end could be provided by special concessions in respect of expenditure incurred on replanting.

We will now briefly consider whether India could maintain its exports shipments at a level between 400 million lb and 450 million lb. As we have already seen, there is reason to believe that the demand for tea has kept satisfactory pace with increase in production. To this is added the fact that India particularly should attempt to intensify the efforts at exports to the Communist countries. There is no reason why Russia, for instance, should not be persuaded to purchase increasingly of Indian teas. In the

last year, business was on a fairly satisfactory scale. But the reports are that, in 1957, Russia has largely abstained from the Indian market. Perhaps, on a governmental level, the possibility of a long-term agreement for export of tea, on the basis of prevailing prices each year, should be pursued. In the ultimate analysis on this question, what matters is the fact that there is little cause to apprehend that world consumption may suddenly stagnate or decline. On the contrary, consumption can be said to be bound to increase, and it is up to this country to participate in the increased import demand of the consuming countries.

Finally, we would suggest that the target for indigenous tea production has now to be thought of in terms, not merely of the Second Plan, but of the Third Plan. For, there is not much scope for additional production from existing acreage, and what additional production we may have as our objective must come from new plantings. On the long-term view, there can be no doubt that there will be an enlarged market, internally for common teas and externally for quality teas. It will devolve upon the Indian tea industry to take cognisance of such steady augmentation in prospective demand and to plan accordingly for an increase in acreage. In conclusion, we admit that it will be difficult for India to attain a target of Rs 142 crores from exports of tea; but it is not an impossible objective, and

so long as it is not that, it is the responsibility of the Indian authorities to explore every avenue that might ensure the achievement of such a target.

There is, however, one reason for the industry to be optimistic about its future. It has been observed that tea is a very popular form of drink with industrial workers and also in urban areas. In fact, per capita consumption of tea is the highest in West Bengal, which is industrially the most advanced State

in India. Industrialisation will proceed at an accelerated rate in the near future under the impetus of the Second Five-Year Plan. Such rapid expansion will lead to the development of many new urban areas with large concentration of labour force. It may, therefore, be confidently hoped that, in future, the volume of internal consumption will rise quite significantly.

The following table shows the outturn and the average price realised by a few selected tea gardens in North India:—

NORTH INDIA GARDENS.		Outturn (in Mds.)		Average Price Per Pound.	
		1956.	1955.	1956.	1955.
				Rs. a. p.	Rs. a. p.
Anandabag	...	7,333	6,260	3 0 0	2 7 11
Betjan	...	9,548	8,798	3 1 11	2 9 3
Birpara	...	15,537	13,808	2 2 8	2 0 3
Bishnauth	...	48,494	47,073	2 12 0	2 7 2
Bokakhat	...	4,450	4,655	2 8 1	2 2 0
Brooke Bond	...	42,996	45,093	2 2 0	1 15 0
Dhunerri	...	7,590	7,325	2 4 1	1 12 1
East India	...	13,074	14,424	2 14 6	2 3 5
Gillapukri	...	8,247	7,494	3 0 9	2 7 2
Gohpur	...	7,460	7,669	2 11 4	2 6 6
Grob	...	24,712	24,559	2 6 4	2 0 0
Gungaram	...	17,091	15,988	1 15 6	1 13 0
Hantapara	...	35,878	31,882	2 2 9	1 12 11
Jutibari	...	10,594	8,952	2 12 10	2 3 1
Manabbarie	...	6,872	6,287	1 11 0	1 12 7
Methoni	...	10,570	11,215	2 10 7	2 5 5
Nagalsuree	...	11,299	12,237	2 0 3	1 12 1
Patrakola	...	47,759	50,254	...	...
Sapoi	...	16,218	14,230	2 11 0	2 3 0
Tellapara	...	13,726	11,016	2 1 0	2 3 8
Tengpani	...	7,619	7,166	3 1 1	2 6 10



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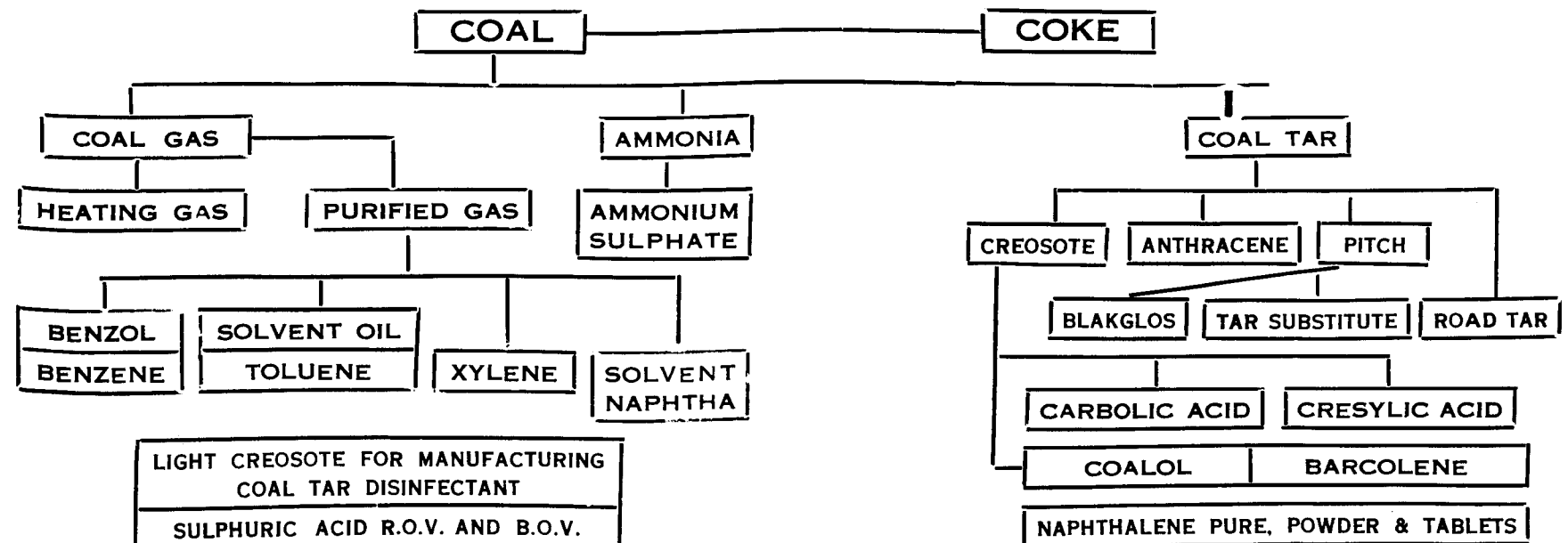
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Outlook for Coffee

THE cultivation of Coffee in India dates back to the seventeenth century when, according to popular legend, a Muslim saint, Bababudin by name, is said to have planted seven seeds on a hill in the Chick-magalur District of the Mysore State, and, to this day, this hill is known after him as the 'Baba-budins'. The cultivation can be said to have increased to the plantation scale only after 1825. The area planned with coffee in South India is well over 200,000 acres, the principal coffee-growing areas being the States of Mysore and Coorg, the Nilgiri Hills, Wynaad, the Shevroy Hills and Palnis and parts of Cochin and Travancore. It is claimed that there are only few hills in the world so well suited to the cultivation of high quality coffee as the hills of Southern India with their sunny slopes and abundant rainfalls.

Unlike tea, the coffee crop fluctuates from year to year, depending mostly upon climate conditions. The average annual production of coffee in South India is about 19,000 to 20,000 tons. Between 1941/42 and 1948-49, there was only one bumper crop in 1945-46 amounting to 25,500 tons, while there were two successive poor crops in 1946/47 and 1947-48 (15,350 tons and 15,800 tons respectively). The following table shows the production of the crop during the past few years (figures in tons):—

Year.	Production.
1955-56	34,052
1954-55	25,100
1953-54	29,555
1952-53	23,565

The consumption of coffee in India represents only about 50 per cent of its production in the country. When the world war broke out in 1939, the export outlets came to be completely blocked, with the result that the internal market was threatened with a glut of coffee for which there was no market. In December 1940, the Government constituted the Coffee Market Expansion Board by promulgating the Coffee Market Expansion Ordinance 1940. The Board's main object was to stabilise prices at a reasonable level by collecting the surplus coffee produced in India and marketing it in planned stages so as to prevent a glut in the internal market.

To begin with, only estates having an area of 25 acres or more were brought under control and were required to register themselves and deliver their 'surplus quota', representing 60 per cent of the production, to be administered by the Board. The balance 40 per cent, which was known as the 'internal sale quota', was left with the producer, to be disposed of by him in the internal market as he considered best. The coffee delivered to the Pool by each planter was

separately assessed both with reference to quantity and quality and released periodically, mainly for exports and occasionally for internal consumption, in stipulated quantities with minimum prices fixed for different types and grades. The Pool proceeds were distributed among the growers in instalments with reference to the assessment already made, the final payment being made after full disposal of the season's Pool coffee.

But, the industry, at the outbreak of the war, was faced with entirely different conditions. It saw the disappearance of its foreign markets, and its economic condition was weak, while the growers were near the end of their resources as a result of the long-continued depression. In attempting to relieve the position, the leaders of the industry embarked on a bold experiment in co-operative marketing, embodied in the Indian Coffee Market Expansion Act of 1942. This experiment succeeded beyond all hopes; and the favourable factors in the years following the Act were, that crops were never very large and that the internal demand grew amazingly. This growth was partly due to the increased prosperity arising from the war activities and partly to the advent of substantial American forces with whom coffee took the place of tea.

In general, the industry passed through successfully with good crops and good prices from 1948 onward and accomplished a three-fold record in 1956-57—in production, consumption and export allocations. The respective figures are 41,453 tons; 25,249 tons and 12,990 tons. Comparable figures for the previous season (1955-56) were 34,042 tons; 23,900 tons and 7,475 tons respectively. Sales for export, however, fell short of the allocation by as much as 2,330 tons. The coffee carried over into the new season, therefore, amounted to more than 9,000 tons as compared to 6,000 tons brought forward into the 1956-57 season.

The following table shows the trend of quantities released for the internal market and export sales (figures in tons).

Season:	Internal Market.	Export Sales.
1955-57	25,249	12,990
1955-56	23,900	7,475
1954-55	22,177	3,525
1953-54	21,453	9,613
1952-53	15,100	3,000

The prospect of earning larger incomes in the world market was, no doubt, one of the inducements to Indian producers to expand their output through fresh planting, replanting and improved cultural practices. But, the expansion in production itself is having a recoiling effect on prices. For, the eco-

nomy of the Indian coffee industry is closely linked with the prospects for the world market, since India does not consume all the coffee produced in the country and there is an increasing surplus left for export. While it may be possible for India to sell whatever coffee she wants to export, she surely is not in a position to get whatever price she wants for her coffee. For, India has no hold on the world market. In the first instance, her contribution to the world market is very small—her production itself is not more than 1.5 per cent of the world total. Secondly, her supplies for export are intermittent and unsteady. Thirdly, the rise in internal consumption, during the last few years, has been encouraging; but the pace of increase has been less than that of production, resulting in a larger surplus.

Supply is not the only factor that influences the volume of trade. There is the question of demand and prices. Reports available so far show that Indian coffee is faced with the prospect of getting a much lower price abroad. Buyers in the world markets are now keenly awaiting the arrival of new crops of mild coffee, which will start coming in shortly. The supply position will, therefore, greatly improve when once the new crops are available in plenty. Such a prospect has encouraged the hope that prices will decline in the near future. As a matter of fact, the New York market has showed a decidedly downward trend since November. The chances of India getting remunerative prices for her exportable surplus are, therefore, remote.

According to the estimates now available, the world production of green coffee will amount to 50.4 million bags, showing an increase of 4.1 million bags over the 1956-57 crop. Among the countries that are expected to have a larger crop are Brazil, Mexico, Ethiopia, Kenya, Uganda and Tanganyika. Mexico has attained considerable importance as an exporting country and now occupies the place among the exporting countries, Brazil and Colombia being the first two. Colombia is the only major producer of mild coffee having large supplies. The latest forecast for Colombia suggests an output of 7.1 million bags as compared with the previous beautiful crop of 7.2 million. Until the end of the summer, when the 1957 Brazilian crop will be available on world markets, no fundamental change is likely in the present rather balanced demand and supply situation. If, however, the Brazilian crop turns out as large as some forecasts indicate, a decline in prices may follow.

World producers are, therefore, now alarmed at the weight of production. There is even an attempt to restrict exports to 38 million bags

out of 42 million bags produced, in an effort to hold up price levels. Thirty-eight million bags are half a million bags in excess of last season's export. As a matter of fact, a seven-nation agreement among the producers has been discussed; but African producers have not come into it. If over-production continues, any agreement without African co-operation is not expected to hold up prices very long. Brazil, which was once hesitant to join the agreement, is now the most enthusiastic sponsor; and the reason is not far to seek. Brazil will be faced with a surplus of 2 to 4 million bags.

Again, the USA, which is the largest consuming country in the world, has started extending financial assistance for the development of coffee cultivation. She is reported to have signed an agreement with Guatemala for a 5-year programme to expand Guatemala's coffee production and improve the quality of the coffee produced in that country. This is said to be the first time the USA has directly contributed funds to aid coffee development in Latin America. It is suggested that this agreement might set a precedent for direct financial and technical assistance to other coffee producing countries.

So far as India is concerned, it cannot afford to hold on to her surplus coffee till the market improves. Some hopes are being built on the possibility of Russia and other Communist countries taking more coffee; but one cannot be quite sure of the trade with this part of the world as past performance was not in keeping with earlier expectations. Nevertheless, all this does not mean that one should take a pessimistic view of the outlook for coffee for the current season, because the supply is expected to be smaller and the slack in export trade may be offset by higher domestic consumption. As a matter of fact, the consumption of coffee in India is going up year after year. In this connection, the Chairman of the India Coffee Board has stated that consumption will continue to go up even without any propaganda. This gains point in the context of the present need to maximise exports.

According to a decision taken recently by the Board, sizable out-turns of coffee produced from station selections grown on estates in different regions, as well as samples from the normal produce of the estates, will be sent to London, Hamburg, Amsterdam, Switzerland and the USA for testing their comparative quality and market response. The Coffee Board has also decided to establish a department for testing coffee in the cup and to obtain the services of a competent tester from abroad for this purpose.

Tight Supply Position in Cotton During 1956-57

THE year 1956-57 has proved somewhat difficult for cotton supply as the eventual crop turned out around 4.8 million bales as against earlier expectations of about 5.3 million to 5.5 million bales. Even though no efforts were spared by official agencies to produce more crop by increased use of fertilisers, wider distribution of improved seeds, etc., nature unfortunately remained unfavourable. As against the crop position as above, domestic mill consumption in 1956-57 reached a record level of 5.23 million bales, comprising 4.66 million bales of Indian varieties and 0.57 million bales of foreign varieties. In the previous season, consumption amounted to 4.97 million bales, out of which Indian cotton accounted for 4.36 million bales and foreign, 0.62 million bales. This clearly means that we have now reached a stage when our annual production, instead of outstripping consumption, is only just adequate.

The remedy, therefore, lies in augmenting domestic cotton production with the utmost speed, with all the resources at our command. In this respect, it is very gratifying to note that the Indian Central Cotton Committee is well seized of the urgency, and no efforts are being spared to reach the increased target of 6.5 million bales fixed under the Second Five Year Plan. Moreover, by proper distribution of seeds, we are trying to grow as much of long staple cotton as possible, so that foreign exchange can be saved. However, the most important problem is to raise the yield per acre by intensive cultivation. The country cannot afford to spare

any more land when there is so much scarcity of foodgrains, while it is also imperative to retain our traditional export markets, so that they might stand us in good stead whenever our surpluses reach a level burdensome to the country's overall economy.

We have as yet not reached a stage when we can do without our imports of foreign cotton altogether. These will undoubtedly be needed for some more years to come, at any rate, until such time that our country grows sufficient quantities of superior long staple cotton varieties. Following the exchange difficulties, a special payments agreement has been concluded by our Government with the Government of Egypt, whereby we are getting about 40,000 bales of Egyptian cotton against payment in rupees. Thus, India's superfine spinners are assured of supplies of desirable qualities. Though prospects of entering into a similar payments arrangement with Sudan were explored, that has not borne any results. Following the recent visit of the Sudan Trade Delegation, moves were made, but, as Sudan is also meeting with exchange difficulties, the results were not favourable. However, an import quota of 3,000 bales of wider stapling—1-3/16" and above—from soft currency areas, viz, Sudan, Egypt, Peru and East Africa has been announced over and above the quota earlier declared. Some imports of US cotton are arranged under aid programmes.

Imports of foreign cotton during the past four years were as follows:

(In bales of 392 lbs net)				
	1956-57	1955-56	1954-55	1953-54
Egyptian	56,374	219,273	123,964	279,381
East African	135,070	223,037	257,609	162,237
Sudan	67,621	132,798	66,713	31,435
Peru and others	4,996	8,139	5,382	19
American	343,451	14,783	75,911	185,573
Total	607,572	598,030	529,579	658,645

Exports of Indian cotton, including soda and yellow pickings, during the past four years were as follows:

	1956-57	1955-56	1954-55	1953-54
Japan	160,540	340,000	135,000	73,000
Continent	23,620	103,000	77,000	30,000
United Kingdom	23,810	65,000	46,000	18,000
China and Hongkong	37,130	97,000	40,000	...
USA	2,700	4,000	18,000	12,000
Others	1,000	3,000	3,000	1,000
Total	248,800	612,000	319,000	134,000

The new season 1957-58, has started with a carryover of 1.73 million bales of Indian cotton and 0.29 million bales of foreign cotton.

The cotton market has passed through a chequered career during the year under review in view of the fact that the earlier optimistic forecast of the crop did not turn out to be correct on account of late rains and frosts. With the downward revision of the crop estimate, the market displayed a marked firmness during the first quarter of the year. With a view to checking the price rise, stringent margins on

futures contracts were imposed as from February 11, 1957, but this along with the powers given to the Textile Commissioner for requisitioning of cotton on March 29, 1957 and export curbs proved to be of no avail. As prices in spot showed a tendency to reach ceiling levels, various measures were taken by the Forward Markets Commission, but they proved ineffective.

After reviewing the working of the two contract system, which was an experimental measure in 1956-57, the East India Cotton Association

reverted to the single hedge contract covering practically all varieties of Indian cotton, with certain changes necessary. These have been introduced to make the present contract based on 'Mugla Jarilla 25/32' a more realistic one. Business in this contract was started on June 23 at Rs 690. After moving down to Rs 687.50 on June 27, prices firmed up to Rs 722 on July 3 to drop down to Rs 664 by the third week of September. The announcement by the Government on July 19 of their decision to allow imports of 50,000 bales of raw cotton stapling 1-1/16" from soft currency areas had a bearish effect. Moreover, reports of growing accumulation of stocks with mills and slackness in spot demand and fears of tightening up of credit restrictions and the increase in the UK Bank Rate from 5 per cent to 7 per cent and expectations of tighter conditions in the money market adversely affected business sentiment. Prices recovered to Rs 681.50 per candy by September 30 on continued reports of lack of rains in the cotton growing areas and renewed hopes of an extra quota for export of Bengal deshi. During the month of October, the contract firmed up further to Rs 713.50 on October 31. Later on, the market once again turned easier on disappointing reports from the textile front, and with irregular movements, a new low of Rs 668.50 was recorded on December 9. There-

after, the market once again rallied to Rs 685 on expectations that the integration of sales tax with excise duty and the reduction of excise duty of half an anna per square yard in medium counts up to March 31, 1958 might help clearance of goods. The market, however, relapsed to a new low of Rs 663.50 on December 19 to stage a modest recovery on short covering. In view of the heavy accumulation of stocks of mill made cloth, the textile industry is facing a difficult situation and, unless the stocks are reduced, the position will continue to be disquieting.

There have been conflicting estimates about the probable output of the 1957-58 crop. Gujarat and Saurashtra crops have been adversely affected by the drought conditions while, on the other hand, crops in Mysore and Andhra States, which were last year a failure, have fared well. Hence, it is likely that the deficiency of the former may be made up to some extent by the better yield of the Southern crops. At the moment, the overall production estimate for 1957-58 varies from 4.8 million bales to 5.0 million bales.

The official first estimate for the 1956-57 crop was 4,723,000 bales with an acreage of 19,843,000 against the crop of 4,001,000 bales in 1955-56 with an acreage of 19,976,000.

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Bullion Trends in 1957

PRICES of bullion at the year end have ruled higher as compared to a year ago. Whether one likes it or not, it is a fact that the Indian masses have still a fancy for the precious metals and, despite prohibition of imports and the overall need for raising resources for productive purposes, the country continues to absorb these metals on a very large scale. In this connection, it is significant to note that, during the past one year and a half, India has absorbed more than 35,000 bars of Tibetan silver. Gold production in the country is not adequate enough to meet the annual requirements and, in view of the high disparity in prices, smuggling activity continued to flourish. But, during the past five months, the activities of the international racket were effectively checked due to strict vigilance. During the year under review, following the foreign exchange crisis, measures for requisitioning gold and jewellery were discussed, but due to their impractical nature, nothing could materialise. There are inherent difficulties in the scheme as most of the gold bullion in the country is in the form of ornaments and hence it could be difficult to command such stocks in small dribblets. Otherwise, these stocks would to some extent meet our needs of foreign exchange. As compared to the international

price of gold around Rs 65, the market price is higher by about Rs 43 and hence the question of compensation regarding the price even in the form of Government bonds assumes several complications.

Operations on the bullion market during the year under review were mainly dominated by the prospects of imports of Tibetan silver coins from time to time as well as the demand position. On balance over the year, gold has gained about Rs 4 per tola while silver has closed with a gain of about Rs 9 per 100 tolas. The price range in gold during the year was confined to about Rs 8 per tola—the highest being Rs 112.12 and lowest being Rs 103.84, while, in silver, the price range was about Rs 16, the highest level being Rs 190.75 and the lowest being Rs 174.44. The highest levels were recorded in the third week of May 1957, just after the Budget proposals, while the lowest levels were noted in the beginning of January.

During the season, there was good offtake both in silver and gold. It may be noted that, since imports of Tibetan silver coins were allowed from the month of May 1956 the country is estimated to have absorbed about 35,000 bars of silver. The imports of these coins still continue, but it is considered likely that, for the next

two months, imports will be on a smaller scale on account of the cold season. It is difficult to visualise as to what would have been the price position of silver if these imports were not arranged by way of promotion of Indo-Tibet trade. An event during the year was the announcement on April 22, by the Union Government, of the decision to return Lend Lease silver to the United States of the 172 million ozs. 50 million ozs were to be shipped in the form of silver bars, and the balance in the form of quaternary coins. Some shipments have already been effected.

On 31st December 1956, spot gold stood at Rs 124.62 and silver at Rs 173.69. The market ruled very firm during January and the greater part of February. In silver, the emergence of firm trends during January and the first half of February was attributed to increased spot demand with the progress of the busy season, expectation of smaller inflow of Tibetan coins and the developments in the Kashmir situation. In the gold section, the easy trend noticed during December persisted till about the first week of January owing to fears of a likely fall in the world price of gold due to Russian sales. Subsequently, however, the firmness in silver and absence of offerings of Mysore gold imparted strength to gold. The market, however, in the latter half of February and March developed a reactionary tendency which became more pronounced. The change in sentiment was mainly attributed to the persistent fears of an increasing inflow of Tibetan silver coins in future and the reported increase in arrivals against diminishing offtake in the ready section. The Budget which was presented on March 19 had no effect though, during the closing week of the month, prices moved up moderately as a result of higher spot offtake in relation to arrivals and on rumours that imports of Tibetan silver would not be freely licensed after March 31, 1957. The market, however, during the months of April and May ruled strong on active full support based chiefly on a substantial broadening of the spot demand against scarcity of floating stocks. The absence of measures in the Budget proposals to check the rise in bullion prices and the proposed tax on Wealth produced boom conditions. Another bullish factor was provided by rumours of possible devaluation of the rupee. However, since the closing week of May, the market developed a reactionary tendency mainly as a result of increased arrivals and diminishing offtake with the advent of the slack season, while sentiment was also adversely affected by possible modification in the proposed wealth and expenditure taxes at the select committee stage. Gold generally followed the trend in silver, senti-

ment in this section was also bearishly influenced by apprehension which followed press reports regarding the revised policy on Goa, that smuggling activity would be on the increase in the near future, though toward the close of June, there was a moderate revival of prices, mainly on reports regarding strong measures taken by Government to check the inflow of smuggled gold.

Prices during early July, after keeping quiet, firmed up, though silver was subdued. The relative firmness in gold was attributed to reports of seizure of contraband gold and the greater vigilance exercised by the customs authorities in preventing the inflow of smuggled gold. During the month of September, price movements in both gold and silver were irregular. Except for occasional spells of recovery on the expectations of the pre-Puja demand and reports of seizure of large amounts of contraband gold, the gold section was generally inclined to be quietly steady but, with the approach of Diwali, there was a substantial broadening of spot demand. Silver prices also improved moderately and, during the past two months, movements have continued to be irregular. The customs authorities have been very vigilant and large quantities of smuggled gold have been seized during the past few months. Minor ports in Saurashtra have been closed to check smuggling activity.

There have been of late recurrent rumours that Government might not allow forward bullion markets to continue. It is now more than a year and a half that the forward markets commission took up the question, but nothing officially is known about the inquiry.

Monthly price range for spot gold and silver during 1957 was as follows:—

	Gold Spot (per tola)	
	High	Low
January	108.91	103.84
February	109.62	105.31
March	106.62	104.37
April	106.12	104.50
May	112.12	104.94
June	107.94	105.06
July	108.66	104.75
August	108.84	106.81
September	108.66	106.50
October	108.28	106.25
November	109.56	108.06
December*	109.00	107.66

	Silver Spot (per 100 tolas)	
	High	Low
January	185.69	174.44
February	187.37	178.75
March	180.37	174.56
April	183.19	177.62
May	190.75	182.37
June	185.19	179.87
July	183.25	177.19
August	183.19	180.62
September	185.62	180.62
October	184.44	180.94
November	183.11	181.82
December*	184.56	182.44

*Up to 19th December

Calcutta Stock Exchange

1957—A Year of Gloom, Doubt and Despair

WERE it not for the remarkable change in sentiment that occurred toward the end of June, the year 1957 would have presented, from the point of view of investors, a picture of almost unrelieved gloom. During the greater part of the year, price movements were downward and, at times, the momentum increased almost to the proportions of a collapse. This was particularly evident thrice in the year. Once in February when the market was engulfed in the crisis of confidence due to the prevailing uncertainties on the economic and political fronts. Bears were aggressive, taking advantage of the helplessness of the bulls. Investors, too, were frightened as they were worried over the continuous depreciation in the values of their investments.

Again, in May, the market suffered a severe setback due to non-stop selling following the announcement of the Budget proposals, resulting in the prices of almost all scrips touching the lowest levels for the year. The steady and sharp decline in prices would have continued further, but for the emergency measures taken by the Calcutta Stock Exchange Committee by imposing a ban on blank sales in Indian Irons.

Again, in December, a certain amount of nervousness developed following the grave allegations against the investment operations of the LIC and more particularly with regard to a particular deal in the shares belonging to the Mundhra group of companies. It was felt that, as a result, the LIC would not enter the market for some time to come, even to seek investment in some of the blue chips. Another bearish factor was the announcement of additional excise duties on cloth and sugar in lieu of sales tax and the relief given in regard to excise duty on cloth fell below market expectations. Toward the close of the year, however, there was a partial recovery, which was made possible by rumours that the LIC made some selective buying. Had it not been for this recovery, there would have been a major debacle in the market.

In general, the year started very quietly with the market still under the influence of the Finance Minister's supplementary Budget of November 1956, with its heavy taxes and his assumption of powers to change excise duties without consulting Parliament. There were further shocks in the shape of a threat of still higher taxation and plans for labour participation in industrial management. A further element of uncertainty was provided by the approach of the country's second general election. Although there were some signs of buying interest at the prevailing levels and prices steadily improved in mid-January, there was some hesitancy to follow the rise.

As a result, prices suffered a setback at the end of the month, following the announcement of the terms of the Indian Iron and Steel Company's right issue. Disappointment arose from three main considerations. The first was, that the premium of Rs 3.50 was thought to be too big. The second was, that the new shares were not to earn any dividend for the year ended 31.3.1957. The third was, that no indication was available

duced operators to be chary of taking a bullish view. On the economic side, the continued delay by the Controller of Capital Issues in giving permission to applications from companies for issuing bonus shares gave rise to the fear that the tax on bonus issues would be raised. It was also felt that the procession of right issues, expected after the Budget, would drain the market for funds. While professional operators were unable

Stock Exchange Committee's decision to put Renunciation Rights attached to Indian Irons new Ordinary share issue on the clearing list, thus releasing funds for fresh investment. It was felt that this move would enable operators to sell old shares before paying the call money on new shares. But, subsequent events arrested the recovery. Although the usual activity, associated with the Central Budget, was conspicuous by its absence during the Special Budget session, the disappointment caused by the absence of expected relief in the excise duty on cloth and the Finance Minister's hint about heavier additional taxation in the May Budget to meet the estimated deficit caused nervous liquidation and bear selling. Political uncertainties, the growing stringency in the money market and the shortage of foreign exchange, also continued to be a source of worry to operators.

In April, the market developed fresh weakness, being influenced by a general desire for liquidity. Reopening after the Easter holidays, however, sentiment improved perceptibly, resulting in signs of broadening interest in certain directions following the setting up of the Re-Finance Corporation. It was felt that the Corporation would play a useful role in providing the medium-term finance for various industries. Some anxiety, however, prevailed following the Reserve Bank's notification to banks asking them to desist from lending against stocks and shares for speculative purposes. Operators feared that banks would exercise more caution in the case of advances against shares, especially when share prices had already gone down heavily and the investors were feeling, in an increasing degree, the need for fresh credit to keep their position consolidated.

Extremely dull conditions were witnessed in May as Budget fears dominated the market. When the epoch-making proposals were announced simultaneously with an increase in Bank Rate, the immediate reaction was a landslide in values due to non-stop selling. It was felt that the heavy taxation measures were bound to kill all incentives to save and expand the resources available for investment. Even investors seemed to be wondering whether it was worthwhile taking the risk of putting money in equity shares. The steady and sharp decline in prices would not have been halted, but for the emergency measures taken by the Stock Exchange Committee to impose a ban on blank sales in Indian Irons and the decision to fix a deposit of Rs 3 per share for selling Indian Irons. In order to get over payments difficulties, the Committee also made arrangements for an interim clearing in the forward scrips. Although these measures induced a slight

	PRICE TRENDS											
	3 1/2 1986			United			Bengal			Burrakur		
	High	Low	Rs nP	High	Low	Rs nP	High	Low	Rs nP	High	Low	Rs nP
1932	85.00	79.75	49.50	37.25	21.25	14.62	647.00	518.00	18.06	13.75	8.50	13.75
1933	83.44	81.50	47.75	34.25	18.06	16.44	543.00	429.00	11.75	8.50	8.25	8.25
1934	83.56	80.25	47.50	38.75	19.37	13.75	537.00	478.00	14.37	8.25	8.25	8.25
1935	81.50	80.19	38.25	42.50	28.81	16.62	615.00	493.00	17.12	11.25	11.25	11.25
1936	80.81	72.62	61.25	45.00	29.75	25.69	605.00	440.00	22.94	12.81	12.81	12.81
1937*	75.81	70.50	60.00	51.50	28.87	14.75	242.00	210.00	22.75	20.75	20.75	20.75
Jan.	73.81	72.75	60.00	53.00	28.87	23.75	460.00	441.00	21.56	20.75	20.75	20.75
Feb.	74.56	73.37	57.50	56.00	26.25	26.25	465.00	445.00	21.50	20.81	20.81	20.81
March	75.25	74.00	57.00	58.75	25.00	25.00	450.00	440.00	21.44	21.00	21.00	21.00
April	75.81	74.00	53.50	51.50	21.50	20.25	216.50	214.00	21.70	21.12	21.12	21.12
May	75.00	72.87	54.25	53.25	N.T.	N.T.	217.00	212.00	22.37	20.96	20.96	20.96
June	73.31	72.15	54.50	53.25	18.50	17.75	230.50	219.00	22.37	21.50	21.50	21.50
July	73.50	72.15	58.50	57.00	23.37	21.75	240.00	224.00	22.00	21.53	21.53	21.53
August	72.20	70.75	58.00	57.50	19.75	17.25	225.00	210.00	22.00	21.50	21.50	21.50
Sept.	71.87	70.90	58.00	56.00	17.06	16.06	217.00	210.00	22.00	21.37	21.37	21.37
Oct.	72.00	70.70	55.75	55.50	15.56	14.75	241.00	216.00	22.12	21.50	21.50	21.50
Nov.	71.62	70.50	59.25	58.50	18.06	17.94	242.00	223.00	22.75	21.50	21.50	21.50
*Dec.	71.75	70.50	59.00	57.75	N.T.	N.T.	234.00	227.00	22.12	21.75	21.75	21.75

about the dividend which might be allowed on them for the year 1957-58. Some confusion also prevailed over the implications of the move by the Reserve Bank to raise the advance rate. Thus, the general mood, in February, was one of caution, as various doubts and fears, partly political and partly economic, in-

to take a definite view, investors, too, showed little or no interest despite the attractive price levels, reflecting a lack of confidence in the market. Above all, the collapse of the market appeared to have been due mainly to the general tightness in the money market.

In March, the market staged a dramatic recovery, thanks to the

*Up to the 26th December.

†Sub-division of shares took place in April.

‡=X.R.

N.T.—Not transacted.

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recovery, the understone still remained uncertain. Because of the fond hopes nourished on the eve of the Budget, the market's disappointment was profound. The market was, however, able to ease off partially its despondency at the end of the month, thanks the support lent in a big way by the LIC.

The recovery movement gathered momentum in June, being influenced by the assurances from the Finance Minister that the tax proposals would not hamper business in the private sector, that the Government would go all out to encourage productive enterprise in the country and that the Reserve Bank and the State Bank of India would give their support for easing the monetary stringency. Conditions akin to a boom were, therefore, witnessed at the end of the month when almost all scrips flared up under the lead of speculative issues, registering an impressive stride.

The improvement in sentiment was well maintained till the middle of July. The main contributory factor were the prospects of getting substantial financial assistance for India's development plans. But, conditions were on the quiet side during the latter half of the month. Anxiety was shown over the delay in shipments following the congestion at the Calcutta Port. It was felt that, with the Port already congested, any further dislocation would have serious economic repercussions. There was also a general disposition to await the Select Com-

mittee's verdict on the Wealth and Expenditure Tax Bills.

Thus, the market, in August, appeared to be completely exhausted and the drift in prices continued due to renewed offerings following the Government's action in turning down, once again, the Indian Iron & Steel Company's representation for raising the dividend. The disappointment over the report of the Select Committee on the Wealth Tax Bill, reports concerning scrapping of provision linking foreign exchange reserves to Indian note issue and its possible effects abroad and the deterioration in political relations with Pakistan—all these factors induced operators to lessen their commitments. There was also a feeling that the Central Loan had already siphoned off substantial funds and the process would further be accentuated by the proposed two State Loans for about Rs 10 crores.

In September, the market was again shaky. With activity further restricted by the strike by the local bank employees and the approach of the holidays for the Puja festival, operators were inclined to book their profits. Reopening after the Puja holidays, the market exhibited a cheerful sentiment and prices staged an impressive recovery in the middle of the month. Apart from technical factors which were in favour of a rise, expectations of a large US loan, following the talks the Finance Minister and the industrialists' delegation were holding

in America, appeared to enthuse operators considerably. Again, the new import policy with further restrictions on imports gave ground to a feeling that it would stimulate domestic industries. The Government's announcement granting recognition to the Calcutta Stock Exchange Association as the only legal unit under the Securities Contracts Regulation Act was also a contributory factor.

But, the recovery movement was retarded in mid-October when more depressing news came one after another to push down prices. The first blow came from the Finance Minister's statement that the prospects of India getting any immediate foreign loan would be bleak. It was, therefore, feared that drastic cuts in the Second Plan might be inevitable. Other factors were, the threatened strike by the railway employees, the disturbing news from the textile industry, the growing stringency in the money market and the unsatisfactory food situation.

Reopening after the "Diwali" holidays, the market displayed a steadier trend, being encouraged by the news of the bank strike being called off. Operators held the view that, despite the various adverse factors, the climate for domestic capital would have to be improved and their thought turned increasingly to the fact that corporate working results remained reasonably encouraging.

The market gave generally a good performance also in November, although price movements

were rather irregular on alternate bouts of buying and selling. The news of the TISCO getting another loan from the World Bank, favourable recommendations by the Export Promotion Council, the granting of Tariff protection for 10 years to the automobile industry and the expectation of good news with the return of the industrialists' delegation led by Mr G. D. Birla, acted as favourable factors. Bearish factors were, the fears that the grant of licences for the import of capital goods on deferred payment basis would further aggravate the difficulties of the industries in carrying out the essential scheme of expansion and the Finance Minister's speech with regard to internal resources, which gave rise to a feeling that there was little prospect of any relief in taxation and the States would try to increase their resources by further taxation. There was, therefore, a general inclination to await further developments on the economic front.

During the closing month of the year, the market was in a listless state with prices moving aimlessly. The uncertainty about the outlook for the Second Plan and the quantum of foreign aid which might be available, the difficult situation created by the foreign exchange shortage, conflicting reports about the next Budget, the announcement of additional excise duties on cloth and sugar in lieu of sales tax—all these factors kept away buyers. The decline in values was more pronounced in the third week

of the month due to nervous selling by bulls following the grave allegations brought forth in Lok Sabha against investment operations of the LIC, particularly in shares belonging to the Mundhra group of companies. It was feared that the LIC might not buy shares on the usual scale for some time to come. Professional operators were, therefore, inclined to be cautious in their commitments on the belief that the present uncertainty would continue until the Budget. On the other hand, investors were sitting on the fence, as they had burnt their fingers very badly. But for some bear-covering being influenced by the news with regard to the prospects of India getting US aid to the extent of \$300 million around the turn of the year and the rumours of the LIC having entered the market again as a buyer, the market would have witnessed a major debacle toward the end of the year.

Section-wise, Jute shares remained depressed during the major part of the year, reflecting the uneconomic working conditions generally experienced by the industry. During the first half of the year, scattered interest was shown on considerations of break-up values. The continued fall in raw jute prices was taken as an encouraging sign that the industry might not be heading into a raw material squeeze toward the end of the 1956-57 season. But, all shares relapsed into dullness during the latter half of the year.

The uninspiring trend of the jute goods market, caused by the developments at the Calcutta Port in July, the firmness of raw jute prices in September, anxiety shown in November with regard to the prospects of the coming jute crop following the reports of drought conditions prevailing in certain areas of both India and Pakistan and the announcement, made in November, of the passing over of dividends by most of the mills—all these factors had an adverse effect on sentiment.

Trading in the Coal section was generally dull, although a few selected scrips managed to remain steady on sustained support. It was thought that the increased labour charges as a result of the Appellate Tribunal Award were not covered by the increase sanctioned in the price of coal. The uncertainty about the proposed legislation concerning mining concession rules was also a contributory factor. With the result, operators found little prospect of any improvement in view of the difficulties facing the industry. There was a general disposition to await the Price Revision Committee's recommendations.

Tea shares presented a sorry spectacle and turnover was restricted during the major part of the year. There was a general feeling that the output might exceed demand and, as a result, that Medium and Common teas could be sold only at unremunerative levels. Anxiety was also shown

with regard to the profitability of the gardens. It was also felt that the proposal by the West Bengal Government to adjust Agricultural Income-Tax in such a manner as would compel the tea estates to pay taxes at enhanced levels would make the industry suffer a loss, especially when the demand for the commodity was falling short of production. But for the release of encouraging working results and the higher dividends recommended for 1956 by most companies, the decline in prices would have been sharp.

Sugar shares remained neglected with prices generally developing an easier tendency. Quieter advices from the commodity market in view of the comfortable supply position and a record production in the 1956-57 season, bleak prospects for the export of Indian sugar following a steep fall in world prices, the announcement of an additional excise duty in lieu of sales tax and the doubts expressed in certain quarters with regard to the size of profits for companies—all these factors contributed to a subdued sentiment in the section.

Textile shares lacked any buying interest. The main anxiety was the persistent stalemate in the cloth and piecegoods markets. Another bearish factor was the Government decision to merge the sales tax with the excise duty on cloth; and the relief in regard to excise duty on medium cloth fell below market expectations. It

was, therefore, felt that the industry, which had been doing very well in 1956, was now passing through an anxious time.

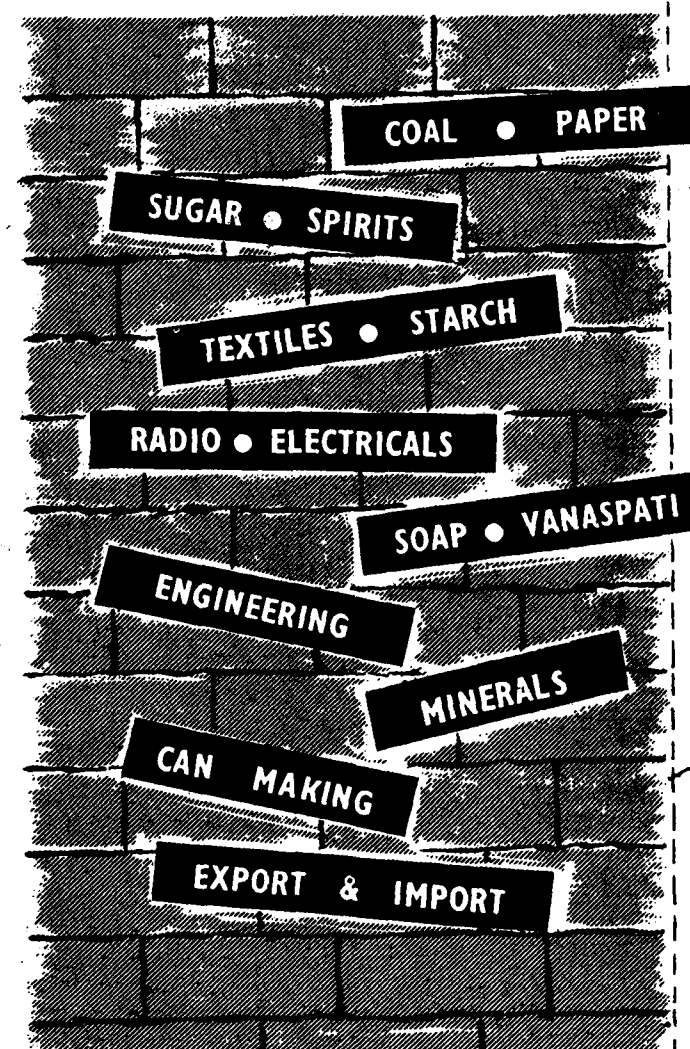
In the Engineering section, price movements were mostly influenced by the speculative activity in Indian Irons. Although prices staged a marked recovery from the lowest levels touched in May, a certain amount of nervousness was noticed toward the closing months of the year when the Mundhra group of shares—reputed for some months to have been favoured orphans of the LIC—got into an unexpected nose-dive.

The Miscellaneous section provided several bright features on dividend, investment and other considerations, although price movements were rather irregular on alternate buying and selling.

Thanks to the continued support from the Reserve Bank, the Gilt-edged section ruled steady till the end of May after which conditions ruled generally quieter following the stringency in the money market. In the year's trading, the change in the pattern of investments from longer to short-dated issues was, however, emphasised and this was amply illustrated in the price movements.

Bank shares were generally steady throughout the year, thanks to the Government decision to exempt banking companies from payment of the Wealth Tax and the good working results of most banks.

a Touch of Quality



Through our different industries we are producing goods that stand out in qualitative excellence and have won customers all over the country—and abroad. In our more than score of productive units and in co-operation with tens of thousands of workers we are manufacturing goods of almost the same substantial volume which any single management can claim to be currently doing.

Directly or remotely we touch the daily life of the community in the cities and villages of India.

KARAM CHAND THAPAR & BROS., PRIVATE LTD.

12, INDIA EXCHANGE PLACE,
CALCUTTA-1

NATIONAL BANK OF INDIA LIMITED

(Incorporated in the United Kingdom. The Liability of Members is Limited.)

(ESTABLISHED IN CALCUTTA 29th, SEPTEMBER, 1863)

Subscribed Capital	-	-	£4,562,500
Paid-up Capital	-	-	£2,851,563
Reserve Fund	-	-	£3,104,687

Head Office: 26, BISHOPSGATE, LONDON E.C. 2.

Bankers to the Government in Kenya Colony, Uganda, Zanzibar and Aden.

Branches: 13, ST. JAMES'S SQUARE, LONDON S.W. 1.

INDIA:	Calcutta, Chowringhee (Calcutta), Bombay, Madras, Mount Road (Madras), Amritsar, Kanpur, Delhi, New Delhi, Tuticorin, Bangalore, Cochin.
PAKISTAN:	Karachi, Saddar Branch (Karachi), Lahore, Chittagong, Agrabad (Chittagong), Narayanganj, Khulna.
BURMA:	Rangoon.
CEYLON:	Colombo, Kandy, Nuwara Eliya. Agency: Galle, Ceylon—Messrs. Clark, Spence & Co., Ltd.
ADEN:	Aden, Steamer Point (Aden), Little Aden (Sub-Branch to Aden).

KENYA:	Eldoret, Embu (Sub-Branch to Fort Hall), Fort Hall, Kakamega (Sub-Branch to Kisumu), Karatina (Sub-Branch to Fort Hall), Kericho, Kiambu (Sub-Branch to Nairobi) Kisumu, Mombasa - Treasury Sq., Kilindini Road, Nairobi—Government Road, Delamere Avenue, Industrial Area, River Road, Naivasha (Sub-Branch to Nakuru), Nakuru, Nyeri, Sotik (Sub-Branch to Kericho), Thika.
ZANZIBAR ISLAND:	Zanzibar.
UGANDA:	Entebbe, Fort Portal, Gulu, Jinja, Kampala, Kamuli (Sub-Branch to Jinja), Masaka, Mbale, Mbarara, Soroti, Tororo.
TANGANYIKA TERRITORY:	Bukoba, Darassalaam, Lindi, Mbeya, Mikindani (Sub-Branch to Mtwara), Moshi, Mtwara, Mwanza, Tanga.
SOMALILAND PROTECTORATE:	Berbera, Hargeisa.

TRAVELLERS' CHEQUES ISSUED

The Bank issues Letters of Credit and conducts every description of Banking and Exchange Business with the Principal cities of the world.

The Bank undertakes the preparation of Income-Tax Returns on behalf of its constituents.

The Bank will amalgamate with Grindlays Bank Ltd. from 1st January, 1958 and the business of the combined banks will be carried on in the new name of NATIONAL OVERSEAS AND GRINDLAYS BANK LTD., with its Head Office at 26, Bishopsgate, London, E.C.2.

CALCUTTA OFFICES:

Main Office: 19, NETAJI SUBHAS ROAD

Sub-Office: 31, CHOWRINGHEE

J. W. YOUNG, Manager.

A Disastrous Year for Investors

THE stock markets in India have passed through a most disastrous year. While commenting on the outlook in last year's year book, we observed that it mainly depended on Government's monetary and fiscal policies. Apprehension of further heavier taxation by way of annual wealth tax, expenditure tax and other measures have turned out to be true, with the result that the year under review has proved more racking. Except for small rallies, it was all a one way traffic with the result that there has been heavy erosion of capital. Investors have burnt their fingers and, as compared to prices prevailing a year ago, the general depreciation in industrial counters amounts to about 20 per cent. The economic and financial policies pressed by the Government, which aims to mould the economic life of the country to suit the establishment of socialistic pattern of society, have more than anything else induced reassessment of the prospects of the investment market. The Government, in its zeal to raise revenue for financing the Second Five-Year Plan and by resorting to measures to reduce the inequalities in income and wealth, have attempted taxation for the maximum extent. There has been an ever increasing degree of reliance on taxation of various kinds not only for finding adequate resources for the Second Plan but also in implementing the economic objective of a Socialistic State.

Mr E. D. Sheppard, Chairman of Killick Industries Ltd., has summed up the situation rightly when he said: 'Around us we see growing deterioration of business confidence and the onset of apathy amongst those whose function is to promote and develop industry. If this sapping of morale and of faith in the future was confined only to large business houses, it would not be so dangerous, but unfortunately it is reflected at every point of the Industrial Society. The producer, the consumer and the investor, whether big or small, is today lacking the virile faith needed to face the challenge of the future'. The sum effect of increase in corporate taxation from 43.4 per cent to 51 per cent, special taxes on dividends, bonus shares, non distribution of profits, capital gains, net assets and the compulsory deposit scheme is virtually to eliminate the possibility of raising equity capital in the investment market for new ventures because of the levels to which even the soundest shares have declined. It would be worth like repeating what we said in our last year Book, that depressed conditions are not conducive for encouraging progress in the private sector. Healthy conditions in the investment market can assure free flow of capital, once confidence is impaired, it is difficult to restore it with the best of intentions. After his return from foreign tour, the

Finance Minister, might have realised very well that things have gone wrong. But the question that might be confronting him and the Government is how to rally from the awkward situation. Suffice it to say that so long as the private sector exists, conditions on the stock market will have a large say in making or marring the prospects of development in the sector.

During the last sixteen months, the stock markets have become the victim of the Government's fiscal and monetary measures which came in quick succession. It may be recollected that excise duty on cotton cloth was raised up from September 1, 1956 so as to yield an annual Rs 75 crores from this source of tax. With the recent amalgamation of sales tax with the excise duty by way of additional duties, it is expected that the overall duty on cotton textiles might reach about Rs 120 crores, which indeed is a heavy burden considering the fact that the annual output would be around Rs 450 crores. On 30th November 1956, the interim proposals of taxation which comprised capital gains tax, increase in super tax a dividend and the scheme for compulsory deposits come as a rude jerk and gave an idea about the shape of things to come. On May 15, 1957, the market was stunned by the most drastic shock ever to be recorded. At one stroke hitting almost all classes, these taxation proposals included new levies on wealth, expenditure, railway travel, increase in corporation tax and in case of super tax on companies, increase in bonus tax, increase in excise and import duties on several items, postal rates and the introduction of changes in the income-tax structure. The revolutionary changes in taxation and especially the wealth tax on individuals and companies have proved to be the greatest disincentives for financing the industrial growth in the private sector. It is no wonder that the stock market, which acts as a barometer to record the readings of the economic climate, finds itself in a most crippled state. The following table of index numbers of security prices as compiled by the Reserve Bank of India gives some idea about the extent of depreciation in the investment markets since the slump started in the last week of August 1956.

	(Base 1949-50=100)		
All-India	Sept 1 1956	Dec. 6 1956	Dec. 7 1957
Govt. Securities	90.7	89.8	89.1
Industrial Debentures	100.3	100.1	97.7
Preference	84.9	80.9	72.7
Variable dividend Industrials	128.6	118.7	98.1
Regional-Variable Dividend			
Bombay	141.1	127.4	111.0
Calcutta	110.0	105.3	85.8
Madras	141.6	129.6	107.4
Delhi	144.6	127.5	114.1

Over and above the fiscal measures, the policy of dearer money and credit restrictions and the severe strain on the economy of the country had their impact on the market. The bearish tendency noticed since the end of August 1956 persisted till the announcement of the Budget proposals on the 15th May 1957, which again gave a severe jolt. Prices more or less collapsed. The Bank rate was raised to 4 per cent as from 16th May. Steel shares brought forth some support from the Life Insurance Corporation, but this induced the bears to press sales in textiles in view of the discouraging outlook. However, during the second half of June, prices recovered sizably on active buying in selected counters by LIC. The tendency remained better for some time, but, in view of the disappointment over the amendments in the Wealth Tax Bill, the market resumed the downward trend and prices during the close of September and early October reached new low levels. Thereafter, a small recovery materialised, but prices relapsed as the market lacked confidence in the outlook. Investors have lost their nerve while the Stock Exchange fraternity is in litters as business has dried up with receding prices. The question that confronts is as to whether the Stock Exchange will present a healthy state in the near future or not. The only consolation is that prices in terms of industrial prospects have reached a level from where the scope of any further decline appears to be limited. The damage which has been done during the past sixteen months is so heavy that, even if further moderate recovery is to materialise, the process will be a painful one. The recent debate in the Lok Sabha over the Life Insurance Corporation's investment in Mundhra group of shares had led to a feeling that support from these quarters will not be forthcoming for some time. Anyway, the trend till next Budget might remain irregular but a moderate recovery may be expected after Budget when some incentives may be looked for.

The Security Contracts (Regulation) Act 1956 has been implemented. In terms of the Act, the Government have recognised only one Stock Exchange at the five centres of India, viz., Bombay, Calcutta, Madras, Delhi and Ahmedabad. The main provisions of the Act are intended to safeguard the interests of the investing public.

With the revision of yield ideas in the light of higher interest rates, the gilt-edged market remained depressed throughout the year. The Central Government borrowed Rs 100 crores from the market, while recently a new issue of 3½ per cent 1962 Bonds was put on tap for Rs 30 crores in view of the demand for short dated loans. Prices of debentures and preference shares have also receded appreciably. Bank shares lost small ground but selective support was discernible.

Insurance shares remained generally easy, but New India has recovered in view of the bonus announcement. Electric shares have lost ground as the benefit of 6 per cent return will accrue to the industry only as from 1st April 1958.

The cotton textile industry has passed through a state of crisis during the year. Stocks accumulated following slow off-take, while prices realised by marginal units were uneconomic. This situation has been fully reflected in the shares which have suffered the most. It is to be seen as to how far the reduction in excise duty by 3 nP per yard in the case of medium varieties up to 31st March 1958 and the integration of the sales tax will help the industry to clear its stocks.

Government's refusal to Indian Iron and Steel Company for payment of dividend in excess of Re 1 as well as the premium imposed on the new right issue has adversely affected the shares. Tata Steel shares also suffered badly though, in comparison with Indian Iron, the fall is relatively small. The expansion programme of both the companies is making satisfactory progress. Engineering shares have also yielded ground despite increased turnover. Cement shares have recorded sharp losses on account of higher cost of production and the resultant cut in profits. Sugar shares in tune with the rest of the market yielded ground but have mostly recovered over higher profits. Shipping shares have remained fully steady after early slump on encouraging results and higher dividends. Tata Chemicals have reacted bearishly on the issue of additional capital. Bombay Burmah has slumped badly after early steadiness. WIMCO has kept quiet. BIC has crashed. Tata Locomotive as well as other automobile shares have declined sharply. National Rayons are no better, while the Company's project for tyre and plant may have to be shelved for the time being due to the foreign exchange crisis.

PRICE TRENDS.		
	Year opening Rs	Year closing* Rs
Century Spinning	511.00	384.50
Svadeshi	233.25	164.75
Central Bank	52.25	52.00
Ahmedabad Electric	93.12	94.50
Tata Hydro	122.00	115.00
Scindia Steam	18.75	17.04
Indian Iron	28.25	18.56
Tata Iron	173.00	161.25
A-C-C	183.25	151.00
Bombay Burma	607.50	524.00
National Rayon	232.50	212.50
Premier Construction	190.25	153.50
Shivnagar	87.75	83.00
Tata Chemical	16.94	12.72
TELCO	163.00	137.00
TOMCO	45.00	34.75

*As on 20th December, 1957.

Statistical Supplement

Economic Indicators																
			Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	
Employment Exchanges	Registrations (Nos. 000)	..	..	1955	117	100	120	111	112	143	160	128	122	94	132	135
				1956	142	128	121	134	141	171	171	145	143	121	124	130
				1957	135	111	111	145	148	141	180	160	..	...	...	...
Placings (Nos. 000)	...	..	...	1955	13	12	14	14	16	18	12	13	13	13	15	17
				1956	15	15	16	17	18	19	16	15	15	14	17	14
				1957	15	13	13	16	17	17	19	18	...	...	...	...
Production Consumption Stocks, Etc.:	Index of Industrial Production 1951=100	...	...	1955	119	136	122	125	127	133	120	132	134	121	125	132
				1956	123	134	129	135	151	...	153	133	146	132	142	136
				1 957	140	143	138	148	156	168	162	140	...	..	...	...
Coal:	Raisings '000 Tons	..	...	1955	3155	3252	3306	3230	3175	3097	2959	3118	3380	3084	3097	3388
				1956	3207	3358	3363	3224	3316	3195	3165	3307	3123	3164	3325	3738
				1957	3688	3577	3715	3786	3853	3353	3349	3430	...	...	...	...
Despatches '000 Tons	..	..	...	1955	2672	2503	2765	2693	2744	2659	2757	2880	2804	2879	2771	2732
				1956	2794	2697	2839	2866	2870	2878	3017	3172	2820	2931	3028	3084
				1957	3187	2896	3300	3235	3238	2962	3094	3291	...	...	...	...
Stocks at Pithead '000 Tons	...	...	...	1955	3512	3879	3961	4066	4095	4129	3902	3696	3786	3516	3450	3617
				1956	3586	3814	3811	3814	3833	3712	3379	3023	2881	2664	2566	2808
				1957	2844	3083	3052	3136	3303	3306	3124	2824	...	...	...	...
Stocks with Industry '000 Tons	...	..	...	1955	2219	2118	2021	1923	1866	1772	1789	1960	1886	2099	2208	1918
				1956	1796	1700	1675	1720	1689	1668	1708	1708	1862	1901	1850	1731
				1957	1664	1593	1671	1663	1680	1844	1902	2016	...	...	...	...
Electricity:	Units Generated, million K.W.H.	...	...	1955	668	629	699	691	706	716	725	709	719	721	726	786
				1956	757	759	800	781	826	797	798	794	813	824	810	881
				1957	869	811	875	901	932	898	928	923	...	...	...	...
Units sold million K.W.H.	...	...	...	1955	545	522	568	564	569	576	583	574	587	592	597	648
				1956	622	622	651	694	669	658	656	650	666	670	668	715
				1957	712	678	717	735	757	726	744	731	...	...	...	...
Units sold to Industry million K.W.H.	..	...	...	1955	362.5	346.0	375.5	368.9	377.1	379.7	390.2	380.4	390.8	394.4	397.0	428.0
				1956	406.9	415.4	433.9	428.4	435.3	430.1	439.5	438.3	448.9	451.1	452.5	479.5
				1957	480.4	451.5	478.5	492.5	499.5	475.5	499.4	486.6	...	...	...	...
Finished steel:	Production '000 Tons	...	...	1955	105	93	111	102	102	99	99	101	96	91	101	108
				1956	106	107	110	101	100	95	110	111	105	105	190.8	107.0
				1957	112.7	97.5	111.3	166.0	107.0	98.8	107.2	110.2	...	...	...	...
Consumption '000 Tons	..	...	...	1955	113	100	120	104	109	109	107	102	109	97	103	119
				1956	106	110	116	111	102	109	114	114	107	117	110	116
				1957	114	110	119	116	112	99	106	...	...	...	...	...
Stocks '000 Tons	..	...	...	1955	121	114	119	121	120	119	116	115	110	104	110	104
				1956	107	107	107	102	113	107	111	109	108	108	118	115
				1957	118	114	115	115	122	128	135	132	...	...	...	...
Pig Iron:	Production '000 Tons	...	...	1955	155.6	137.9	150.2	152.6	150.8	144.5	148.2	148.2	139.3	128.2	138.8	162.1
				1956	163.3	152.3	158.3	146.7	142.4	133.7	149.5	147.0	147.5	156.6	149.5	161.0
				1957	159.4	145.4	158.2	145.7	145.1	133.7	142.0	144.7	...	...	...	...
Consumption '000 Tons	..	...	...	1955	165	148	157	153	156	147	153	148	150	132	143	163
				1956	165	154	163	148	146	135	154	155	151	152	146	156
				1957	158	142	157	147	147	130	131	...	...	...	...	...
Stocks '000 Tons	...	..	...	1955	143	129	120	114	106	100	95	87	77	73	69	66
				1956	60	59	50	49	46	44	39	30	26	31	34	39
				1957	40	43	43	39	39	39	40	38	...	...	...	...
Cement:	Production '000 Tons	..	...	1955	376.8	363.7	380.3	365.8	375.9	342.1	349.2	373.7	339.9	391.5	397.3	423.4
				1956	401.1	394.3	430.5	395.0	418.0	414.8	395.5	397.6	399.5	410.8	408.6	459.2
				1957	459.0	427.7	491.6	456.4	448.4	393.1	425.1	449.6	...	...	...	...
Despatches '000 Tons	...	...	...	1955	370	358	394	365	371	352	344	369	354	370	395	436
				1956	392	398	436	390	414	395	380	389	410	422	399	456
				1957	453	434	487	457	446	376	433	451	...	...	...	...
Stocks Produces '000 Tons	...	..	...	1955	95	101	87	88	93	90	96	101	85	108	111	97
				1956	106	102	96	96	99	102	115	113	102	92	105	108
				1957	114	107	112	111	113	130	122	121	...	...	...	...
Jute Manufacturers ('000 Tons)	...	..	...	1955	84	82	89	86	82	86	84	81	87	79	91	97
				1956	89	93	99	94	102	99	94	90	85	80	84	85
				1957	88.8	80.2	84.7	86.8	87.3	80.1	85.9	81.9	...	...	...	...
Exports—Bags (In million)	..	...	...	1955	39	40	32	34	35	34	40	43	47	32	40	43
				1956	30	32	38	38	43	28	37	48	28	44	46	...
				1957	34	27	33	23	31	24	...	...	...	...	...	...
Export—Cloth (Yds. million)	...	..	...	1955	111	99	108	102	119	73	163	160	162	97	117	141
				1956	80	101	101	110	93	122	123	150	115	123	167	...
				1957	133	110	126	88	87	123	...	...	...	...	...	...
Stocks—Hessian and Sacking cloth and bags (mills) (In '000 tons)	...	..	...	1955	76	82	93	102	94	85	79	76	66	59	59	56
				1956	71	81	85	99	113	121	131	117	118	108	92	85
				1957	92	87	97	93	98	107	102	86	...	...	...	...

Figures for January—June, 54 are on the old base (1946=100).

Economic Indicators—Contd.

	Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Cotton Yarn:													
Production (Million lbs.)	1955	135	127	135	131	135	137	145	140	146	143	140	...
	1956	133	134	133	133	129	132	143	137	143	145	133	151
	1957	156.4	143.0	150.0	154.0	150.0	137.0	150.0	144.0	...	...	...	...
Consumption by composite Mills (Million lbs.)	1955	96	89	94	93	91	92	103	96	101	102	93	105
	1956	93	95	93	93	99	100	106	100	105	101	97	109
	1957	110	99	103	106	103	96	105	99	...	...	...	...
Stocks (mills) (million lbs.)	1955	50	54	51	59	30	30	24	24	18	18	14	8
	1956	8	9	13	12	7	9	7	4	7	9	10	11
	1957	11	16	18	19	21	21	25	27	...	...	...	...
Industrial Disputes:													
Man Days Lost (000)	1955	316	170	367	333	962	1144	660	534	580	214	178	240
	1956	350	779	678	586	554	476	536	496	984	823	432	423
	1957	395	262	288	406	447	713	724	557	...	...	...	...
Civil Aviation:													
Passengers—Miles (10000)	1955	246	239	264	254	260	249	244	242	281	294	300	326
	1956	320	320	344	328	339	325	326	330	355	593	403	435
	1957	412	363	404	413	407	387	397	...	...	...	...	...
Freight—Miles (1000)	1955	1040	1047	1087	1080	1165	958	1089	1372	1648	1545	1533	1533
	1956	1466	1496	1616	1325	1500	1378	1620	1474	1616	1492	1560	1610
	1957	1473	1436	1563	1466	1428	1348	1387	...	...	...	...	...
Railways Class I:													
Wagons loaded (in '000)	1955	671	632	676	633	606	576	609	614	611	631	648	718
	1956	729	710	756	703	674	635	636	644	626	661	691	764
	1957	785	728	812	774	758	680	680	686	...	...	...	...
Passenger Miles (millions)	1955	2977	3232	3373	3221	3674	3520	3150	2662	2795	2788	2920	3161
	1956	2891	3065	3733	3545	3684	3654	3353	3109	2920	3330	3205	3171
	1957	3379	3392	3702	3047	4111	...	...	...	...	...	...	...
Freight Ton Miles	1955	2762	2696	3330	2468	2649	2528	2809	2655	2603	2703	2752	3001
	1956	2964	3094	3402	2730	2765	2935	3182	3127	2921	3054	3182	3267
	1957	3455	3300	3992	3416	3366	...	...	...	...	...	...	...
Gross earnings (Rs. lakhs)	1955	2428	2567	3039	2498	2691	2641	2384	2460	2449	2391	2537	2817
	1956	2551	2903	3343	2753	2954	2854	2762	2662	2611	2777	2841	2901
	1957	2948	3141	3487	2804	3254	...	...	...	...	...	...	...
Foreign Trade:													
Total Merchandise Trade by Sea, Air and Land Imports (Rs. Lakhs)	1955	5491	5754	5850	5136	5124	5134	5162	4642	5121	5203	6280	5945
	1956	5894	6848	7652	5958	6773	6424	5959	6655	7695	7095	8997	8938
	1957	7800	7080	7941	9065	8516	8560	8104	...	...	...	...	...
Exports including Re-exports (Rs. Lakhs)	1955	5459	5057	5775	3993	4445	4819	5112	5212	5860	4848	5004	5318
	1956	4692	5210	5972	4005	4538	4681	4220	4991	4962	5315	5592	5626
	1957	5527	5444	5396	4785	5280	4829	5579	...	...	...	...	...
Balance	1955	-32	-697	-77	-1143	-679	-315	-50	-516	+725	-354	-1296	-629
	1956	-1202	-1638	-1671	-1953	-2235	-1743	-1719	-1664	-2733	-1780	-1405	-1304
	1957	-2273	-1636	-2545	-4280	-3236	-3731	-2525	...	...	...	...	...
Unit Value Index of Trade by Sea and Air: Imports 48-49=100	1955	119	116	118	89†	91	83	87	88	91	89	86	88
	1956	85	86	89	88	89	90	87	89	89	89	92	93
	1957	93	93	96	...	...	...	...	...	...	...	...	...
Exports	1955	124	121	106	88†	86	93	94	97	91	92	91	90
	1956	95	93	90	88	88	91	90	93	97	102	97	102
	1957	94	98	90	...	...	...	...	...	...	...	...	...
Quantum Index 48-49 100: Imports	1955	91	104	96	103†	97	111	106	94	101	104	131	121
	1956	124	142	150	121	139	128	122	134	154	143	136	134
	1957	150	136	148	...	...	...	...	...	...	...	...	...
Exports	1955	122	115	123	94†	107	106	115	122	131	107	112	120
	1956	102	114	132	93	106	105	96	112	106	108	120	114
	1957	123	116	125	...	...	...	...	...	...	...	...	...
MERCHANT SHIPPING:													
Foreign Trade:													
Tonnage entered (000 Tons)	1955	842	742	933	737	767	806	869	787	763	816	791	821
	1956	807	942	875	768	773	801	870	718	874	825	850	849
	1957	849	761	985	1037	931	...	...	...	...	...	...	...
Tonnage cleared (000 Tons)	1955	855	707	821	620	731	715	741	742	667	633	626	673
	1956	687	974	903	732	745	690	700	604	725	696	662	726
	1957	565	639	721	660	744	...	...	...	...	...	...	...
BANKING:													
Reserve Bank:													
Foreign Balances (Rs. Crores)	1955	730	729	730	715	710	716	717	718	719	712	720	73
	1956	734	735	746	726	712	682	659	632	615	582	537	530
	1957	511	519	527	505	455	453	420	379	353	...	...	...
Rupee Balances (Rs. Crores)	1955	75	74	119	86	69	69	100	141	69	79	67	65
	1956	72	83	129	86	68	70	83	68	90	82	66	65
	1957	65	65	97	59	60	60	56	53	59	...	...	...
Scheduled Banks:													
Demand Liabilities in India (Rs. Crores)	1955	580	588	524	590	592	602	601	608	664	616	620	614
	1956	648	631	636	646	645	637	639	654	637	646	650	655
	1957	663	686	703	720	719	712	723	697	701	...	...	...
Time Liabilities in India	1955	370	371	377	383	388	397	409	409	418	424	424	420
	1956	410	418	415	427	435	453	457	461	457	458	459	460
	1957	459	465	472	500	519	548	564	561	611	...	...	...
Advance and bills including inland and foreign bills purchased and discounted in India.†	1955	560	589	623	624	620	610	601	606	593	592	594	631
	1956	677	697	761	757	769	757	740	735	754	760	766	789
	1957	826	858	899	909	933	918	886	853	839	...	...	...
Cheque clearance (Rs. Crores)	1955	624	621	743	645	629	598	626	640	681	616	674	724
	1956	908	752	765	741	711	660	670	646	711	700	725	764
	1957	841	733	833	794	770	680	749	660	650	...	...	...

†From April 1955 changed to 1952-53.

Economic Indicators—Contd.

		Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Currency:														
Notes in Circulation (Rs. Crores)	...	1955	1218	1242	1277	1311	1316	1311	1291	1285	1280	1306	1324	1362
		1956	1379	1403	1467	1505	1506	1475	1444	1425	1409	1419	1439	1466
		1957	1486	1506	1526	1562	1570	1542	1499	1471	1471	..	...	...
Joint Stock Companies Incorporated and Registered:														
Number of Companies	..	1955	111	88	127	122	117	127	98	114	102	110	102	101
		1956	97	123	235	42	61	64	70	84	84	96	66	70
		1957	76	68	67	100	76	..	...	...	...	...	...	..
Paid-up Capital (Rs. Lakhs)	...	1955	...	..	1.7	2.2	7.8	20.5	6.1	1.0	6.2	19.1	2.6	0.1
		1956	1.5	2.1	...	0.1	1.3	1.0	1.7	1.8	5.7	11.9	3.7	34.8
		1957	1.2	2.7	2.7	0.9	2.1	..	...	..	..	...	...	...
Ceased to work number of Companies No.	...	1955	67	84	95	95	58	59	62	78	97	93	75	53
		1956	83	80	157	43	53	77	94	118	12	54	51	95
		1957	171	68	102	295	98	...	..	..	...	...	...	...
Paid-up Capital	..	1955	48.1	39.6	53.9	59.9	51.0	130.0	102.6	168.0	74.3	53.3	126.2	49.8
		1956	73.8	104.1	242.0	54.5	46.7	41.7	104.2	25.9	9.4	36.5	54.5	122.7
		1957	89.6	39.1	57.6	93.4	13.2	..	...	..	..	...	...	...
FINANCE:														
Central Government:														
Receipts (Lakhs of Rs.)	...	1955	4665	4219	5001	2537	2929	3958	3177	5207	5384	2479	3593	6369
		1956	4532	3890	6746	2801	3365	4711	3326	6067	6077	1300	3506	7058
		1957	5426	3918	8349	3874	4242	5326	4671	...	...	...	..	...
Expenditure (Lakhs of Rs.)	..	1955	2000	1726	6090	1644	1440	1585	1567	1760	2000	2431	1537	1843
		1956	2128	2899	5323	1812	1131	1750	2216	1860	1564	2384	1518	2055
		1957	2777	2253	7981	1932	1391	2195	2750	..	..	...	...	...
Public Debt:														
Debt Incurred	...	1955	400	452	1692	406	404	389	497	400	579	658	132894	8887
		1956	15300	27723	16999	20421	27788	16137	20574	24239	13581	48363	26676	12644
		1957	31412	39862	226396	27925	41296	24957	36682	...	...	...	..	...
Debt Discharged (Lakhs of Rs.)	..	1955	42	620	491	403	405	404	409	404	607	926	132688	11111
		1956	11857	26962	7834	15461	28154	15940	24429	26297	13683	20597	25253	13007
		1957	27427	26741	13002	26380	35017	22283	33528	...	...	...	...	..
Yield from Customs and Central Excise Duties:														
Customs (Lakhs of Rs.)	..	1955	2177	2276	1832	1174	1196	1240	1329	1239	1427	1371	1398	1559
		1956	1507	1423	1740	1167	1362	1322	1179	1342	1512	1404	1453	1641
		1957	1672	1413	1749	1525	1470	1364	1593	..	..	...	..	...
Central Excise (Lakhs of Rs.)	...	1955	937	968	1401	1109	1109	1220	1202	1270	1195	1024	1108	1311
		1956	1231	1374	1287	1180	1347	1521	1371	1435	1523	1550	1321	1941
		1957	2019	1387	2128	1655	2050	2000	2071	..	...	..	...	..
SMALL SAVINGS:														
National Savings Certificates:														
Receipts (Lakhs of Rs.)	...	1955	262	239	366	246	237	222	239	221	267	220	208	277
		1956	216	249	315	243	270	298	321	282	282	254	243	269
		1957	297	252	436	242	225	48	31	9	...	...	...	..
Outstandings (Rs. crore)	...	1955	130	131	134	136	138	139	141	142	144	146	147	149
		1956	150	151	154	156	157	158	161	162	164	165	166	167
		1957	169	170	173	174	174	173	170	169	...	..	...	..
Savings Bank Deposits:														
Receipts (Rs. Crores)	...	1955	10.5	11.1	15.0	12.4	11.9	12.3	12.9	12.2	12.4	11.3	11.3	12.9
		1956	12.2	12.9	23.6	14.5	14.8	15.2	14.6	14.1	13.2	13.0	12.7	14.7
		1957	13.4	12.9	23.5	14.7	14.6	14.6	15.0	12.6	...	...	...	..
Outstandings (Rs. crores)	...	1955	120	122	127	133	134	136	140	143	147	149	150	152
		1956	154	156	168	171	173	176	180	183	185	186	187	188
		1957	188	189	197	199	198	198	201	202	..	..	...	..
Postal Traffic:														
Postal Orders sold (No. in '000)	...	1955	300	254	317	276	250	306	388	314	311	333	240	317
		1956	270	251	234	209	230	292	350	205	255	294	236	304
		1957	221	218	275	215	189	217	195	...	...	...	..	...
Value (Rs. lakhs)	...	1955	16	13	17	14	12	14	18	16	15	18	13	14
		1956	16	14	13	12	12	16	19	14	13	17	12	18
		1957	12	13	16	13	10	14	11	..	..	...	..	...
SPOT PRICES OF GOLD:														
Silver—Average:														
Gold—Bombay (Per tola Rs.)	..	1955	90- 3-10	93- 1- 1	93- 5-11	95-15-1	93-8-1	93-10-10	94-5-2	95-2-2	94-14-6	94-12-9	96-6-8	94-2-2
		1956	95- 9- 0	97-13- 4	103- 8- 1	105-7-4	104-3-4	102-8-6	101-3-1	103-11-6	103-2-8	103-11-6	105-3-10	104-15-6
		1957	106.39	108.14	105.53	105.56	108.37	106.26	106.64	107.97	107.61	...	...	...
Silver—Bombay (Per 100 tolas Rs.)	...	1955	158- 0- 3	163- 7- 5	166-12- 3	167-2-3	164-3-2	158-5-4	160-9-4	163-1-8	165-13-11	168-8-6	171-8-6	172-7-9
		1956	178- 1- 9	174-10- 9	178-10- 9	180-6-9	177-3-11	170-8-1	172-1-11	172-0-7	172-2-6	172-8-6	173-12-2	173-11-9
		1957	180.53	184.48	177.72	180.45	185.37	182.39	180.47	181.97	183.42	...	...	..
SECURITY INDEX:														
49-50=100:														
Govt and Semi-Govt. ...	...	1955	90.6	20.6	90.6	90.5	90.7	90.8	90.9	90.9	90.9	91.0	91.0	91.0
		1956	91.1	91.3	90.9	90.9	91.1	91.2	91.2	90.9	90.7	90.4	90.1	89.7
		1957	89.7	89.8	90.0	90.0	89.9	89.5	89.2	89.6	89.0	..	...	...
Preference Shares	..	1955	88.4	88.2	87.3	87.5	87.7	87.6	87.8	87.8	87.2	87.2	87.7	87.8
		1956	87.3	86.7	85.8	85.6	85.1	85.2	85.3	85.2	83.8	81.7	81.9	80.7
		1957	80.4	79.8	79.8	78.6	78.4	77.6	76.7	75.6	74.0	...	..	...
Variable Industrial	..	1955	114.9	114.2	115.4	115.4	112.9	113.1	117.9	122.7	122.7	124.5	129.9	130.6
		1956	125.7	121.0	122.4	123.1	123.8	125.1	125.1	127.4	126.9	124.9	122.9	117.4
		1957	113.7	113.6	111.1	106.9	104.5	102.6	105.5	103.1	99.3	...	...	...
PRICES COMMODITY WHOLESALE:														
Food Articles 52-53=100	...	1955	88	86	93	81	82	84	88	83	85	85	87	87
		1956	89	89	93	96	97	99	101	106	104	104	107	108
		1957	108	104	102	104	107	109	111	112	109	...	...	...

Economic Indicators—Contd.

Food Articles:	Year.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.
Industrial Raw Materials	1955	102	102	97	94	94	93	98	97	94	95	98	102
	1956	106	107	109	111	114	113	112	116	117	116	118	119
	1957	120	118	117	117	120	121	121	120	115	...	...	...
Intermediate Products	1955	97	98	97	96	97	97	97	96	96	97	99	102
	1956	105	106	110	110	111	109	108	112	111	110	112	114
	1957	113	110	109	108	109	109	109	108	107	...	...	...
Finished Products	1955	100	101	102	100	100	98	99	99	99	99	100	100
	1956	100	100	102	102	102	102	103	104	108	108	108	108
	1957	108	107	106	106	107	109	109	109	109	...	...	...
General Index	1955	94	93	91	89	89	90	93	92	91	91	92	94
	1956	95	95	98	100	101	102	103	106	107	107	109	108
	1957	107	107	106	107	109	111	112	112	110	...	...	...
CONSUMER PRICES INDEX NUMBERS:													
(Working Class August 1949=100):													
Kanpur	1955	78	80	79	74	70	73	78	78	81	82	82	82
	1956	85	82	83	86	85	88	91	93	93	94	93	91
	1957	91	92	91	89	91	93	96	98	97	...	...	...
Delhi	1955	100	97	96	96	92	93	99	101	101	101	103	106
	1956	105	104	105	106	106	107	109	111	112	116	117	125
	1957	113	114	114	112	114	115	115	118	113	...	...	...
Madras	1955	103	101	95	97	95	96	98	99	100	100	101	103
	1956	103	103	105	110	110	113	114	115	114	112	104	115
	1957	115	114	114	114	114	115	116	115	115	...	...	...
Calcutta	1955	93	91	91	90	90	89	92	93	93	93	94	95
	1956	92	92	92	97	98	99	100	101	101	101	101	102
	1957	101	101	101	101	102	105	106	108	109	...	...	...
Bombay	1955	115	112	111	111	109	108	111	111	108	108	107	108
	1956	109	110	114	117	116	117	115	118	110	117	126	116
	1957	116	116	116	116	118	121	122	123	122	...	...	...
All-India Average 1949=100	1955	97	95	94	93	92	93	96	97	96	97	98	98
	1956	97	97	100	103	104	107	107	109	109	109	110	109
	1957	107	107	107	107	109	111	112	113	112	...	...	...

INDEX NUMBERS OF SECURITY PRICES.

Regional 1949-50=100.

BOMBAY. CALCUTTA. MADRAS.

	Govt. and Semi-Govt. Securities.	Preference Shares.	Variable Dividend Industrial Securities.	Govt. and Semi-Govt. Securities.	Preference Shares.	Variable Dividend Industrial Securities.	Govt. and Semi-Govt. Securities.	Preference Shares.	Variable Dividend Industrial Securities.
1954-55	90.0	92.4	119.2	90.4	85.0	105.5	90.8	92.7	108.9
1955-56	90.4	91.1	125.2	90.8	83.0	113.5	91.2	96.2	118.1
1956-57	89.9	87.2	130.4	90.4	77.3	106.7	90.7	96.5	131.8
March 1955	90.1	91.6	118.8	90.5	83.3	109.3	90.9	94.3	109.8
April	90.0	91.9	117.1	90.5	83.2	109.9	90.8	94.9	110.2
May	90.2	91.9	115.3	90.6	83.5	107.3	91.0	95.5	108.7
June	90.3	91.4	114.7	90.7	83.4	107.3	91.1	95.6	110.7
July	90.4	92.1	119.6	90.8	83.6	111.4	91.2	95.0	113.5
August	90.4	92.3	124.7	90.8	83.3	115.7	91.2	95.4	117.3
Sept.	90.3	90.7	124.2	90.8	83.2	115.8	91.2	95.8	118.0
October	90.5	91.3	131.0	90.9	83.0	114.4	91.3	95.7	120.2
Nov.	90.5	91.2	138.2	90.9	83.3	118.0	91.4	97.5	124.8
Dec.	90.5	91.2	138.0	91.0	83.3	120.1	91.3	98.3	125.0
January 1956	90.6	90.4	130.5	91.1	83.1	116.7	91.4	97.3	122.8
February	90.7	89.4	123.1	91.2	82.8	113.7	91.5	96.6	120.2
March	90.3	89.5	127.5	90.8	81.0	111.9	91.2	96.8	124.6
April	90.4	89.7	128.9	90.8	80.3	117.11	91.2	97.3	126.6
May	90.6	89.1	130.2	91.1	79.9	111.4	91.4	97.5	130.5
June	90.7	88.9	132.9	91.2	80.0	111.0	91.5	97.8	133.9
July	90.6	89.5	134.9	91.1	80.2	108.9	91.4	96.4	136.8
August	90.3	89.9	139.8	90.7	79.7	109.2	91.2	97.0	140.0
Sept.	90.1	87.7	136.9	90.6	78.3	110.3	90.9	97.5	135.4
October	89.8	87.1	133.8	90.3	76.7	110.0	90.7	97.5	135.4
Nov.	89.5	85.9	132.3	90.0	75.5	108.3	90.3	97.1	132.3
Dec.	89.1	84.6	127.1	89.6	74.7	103.7	89.9	96.6	128.8
January 1957	89.1	85.3	123.3	89.6	74.1	99.9	89.9	95.0	125.7
February	89.2	83.9	123.3	89.7	73.9	100.2	90.0	94.6	126.0
March	89.4	84.4	121.4	89.8	73.6	97.3	90.2	94.3	125.1
April	89.3	82.9	116.9	89.9	72.7	93.7	90.2	93.0	119.5
May	89.2	83.9	114.4	89.7	72.1	91.6	90.1	91.9	117.9
June	88.9	84.4	113.2	89.4	70.4	90.1	89.9	91.2	114.7
July	88.5	83.8	117.9	89.1	69.6	92.2	89.3	89.2	117.4
August	88.4	82.7	115.2	88.8	68.3	89.7	89.2	88.7	117.0
Sept.	88.4	80.6	111.7	88.9	66.9	86.7	89.2	88.3	111.9
October	88.4	80.2	109.1	88.9	66.4	85.4	89.2	87.6	109.3

INDEX NUMBERS OF WHOLESALE PRICES.

Year ended August 1939=100.

	Average of Weeks.	Food Articles.	Industrial Raw Materials.	Semi-manufactured Articles.	Manufactured Articles.	Miscellaneous.	General Index.
Weights	...	31	18	17	30	4	100
1953	...	380.8	459.7	356.3	367.0	661.5	393.9
1954-55	...	358.3	447.1	355.4	375.5	646.8	386.7
1955-56	...	304.5	411.1	333.3	373.4	555.1	355.4
1956-57	...	388.5	501.9	402.3	384.6	559.3	414.0
1955—							
March	...	297.0	412.7	333.5	377.8	553.3	354.2
April	...	283.6	398.6	327.8	377.1	541.2	345.4
May	...	276.1	396.4	329.6	374.6	544.6	342.5
June	...	281.8	390.4	329.7	370.0	567.4	342.5
July	...	309.7	408.1	329.6	370.9	582.6	355.6
August	...	317.5	404.4	326.1	371.2	563.1	357.3
Sept.	...	313.0	396.1	324.8	368.8	556.0	353.2
October	...	315.7	403.7	329.8	371.2	559.3	357.2
Nov.	...	326.5	418.9	338.1	373.3	543.3	365.0
Dec.	...	323.7	483.3	346.6	373.0	544.2	368.4
1956—							
January	...	333.4	454.2	353.5	375.2	540.0	376.0
February	...	335.3	464.6	358.8	375.3	529.3	378.4
March	...	351.6	475.6	369.4	374.8	508.1	387.3
April	...	360.9	472.8	377.4	375.7	496.7	391.3
May	...	350.5	478.0	384.1	376.8	501.8	390.2
June	...	366.2	479.4	391.8	377.6	518.6	397.9
July	...	380.6	492.3	395.2	385.7	560.4	409.2
August	...	397.0	500.5	406.4	387.7	565.3	418.5
Sept.	...	393.0	507.0	408.3	391.4	567.1	419.8
October	...	392.5	502.4	405.6	387.9	585.2	417.8
Nov.	...	411.6	514.2	416.3	387.6	590.6	427.7
Dec.	...	413.9	517.1	417.5	386.9	590.3	428.9
1957—							
January	...	392.1	525.0	412.4	387.1	592.7	422.1
February	...	406.0	520.5	410.6	385.5	585.2	425.0
March	...	402.7	518.1	403.3	384.1	569.6	421.3
April	...	408.3	514.7	400.0	384.3	567.1	422.1
May	...	419.3	536.3	406.5	387.7	572.3	431.2
June	...	433.2	541.4	413.0	392.4	578.0	439.2
July	...	439.8	544.4	413.3	392.3	637.1	443.5
August	...	440.9	530.6	411.2	392.7	643.3	441.8
September	...	424.1	525.2	409.1	384.7	643.1	435.9
October	...	412.1	534.2	406.1	394.5	645.9	432.8

Industrial Production

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Reserve Bank of India

ISSUE DEPARTMENT. (Amount in lakhs of Rupees)										BANKING DEPARTMENT. (Amount in lakhs of Rupees)													
Average of Fridays	Notes in circulation	Notes held in Banking Department	Total notes issued	Gold coin & Bullion	Foreign Securities	Rupee Coin	Rupee Securities	Average of Fridays	Central Government.	Other Governments.	Banks.	Others.	Total.	Other liabilities.	Total liabilities and assets.	Notes and coin.	Balances held abroad ¹	Loans and Advances to Govt.	Other loans and Advances	Bills pur- chased and discounted	Investments	Other Assets	
1952-53	111484	2787	114272	4002	56440	8022	45808	1952-52	...	13640	779	5289	6193	25802	3369	29271	2803	13356	285	1903	664	8977	1283
1954-55	118019	2857	120876	4002	64881	10226	42800	1954-54	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1955-56	123619	2988	126607	4002	68552	10837	55506	1955-55	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1956-57	127577	3075	130652	4002	71945	11593	57522	1956-57	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1957-58	132406	3167	135573	4002	75481	12349	60324	1957-57	1956	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1958-59	138406	3267	141673	4002	79349	13063	63746	January	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1959-60	144242	3361	147603	4002	83341	13840	67346	February	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1960-61	146641	3456	150097	4002	87687	14638	69321	March	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1961-62	150683	3556	154239	4002	92689	15489	73711	April	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1962-63	156770	3652	160422	4002	98145	16389	78701	May	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1963-64	164530	3751	168281	4002	10416	17366	84589	June	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1964-65	173489	3854	177343	4002	11408	18364	91569	July	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1965-66	183672	3963	187635	4002	12424	19376	100118	August	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1966-67	194367	4072	198439	4002	13466	20392	110730	September	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1967-68	205829	4181	210010	4002	14529	21407	121343	October	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1968-69	218299	4290	222589	4002	15603	22422	132016	November	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1969-70	231869	4400	236269	4002	16687	23437	142649	December	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1970-71	246509	4510	251019	4002	17771	24452	153201	January	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1971-72	262289	4620	266909	4002	18856	25467	163753	February	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1972-73	279169	4730	283900	4002	19941	26482	174205	March	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1973-74	297109	4840	301949	4002	21026	27497	184657	April	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1974-75	316209	4950	321159	4002	22111	28512	195109	May	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1975-76	336309	5060	341369	4002	23196	29527	205261	June	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1976-77	357409	5170	362579	4002	24281	30542	215413	July	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1977-78	379509	5280	384719	4002	25366	31557	225565	August	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1978-79	402609	5390	408000	4002	26451	32572	235717	September	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1979-80	426709	5500	432209	4002	27536	33587	245869	October	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1980-81	451809	5610	457419	4002	28621	34602	256021	November	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1981-82	477909	5720	483519	4002	29706	35617	266173	December	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1982-83	504009	5830	509619	4002	30791	36632	276325	January	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1983-84	530109	5940	535719	4002	31876	37647	286477	February	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1984-85	556209	6050	561819	4002	32961	38662	296629	March	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1985-86	582309	6160	587919	4002	34046	39677	306781	April	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1986-87	608409	6270	614019	4002	35131	40692	316933	May	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1987-88	634509	6380	640119	4002	36216	41707	327085	June	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1988-89	660609	6490	666219	4002	37301	42722	337237	July	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1989-90	686709	6600	692319	4002	38386	43737	347389	August	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1990-91	712809	6710	718419	4002	39471	44752	357541	September	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1991-92	738909	6820	744519	4002	40556	45767	367693	October	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1992-93	765009	6930	770619	4002	41641	46782	377845	November	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1993-94	791109	7040	796719	4002	42726	47797	387997	December	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1994-95	817209	7150	822819	4002	43811	48812	398149	January	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1995-96	843309	7260	848919	4002	44896	49827	408301	February	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1996-97	869409	7370	875019	4002	45981	50842	418453	March	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1997-98	895509	7480	901119	4002	47066	51857	428605	April	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1998-99	921609	7590	927219	4002	48151	52872	438757	May	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
1999-00	947709	7700	953319	4002	49236	53887	448909	June	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
2000-01	973809	7810	979419	4002	50321	54902	459061	July	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
2001-02	1000000	7920	1005600	4002	51406	55917	469213	August	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
2002-03	1026100	8030	1031700	4002	52491	56932	479365	September	...	8013	1966	5520	3629	20128	3522	29480	2324	8763	114	2655	610	8052	1962
2003-04	1052200	8140	1057800	4002	53576	57947	489517	October	...	8013	1966	5520	3629	20128	3522	2							

Direction of India's Sea-borne Trade

(In lakhs of Rupees).

	CEYLON.			UNITED KINGDOM.			CANADA.			AUSTRALIA.			COMMONWEALTH.			BURMA.		
	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance
1952-53	429	2008	+1578	14099	12329	-1770	2858	1283	-1675	1238	1698	+460	27632	28249	+618	2649	2238	-411
1953-54	509	1851	+1342	14498	15135	+637	1414	1313	-101	2583	1747	+234	28143	27733	+410	1756	2108	+352
1954-55	746	1719	+973	14688	18608	+3920	1013	1741	+727	1955	2446	+491	30553	30553	+0	5737	1608	-4129
1955-56	942	2054	+1112	17269	16615	-654	684	1403	+718	1347	2482	+1135	30511	30731	+220	568	1254	+686
January 1955	48	137	+90	1175	1836	+762	71	170	+99	208	224	+16	2228	3110	+902	579	139	-440
February	46	159	+113	1301	1593	+292	28	151	+122	302	183	+19	2549	2779	+231	351	139	-213
March	42	144	+101	1333	1024	-308	22	232	+210	256	274	+18	3322	2339	+17	525	106	-420
April	52	92	+40	1404	820	-584	92	110	+27	231	173	+58	2589	1803	+785	262	87	-175
May	39	124	+85	1273	872	-401	13	97	+85	209	284	+75	2434	2084	+350	186	163	-18
June	59	202	+143	1206	1355	+150	44	89	+45	211	303	+92	2548	2703	+155	24	87	-63
July	115	174	+59	1086	1322	+237	53	128	+65	170	269	+99	2463	2622	+160	37	60	-23
August	105	132	+27	903	1475	+572	33	135	+102	35	120	+85	1869	2515	+646	52	100	-48
September	76	210	+134	1627	1510	-117	33	180	+147	67	255	+188	2710	2870	+160	28	168	+141
October	111	196	+85	1450	1472	+22	52	57	-5	59	128	+69	2382	2512	+130	90	110	-20
November	114	117	-3	1534	1542	+8	7	132	+124	56	199	+144	2629	2650	+21	33	91	-57
December	73	169	+96	1483	1415	-68	80	107	+27	44	184	+140	2343	2606	+264	68	93	-25
January 1956	65	209	+144	1744	1553	-192	75	109	+34	103	155	+52	2738	2587	+151	65	47	-18
February	57	200	+143	1637	1568	-69	11	135	+94	68	188	+119	2657	2708	+50	19	8	-89
March	76	233	+157	1904	1664	-241	27	161	+133	93	226	+138	3121	3018	+102	92	138	-46
April	62	70	+8	1579	1005	-574	39	127	+97	82	133	+50	2488	1978	+511	31	121	-90
May	44	75	+31	1903	1458	-444	83	104	+21	93	150	+57	3077	2426	+651	27	52	-25
June	42	168	+126	1741	1231	-510	61	102	+41	153	237	+81	2769	2392	+477	33	57	-24
July	76	141	+66	1730	1165	-565	71	120	+49	85	151	+66	2632	2124	+508	22	35	-12
August	89	151	+63	1858	1695	-163	33	155	+122	78	247	+169	2728	2743	+15	76	97	-21
September	96	209	+113	1887	1784	-103	30	199	+139	109	168	+60	3154	2835	+319	41	102	-61
October	95	168	+72	1681	1759	+77	76	100	+24	62	217	+155	2695	2730	+35	63	56	-7
November	70	179	+109	1770	1864	+94	94	143	+50	62	185	+132	2519	3030	+511	29	93	-64
December	85	196	+111	1351	1697	+346	52	116	+64	175	194	+18	2573	2837	+264	72	112	-39

(In lakhs of Rupees).

	U.S.A.			EGYPT.			IRAN.			JAPAN.			TOTAL Foreign Countries.			TOTAL All Countries.		
	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance	Im-ports	Ex-ports	Balance
1952-53	18307	11259	-7048	1512	569	-943	250	207	-43	1899	3198	+1599	39376	29557	-9818	67007	57807	-9200
1953-54	8005	9072	+1067	2770	353	-2418	204	153	-51	1322	2358	+1036	29062	25330	-3732	57206	53066	-4139
1954-55	8161	8858	+697	1968	828	-1140	420	555	+134	1891	1594	-308	35389	25793	-9596	63398	58346	-5052
1955-56	8930	8712	-218	2310	957	-1353	1444	521	-923	3337	3022	-316	37388	29012	-8376	67899	59743	-8156
January 1955	667	806	+139	131	82	-49	37	60	+23	217	148	-69	3262	2328	-934	5490	5458	-32
February	694	718	+24	346	117	-229	62	96	+36	324	164	-160	3205	2278	-927	5754	5058	-696
March	947	855	+93	117	61	-56	91	75	-17	159	157	+17	3215	2388	-827	5537	4727	-811
April	707	835	+127	106	31	-74	82	59	-24	198	145	-53	2541	2154	-387	5129	3957	-1172
May	687	794	+107	132	87	-75	152	37	-115	232	193	-39	2674	2354	-320	5108	4438	-670
June	638	677	+39	116	84	-33	79	12	-68	143	155	+12	2579	2042	-536	5127	4746	-381
July	877	693	-184	144	100	-44	158	35	-123	215	190	-25	2699	2565	-134	5161	5187	+26
August	700	629	-71	131	90	-40	119	26	-93	209	278	+68	2773	3173	+399	4642	5687	+1045
September	571	758	+187	98	123	+25	124	54	-70	233	253	+20	2411	2847	+436	5121	5717	+595
October	638	589	-49	61	78	-13	74	67	-7	433	325	-108	2797	2228	-569	5179	4739	-440
November	1088	730	-359	160	71	-89	170	64	-106	353	294	-60	3642	2596	-1046	5933	4917	-1016
December	656	814	+158	271	81	-190	169	32	-137	285	246	-139	3590	2596	-994	5680	5202	-478
January 1956	566	646	+80	324	72	-251	83	54	-28	301	191	-111	3142	2059	-1083	5920	4646	-1274
February	1091	741	-349	513	55	-458	59	30	-29	411	281	-130	4162	2417	-1745	6920	5124	-1796
March	709	784	+75	223	120	-104	165	21	-144	224	471	+247	4331	2808	-1523	7451	5827	-1624
April	704	806	+102	113	60	-53	114	21	-93	248	141	-101	3470	1999	-1471	6058	3977	-2081
May	722	716	+6	96	98	+2	120	42	-78	444	239	-204	3786	2095	-1691	6864	4521	-2342
June	750	763	+13	69	110	+41	90	23	-68	388	322	-65	3653	2365	-1288	6421	4656	-1765
July	642	715	+73	41	99	+58	134	21	-113	279	235	-44	3308	2082	-1226	5940	4206	-1734
August	828	770	-58	11	95	+84	145	21	-124	358	213	-145	3926	2246	-1680	6654	4989	-1665
September	856	598	-258	15	153	+139	546	23	-523	399	193	-206	4521	2127	-2394	7674	4962	-2712
October	808	713	-95	36	142	+105	225	25	-200	353	184	-169	4400	2585	-1815	7096	5315	-1780
November	1037	744	-293	39	9	-20	148	20	-128	476	202	-274	4478	2562	-1916	6997	5592	-1405
December	705	774	+68	72	98	+26	470	19	-451	481	314	-187	4365	2789	-1576	6938	5626	-1312

RECEIPTS, EXPENDITURE AND PUBLIC DEBT OF THE CENTRAL GOVERNMENT.

(Amount in Lakhs of Rupees).

	Receipts.			Expenditure.			Public Debt.		
	Customs.	Central Excise Duties.	Corporation Tax.	Income-tax Revenue.	Total Revenue.	Receipts from Railways and Posts and Telegraphs.	Defence drawings.	Revenue Expenditure.	Capital Expenditure.
July 1955	1329	1202	148	340	3177	603	1363	1587	1074
Aug.	1239	1270	73	409	3207	305	1165	1760	72
Sept.	1427	1195	598	1982	5384	10	1256	2000	880
Oct.	1371	1024	234	409	2479	140	1249	2431	313
Nov.	1398	1108	162	687	3593	99	1307	1537	688
Dec.	1559	1311	802	2373	6069	437	1416	1843	124
Jan. 1956	1507	1231	299	1062	4532	301	1436	2128	702
Feb.	1423	1374	438	310	3890	-36	1309	2999	474
March	1740	1287	998	1102	6746	-139	2136	5323	963
April	1167	1180	29	272	2801	719	1112	1812	280
May	1352	1547	109	393	3365	794	1145	1331	381
June	1322	1521	381	1274	4711	405	1259	1750	317
July	1179	1371	86	436	3326	338	1205	2216	-385
Aug.	1342	1435	276	658	6067	76	1179	1860	356
Sept.	1512	1523	760	2016	6077	-494	1318	1564	-129
Oct.	1404	1585	227	-2098	1300	-1244	1356	2384	407
Nov.	1453	1321	268	292	3506	49	1183	1518	475
Dec.	1641	1941	788	2378	7058	-850	1372	2056	2125
Jan. 1957	1672	2019	417	869	5428	-298	1420	2777	2935
Feb.	1413	1387	425	297	3918	80	1275	2253	2851
March	1749	2128	1612	2158	8349	-922	2330	7931	2053
April	1525	1655	149	314	3874	479	1626	1932	1684
May	1470	2060	147	312	4242	-18	1321	1391	1318

*Excludes defence drawings. †Monthly figures are exclusive of expenditure in respect of Railways, Posts and Telegraphs and Defence.

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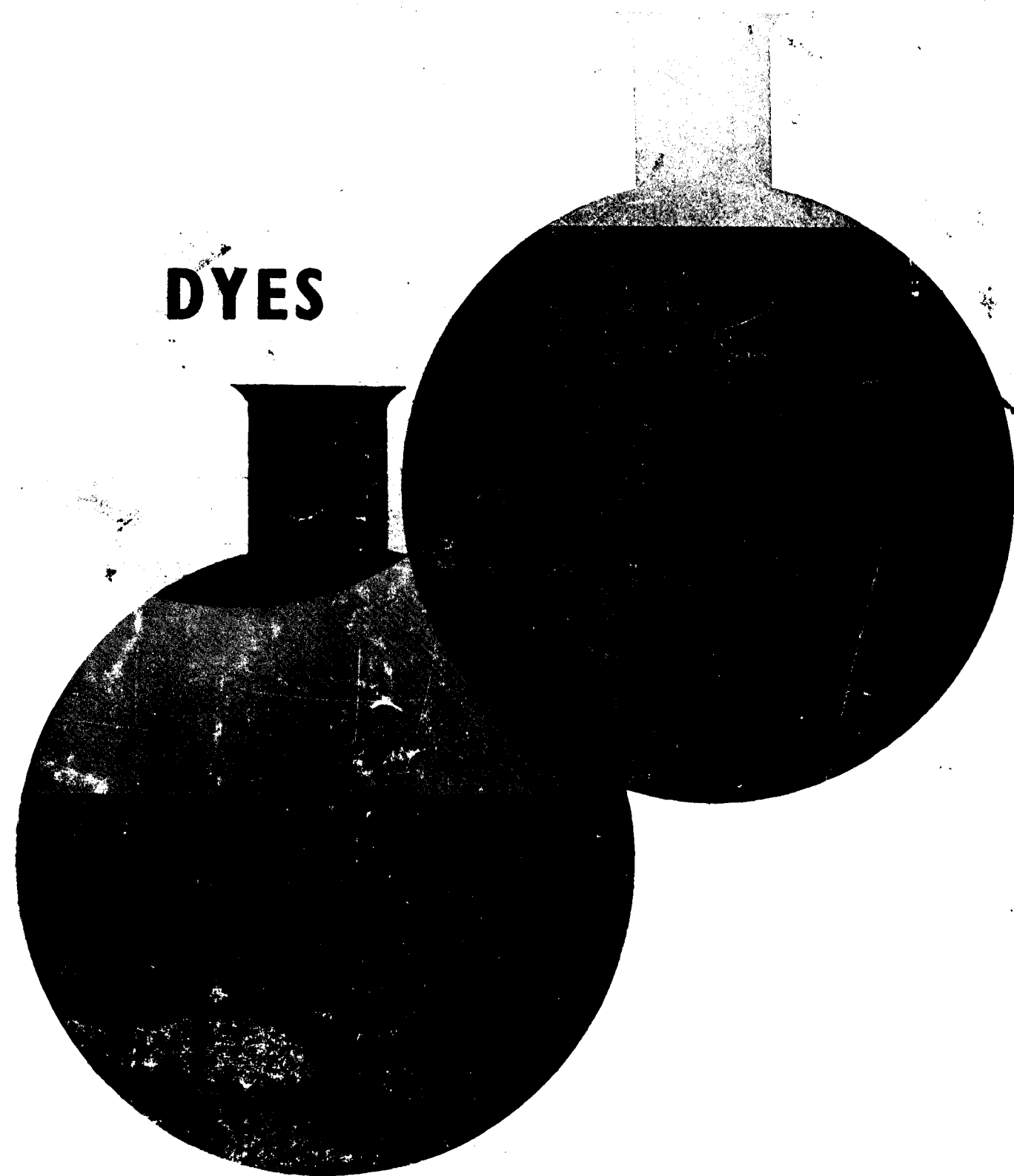
Indian Finance

STEEL SUPPLEMENT

ATUL



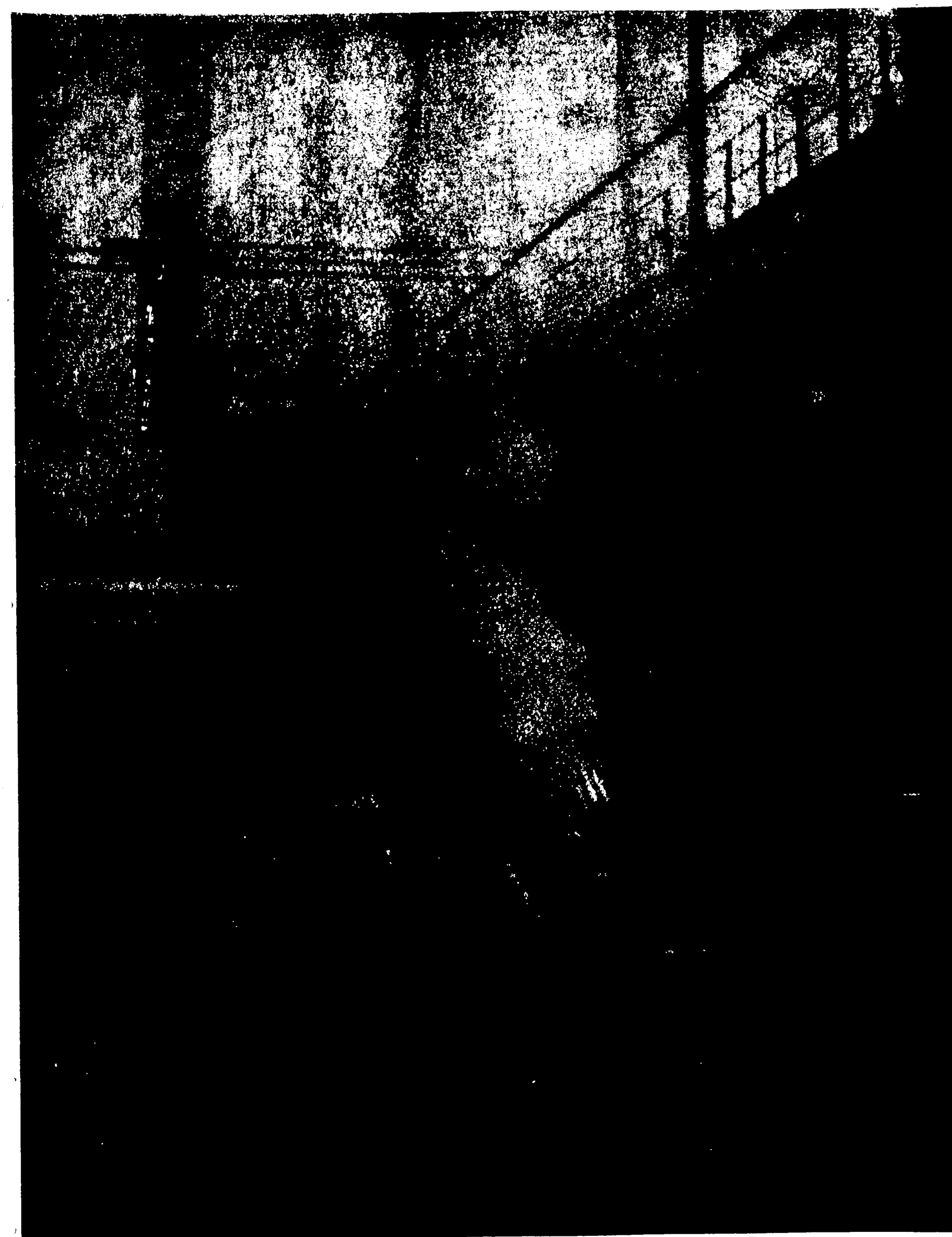
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ACKNOWLEDGMENTS

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The photograph of the Universal Mill, on page xi, is printed by courtesy of Siemag Dahlbruch, Germany.

The picture on page xii of cold rolling of light weight sections appears by courtesy of the Bethlehem Steel Company of USA.



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6 MILLION

Indian Finance

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INDIAN FINANCE
116, LOWER CIRCULAR ROAD,
CALCUTTA—14.

A Blue-print for Steel

THE measure of a nation's strength, in modern times, lies in its production of steel. The two successive world wars that the world was exposed to, in turn, gave rise to the axiom that steel was also the measure of a country's armed strength. But with the obsolescence of the conventional instruments of war, with the beginning of the nuclear age, steel no longer may be said to be the deciding and decisive factor in the military importance of any nation. It is partly coincidence that America, as the producer of, possibly, more atomic and nuclear weapons than any other country in the world, should also be the leading producer of steel. But, situate as we are in a time when there is the threat of annihilation by the dread weapons we have conjured up, world thinking has paradoxically concerned itself with the need to embark on development plans such as will so ensure the improvement in living conditions of a large proportion of the population of the world that, by our creating the conditions of peace, we shall be able to outlaw war. For India's part, the war that we are waging to the best of our ability is on poverty and want, sickness and disease. To this end, we have already had the First Five-Year Plan, which now has entered its last lap. India is not an undeveloped or under-developed country, but a semi-developed one. So, the task was the greater one when the framers of the first Plan set about their work a quinquennium ago. The basic needs, the needs that had first to be attended to, were in the agricultural sector. In that view, almost to the exclusion of industry, the first Plan's emphasis has been on development schemes and projects which were primarily embodied with an agricultural motif. Multipurpose river projects, above all, headed the list of development plans in the five years to 1956. That the Plan has been a success within the agricultural sector, it is now known. Within the limits of the target period, India has been able to attain self-sufficiency in foodgrains. The very fact of our success in this sector should now make us turn our mind to an industrialised India.

If the basis for peace is development, we have to appreciate that the basis for develop-

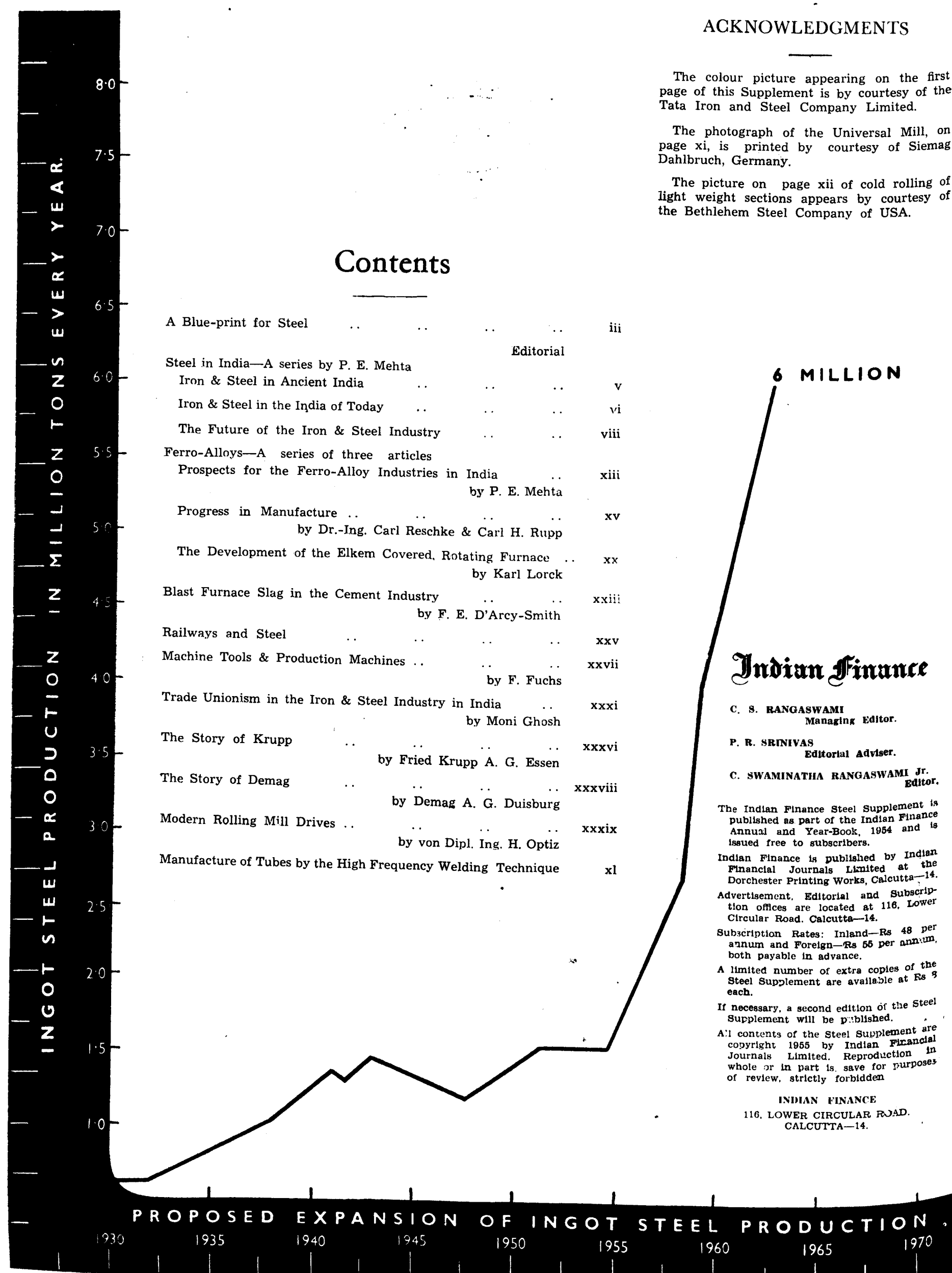
ment is steel. Thus, if we are open to the charge that, in past years, we have been neglectful of the opportunities for or of the vital need of expanding our steel production, there can be no doubt at all that we now must concentrate on multiplying our current steel capacity by three or four times within a relatively short time. That the Government are aware of the urgency of increasing steel production, has been attested by statements by Pandit Jawaharlal Nehru and Mr T. T. Krishnamachari. Both of them have, in recent months, reiterated the determination of Government to work to a target of 6 million tons ingot capacity by the end of the Second Plan. On the face of it, this would seem to be an over-ambitious target, since our current production is no more than 1.4 million tons. But, there are facts to reckon with which would indicate that the target is no figure arrived at by wishful thinking.

As it is, the Indian steel scene has been able to emerge from the stagnant state that marked the industry for a period extending over a decade. The existing producers of steel came forward with schemes for expansion which were duly considered and approved. Some part of the expansion has been completed. Some part of it is now under way, and a major scheme is still to be implemented. But the result of these will be to increase the ingot capacity to 2 million tons. Next, there is the concluded agreement between India on the one part and the German combine of Krupp-Demag on the other part which should yield a further one million tons of ingot steel. Finally, we have the negotiations between the Governments of India and the Soviet Union which have been concluded and which, on implementation, should yield yet another one million tons of ingot steel. All these aggregate 4 million tons of ingot steel. Over and above the schemes for which negotiations have been completed, we have the very real possibility that a steel plant will be erected with the cooperation of British Steel interests. The leeway, therefore, that would have to be made up may be only one million tons.

If anything, therefore, in light of the facts set out in the preceding paragraphs, we might

say that the targets set by Government in respect of steel are under, rather than over, ambitious. In fact, were it not for the complications and difficulties consequent to the desire on the part of the Government to have a major finger in the pie of future steel, the flow would have been smoother and the scope larger, in the expansion of steel capacity. It is not our purpose here to examine the merits or otherwise of restricting steel to the public sector; rather we are anxious that there be due recognition of the importance of steel to an Indian economy which will be striving to attain, within the next five year period, industrial development of a scope that has taken other countries a relatively longer period. In this light, we would urge Government to consider whether or not it is important that every incentive be provided towards increasing steel capacity. Of course, there would always be the reservation and qualification that the major holders in such steel ventures should be Indians. The Government view is, not only that the major holding is Indian, but that the major holding must be by Government. From the conditions in steel—and in the financing of steel expansion—as we have known them in the immediate past, we may make bold to say that the Government desire that there be a majority Government holding in Indian steel enterprises will be tantamount to ensuring that, firstly, the holding is all Indian and, secondly, that the holding is all government.

The record of private enterprise in Indian steel has been such as to deserve for it the reputation of having delivered the goods when called upon to do so. And yet, at every stage, the producers were hemmed in by a variety of controls. The producers were called upon to subsidise the imported steel. Were it not for the involuntary subsidy that had to be paid, we may be confident that the steel industry would easily have been able to find the finance required for achieving such expansion in steel capacity that the target now being thought of for the Second Five-Year Plan would have been but the beginning of it. But little good is served by emphasising the



'might have been' in steel. We are now sure that we shall be able to work to a target of 6 million tons ingot capacity for 1961-62. We are also reasonably sure that such targets are capable of being attained. We may also take it that any expansion achieved beyond the target would be a highly welcome windfall in steel. Nor is it difficult to envisage the future which might see such exceeding of the target ingot capacity. We have been careful, and we repeat, to qualify the statement that we could exceed the target by attaching to it the proviso that some sort of incentive is available for private enterprise to undertake expansion programmes or to embark upon new ventures with cooperation from Government.

The fact that Government, some considerable time after the industrial policy decision to reserve steel for the public sector, did approve schemes of expansion within the private sector should, we suggest, make possible a reconsideration of steel policy generally. While the right of Government to insist upon an exclusive monopoly in future steel capacity in India cannot be questioned, it would be well for Government to bear in mind that the ends—of attaining maximum steel capacity—is most important of all. Again, while it is generally recognised that utilisation of an inferior set of

means would not be justified by the importance of the ends to be achieved, in case of Indian steel, it can by no means be said that active participation of the private sector in steel expansion would be as an inferior means. On the contrary, as we have indicated in an earlier paragraph, the existing steel producers have done very well by India in spite of the hurdles and handicaps under which they had to work. We would, therefore, suggest strongly that the pattern of steel expansion in the country should be a partnership between the private and public sectors. It may not be possible for Government to retreat fully from their decision to have a monopoly in future steel. At the same time, it may be equally impossible for Government by themselves to take upon the task of achieving the full expansion of steel capacity that we have set for ourselves. It would, in this view, seem a happy compromise to have co-operation between Government and the private sector in the future of Indian steel. We consider that it is of the utmost importance for Government policy in steel to be reviewed in this light. For the speedy and sure attainment of targets we have set for ourselves, what we need, more in the realm of steel than in any other sphere of Indian industry, is cooperative co-existence between the private and public sectors.

The scheme we have in mind is one which would allow financial control—by which we mean a majority in the financial stake—gradually to come into the hands of Government. The rest of the finance would be found from a variety of interests, including the World Bank and private investors in India and abroad. This scheme, which was described at some length in an issue of Indian Finance some months ago, calls upon the Government to take up capital in new steel ventures in the form of convertible notes. This would allow of the fullest participation and cooperation of all the interests concerned.

In this special section, we have sought to trace the history of steel in India. We cannot, however, consider steel by itself. The more important of the ancillary industries are also discussed in the following pages.

For the technical supervision of this special section, we are indebted to Mr P. E. Mehta. Not only is his contribution of the series of articles on steel in India a comprehensive review of steel in the past and an intelligent projection of steel in the future; it is his efforts which are responsible for the compilation of the fulsome list of articles that go to make this steel section a fully rounded publication.

Iron & Steel in Ancient India

By P. E. MEHTA

Indian tradition thinks of the earliest age as Satya Yuga, the age of gold, the second as Treta, the age of silver, the third as Dvapara the age of brass, and the fourth as Kali, the Age of Iron.

The history of ironmaking is an important part of the history of mankind. While the exact origin of the use of iron is not well known, early men in some parts of the world made objects of worship and even crude tools from pieces of meteoric iron, which in those days were considered as gifts from Gods. The plentiful iron ore deposits scattered over the world went untouched for ages.

It is felt that it was after great forest fires that primitive men discovered that heated metals could be shaped into articles he needed. Most probably metalmaking had its origin in the domestic fires of the

Neolithic (New Stone) Age. Iron ore—generally found in combination with other elements—may have been reduced to metal when by chance it formed part of the stones which enclosed the fires. From such a lowly beginning came the giant furnaces used in making iron and steel to-day.

Iron was known to the Vedic hidus from the very earliest times. In the Rigveda there are numerous references to weapons made of iron and also other articles made in pre-Aryan times. From all such evidences it seems clear that the claims of India as the earliest manufacturer of iron on a considerable scale is well founded. If indeed, she was not the discoverer of the use of iron, she is entitled to the credit for the first producer of carbon steel (Wootz).

The Iron Age in India is put around 1400 to 1500 B. C. some 3000 years before it started in the western European countries. The centre of origin of the Iron and Steel Industry of the world is indicated in India, and there are distinct historical traditions and remains indicating a highly developed iron culture. Historians are of opinion that Hyderabad and southern Madras were the centres of production of Wootz, the ancient Indian steel which was known all over the world. It was carried by Indian merchants from India to Damascus and Toledo and was used for making swords and other armaments. It is these swords from which the word "damsence" derives, because this particular steel when forged and polished had the blue water mark resulting from the constitution of the steel. These swords had a world wide reputation because of their ductility and hardness and having a cutting edge, it is believed have never been surpassed if indeed equalled in modern times.

Indigenous Process of manufacturing Steel in India:

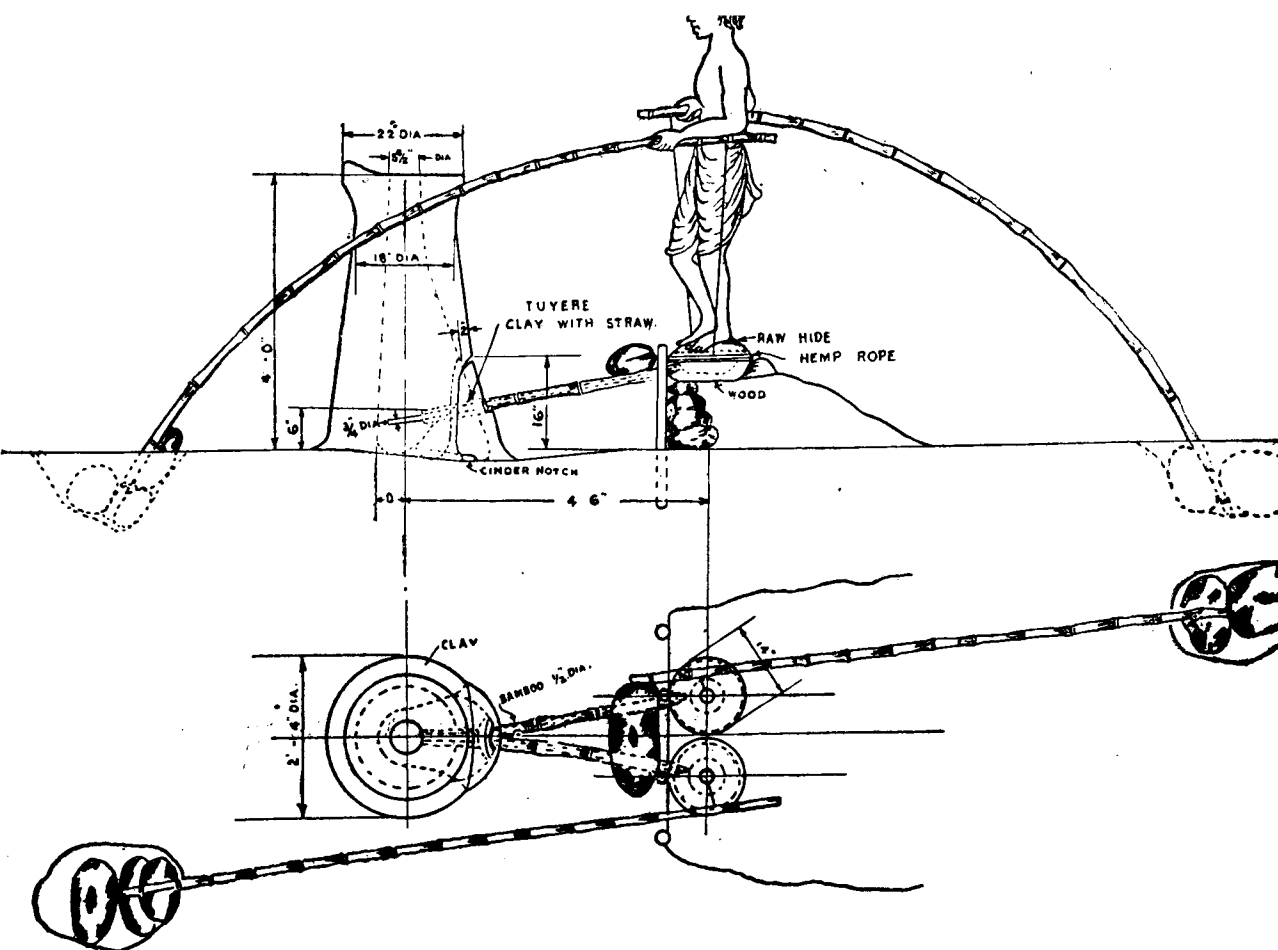
The process consist of manufacturing iron in a small furnace which has a hearth diameter carry-

ing from 24 to 26 inches, a height of 48 inches and a diameter of 18 inches at the tuyeres. In most cases the furnace is partly built and partly excavated from a low bank, so that only the fore part of the furnace has to be built of plastic clay, the back wall being smoothed off.

The operation of the furnace is hereditary and a special caste called Agharias or Pentais work the furnaces. The furnace was worked by a couple, generally husband and wife and the family helped from time to time. Before a new furnace was blown, charcoal had to be prepared for the heat. A special type of wood preferably the Avarram tree (Cassia auriculata) was selected and the required amount of charcoal made. Before blowing, the tuyere holes and the hearth is properly laid out and the whole furnace painted in white and red colours. A special type of siliceous iron powder was used which had only to be dug out by wooden implements. No flux was used and some of the impurities and the iron oxide formed the flux. Ore and charcoal are stacked at the back of the furnace which is the high line of the furnace, and from where they are pushed in little quantities in the furnace from time to time.

Air is pumped in the furnace by means of wooden bellows which are made of wooden basins, covered with a raw hide with a hole on top upon which the heel of the operator forms the valve. The hide is moistened with water to give better contact and keep it pliant, and a string connects it with a bent springing rod which pulls up the hide as the heel is lifted. The furnace is run from four to six hours.

The iron produced in the furnace is in the form of a pasty mass covered with fragments of charcoal and weighing 4 to 5 lbs. This is reheated in a second furnace under carburiding conditions and forged into a small disc or bar. The slag or the cinder has a high iron content as may be expected in



INDIGENOUS BLAST FURNACE

this process, and the steel contains some slag and fragments of charcoal.

The swords made from the above steel had remarkable qualities as the combination of a remarkable degree of flexibility and the ability to take such a fine cutting edge was due to the distribution and segregations of the iron and impurities into soft and hard lines which gave the steel the flexibility and a good cutting edge.

Except for old swords and armaments lodged in museums, the only vestige of the old Indian iron making art is the iron pillar near Kutab, at Delhi. The pillar is said to be wrought in the reign of Samudragupta, the second Gupta monarch in 330 A.D.

The analysis of the iron as taken from a small piece from the pillar is as follows:

C	0.08
Si	0.046
S	0.006
P	0.114

For over 1600 years the pillar has stood as a testimony to the excellent work of the Indian iron smelters as it does not show the slightest sign of corrosion. If some of the old armour and swords are properly analysed and tested we might get a proper idea of the hardening qualities of ancient Indian steels.

The ancient art of iron smelting in India has practically died out, except for isolated interior places

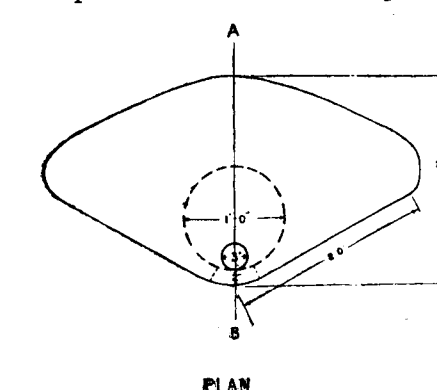
far remote from the railways, where steel and implements made by India's modern industry has not reached. With the large scale manufacture of iron & steel by modern processes in India, the descendents of the ancient iron smelters have taken up other vocations, except for a few isolated places where they still practice their hereditary art. Compared to the 1000 tons of iron that could be manufactured in the modern blast furnace, the 5 lbs made by the old methods makes a very poor comparison and is very uneconomic.

Analysis of Iron and Steel made by the Ancient Practice of Iron Smelting in India

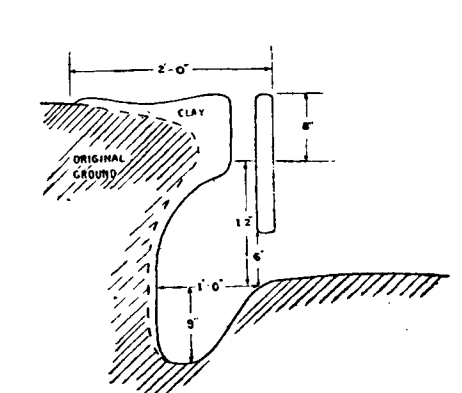
	Primary metal	Secondary metal
SiO ₂	3.18	0.24
FeO	18.8	..
Fe ₂ O ₃	..	..
Iron metal	71.63	99.43
Al ₂ O ₃	Trace	Nil
CaO	1.3	4.16
MgO	0.79	0.05
Mn	0.09	0.07
S	0.1	0.003
TiO ₂	Trace	..
P ₂ O ₅	0.05	0.01
C	0.51	0.11
C (free)	3.04	0.11
P ₂ O ₅	0.22	0.39

Analysis of Slags.

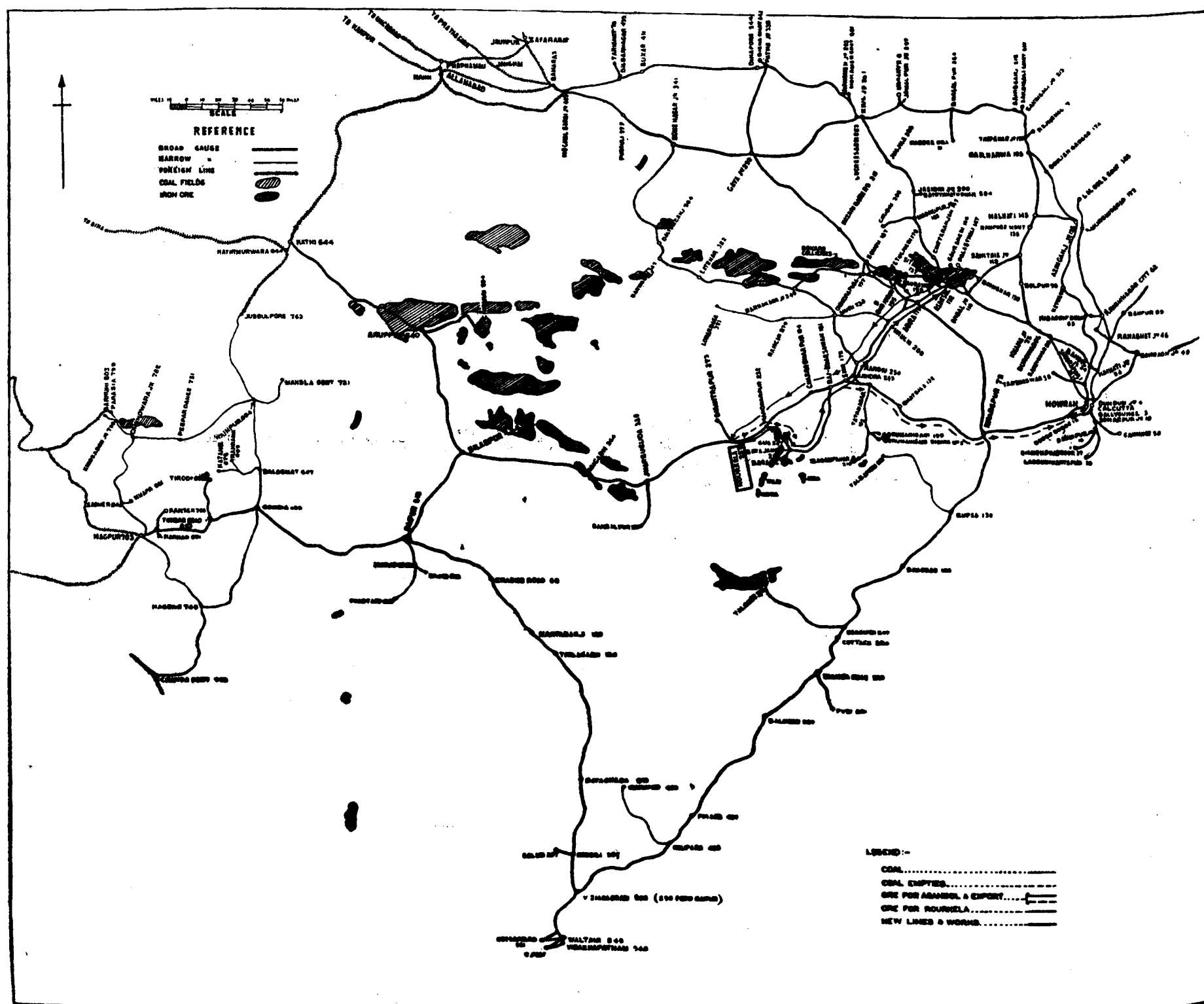
	Primary slag	Secondary slag
SiO ₂	5.50	32.14
FeO	37.7	35.43
Fe ₂ O ₃	..	..
Iron metal	48.46	10.9
Al ₂ O ₃	3.8	4.40
CaO	1.44	1.54
MgO	1.2	0.6
MnO	0.2	0.019
S	0.003	0.68
TiO ₂	0.42	0.41
C (free)	1.05	0.41



INDIGENOUS BLAST FURNACE.



SECTION AB



Iron & Steel

in the

India of Today

By P. E. MEHTA

In spite of a long and good tradition of craftsmanship in the manufacture and fabrication of iron and steel India was late in adopting modern methods of steel manufacture.

The first attempt to establish an iron plant on modern lines was made by a Britisher, Joshua Marshall Heath in 1837 at Porto Novo, Madras. Heath's furnace was capable of yielding about 40 tons of charcoal pig iron per week; but the whole venture had to be shut down in 1874 due to repeated troubles.

In 1875 an iron plant was established at Barakar in Bengal which in 1899 passed into the hands of the Bengal Iron & Steel Co. Ltd. and now is a part of Indian Iron & Steel Co. Ltd.

It was left to the ingenuity and genius of the late Mr. Jamshedji Tata to set up an integrated Steel Plant in India. Little did Jamshedji realize that he was laying the foundation of the industrial revolution in India and an industry which may put his country in the forefront of industrial nations of the world. Jamshedji was a great patriot who believed that a firm economic foundation was necessary to his country to gain its ultimate goal of Independence. Today 50 years after the preliminaries of the first integrated Steel Plant on modern lines was settled, India produces one of the cheapest steel in the world.

There are at present the following three integrated steel plants and their capacity is as shown below:

	Tons ingot capacity
(1) The Tata Iron & Steel Co., Ltd., with its Works at Jamshedpur	950,000
(2) The Indian Iron & Steel Co., Ltd., with its Works at Burnpur and Kulti	330,000
(3) Mysore Iron & Steel Works with its plant at Bhadravati	30,000

All the above plants are expanding their capacity and rehabilitating their plants and after their expansion programme are complete their capacities will be as follows:

	tons ingots
(1) The Tata Iron & Steel Co., Ltd.	1,300,000
(2) The Indian Iron & Steel Co., Ltd.	750,000
(3) Mysore Iron & Steel Works	100,000

Over and above the three integrated steel plants, there are a number of re-rollers and small electric smelters, and their combined capacity is about 150,000 tons per year.

The present annual finished steel production in India of the different categories of steel is as follows:

	Tons
Blooms for Sale	10,000
Billets for Sale	171,000
Rails and Heavy Structural	240,000
Merchant Mill Products	238,000
Light Structural	45,000
Plates	72,000
Sheets	237,000
Wheel Tyres and Axles	28,000
Sleepers	26,000
Miscellaneous	32,000
Total	1,100,000

Expansion Programmes:

The expansion programmes of the three integrated Steel Plants (TISCO, IISCO and Mysore) will increase the capacity of the country by half a million tons and an output of 350,000 tons of the new State-managed plant to be located at Rourkella, the production of finished steel in the country is

expected to be 1950,000 tons by the end of 1958. This will still be short of the requirements, as the projected demand in 1955-56 is expected to be 2.66 million tons.

Expansion Programme of TISCO:

The Tata Iron & Steel Co. Ltd. have a rehabilitation, modern-

M.E.P.	CAPITAL EXPENDITURE—1951-58. (TISCO)	
	Capital Cost Rs. lakhs	Completion Date
New Coke Ovens	160	September, 1953
New Steel Melting Shop	740	1957
Blooming Mill improvements	368	December, 1957
Plate Mill improvements	223	April, 1956
Renovations to Calcining Plant	49	January, 1956
Steam and Power Extensions	375	September, 1956
New Skelp Mill	325	
New Tube Mill (TISCO's share)	98	
	2,338	
Normal Capital Expenditure (Works, Town and Collieries)	1,925	
Total	4,262	

Apart from increasing their production, Tatas are going in for a Skelp Mill for the manufacture of skelps. This will be the first of its kind in India and will feed the new tube mill which is a joint enterprise of Tatas and Stewart & Lloyds. The mill will be worked by a new company called Indian Tube Company (1953) Limited. Tatas with their associates hold 60 per cent of the share capital in the new company and Stewart & Lloyds 40 per cent.

Mysore:

The expansion programmes of the

In a nutshell the expansion programme consists of the following:	
Blast Furnaces	Two new units
Coke Oven Plant	two new batteries
Steel Melting Shop	Ingot capacity to be doubled from the present 450,000 tons to 900,000 tons
Mills	no new mills to be put up
Finished Products	700,000 tons of finished steel for sale
	400,000 tons of pig iron for sale
Total Expenditure involved	Rs. 36 crores

ization and expansion programme, and their total production of finished steel when their present expansion programme is complete will be 932,000 tons. They are putting up a new skelp mill and open hearth plant and a tube mill in co-operation with Messrs. Stewart & Lloyds.

Steel Supplement

Future Finished Steel Capacity of the three integrated Plants ('58).				
Products.	TISCO.	IISCO.	Mysore.	Total
Blooms for Sale	10,000	..	..	10,000
Billets for Sale	146,000	254,000	..	400,000
Rails and Heavy Structural	200,000	116,000	..	316,000
Merchant Mill Products	154,000	100,000	70,000	324,000
Light Structural	45,000	20,000	..	65,000
Paid	72,000	..	..	72,000
Narrow Strips and Hoops	22,000	..	..	20,000
Sheets	159,000	90,000	..	249,000
Pipes and Tubes	50,000	..	..	50,000
Wheels, Tyres and Axles	38,000	..	..	38,000
Sleepers	36,000	..	..	36,000
Total	932,000	580,000	70,000	1,582,000

Demand for Steel in the country:			
The demand target set by the different products by 1955-56 is as follows:			
Primary Products	Yearly requirements in tons.	Primary Products	Yearly requirements in tons.
Blooms & Billets excluding semi for re-rollers	88,000	Wheels, Tyres & Axles	38,000
Heavy Structural	250,000	Pipes & Tubes	75,000
Heavy Rails	250,000	Sleepers	65,000
Light Structural	250,000	Secondary Products:	
Fish plates	10,000	Bolts, Nuts & Rivets	50,000
Bars	500,000	Barbed Wire	3,000
Rods	200,000	Wire Nails	24,000
Plates	200,000	Misc. Wire	20,000
Narrow Strips & Hoops	30,000	Tool Steel	2,000
Black Sheets	200,000	Spring Steel	56,000
Galvanized Sheets	200,000	Miscellaneous	56,000
Corrugated sheets	75,000	Total	2,720,000
Tin Plates	150,000		

Deficit of Steel in 1955-56.			
Products.	Future Demand 1956	Steel Manufactured in country after expansion on programmes are completed in	Deficit
Blooms, Billets and Bars	588,000	410,000	178,000
Heavy Structural	500,000	316,000	184,000
Fish Plates	30,000	..	..
Light Structural	250,000	65,000	185,000
Plates	200,000	72,000	128,000
Sheets all Categories	475,000	249,000	226,000
Tin Plates	150,000	80,000	70,000
Pipes and Tubes	75,000	75,000	..
Wheels, Tyres and Axles	80,000	26,000	54,000
Railway Sleepers	65,000	36,000	29,000
Bolts, Nuts and Rivets	50,000	27,000	23,000
		(Merchant Mill Product)	
Barbed Wire	3,000	..	..
Wire Nails	24,000	..	..
Misc Wire	20,000	..	..
Spring Steel	18,000	..	..
Tool Steel	2,000	..	..
Miscellaneous	100,000	..	..
Total	2,720,000	1,586,000	1,135,000

Financial Trends in the Industry:

The Iron & Steel Industry was the first heavy and basic industry started by private enterprise and is still controlled by private enterprise. It has passed through many vicissitudes but the Tata Iron &

Steel Co. Ltd. has continuously paid dividends for the last 20 years and shared its profits with the workers. A comprehensive study of the financial trends was made by the Association of Indian Trade and Industry and a brief summary of their findings is given below.

Capital Formation:

The capital formation in the industry at book value between 1938-1951 is Rs. 16.07 crores.

Sources	(Rs. crores)	Uses	
1. New Issue of shares	2.91	1. Net Block added	8.50
2. Free Reserves	13.16	(a) Gross block added	33.85
		Less:	
		(b) Depreciation	25.35
		2. Current Assets less liabilities	7.57
		(a) Investments	15.95
		Plus:	
		(a) Investments	15.95
		(c) Liquid Assets	0.03
		Less:	
		(d) Loans & Debentures	2.82
		(e) Payables	16.85
Total	16.07	Total	16.07

Sources and Uses of Capital Funds

How the funds were obtained	(Rs. crores)
1. New Issues of Shares	2.91
2. Reserves	38.51
(a) Depreciation	25.35
(b) Free Reserves	13.16
3. Debentures & Loans	2.83
4. Payables	16.85
Total	61.10

Real Net Capital Formation

Sources.	Rs. Crores.
(a) Free Reserves	15.96
1. Paid-up Capital	4.37
2. Reserves	17.97
(a) Free Reserves	15.90
(b) Initial Depreciation	2.01
3. Capital Erosion (Residential)	—25.50
Total	3.16

Sources of Capital Funds:

(1) Stock Capital.

During the period 1937-51 paid-up capital of the industry increased by Rs. 2.91 crores, from Rs. 16.71 crores in 1937 to Rs. 19.62 crores in 1951. About half of this increase was due to the conversion of debentures into preference capital. A good proportion of the present capital is in the form of preference shares some of which bear 7½ per cent interest.

Paid-up Capital at Book Value:

	Additions	1937	1938-51	1951
Ordinary shares	7.05	1.43	8.48	
Preference shares	8.89	1.50	10.39	
Deferred shares	0.14	—	0.14	
Premiums on shares	0.63	—0.02	0.61	

Profit Trends in the Industry:

The book value of the profits of the industry during (1937-51) amounted to Rs. 116.62 crores, and depreciation according to books was Rs. 28.94 crores. This brings the net profit i.e. profit after depreciation but before taxation to Rs. 87.68 crores. The Government took the lion's shares in taxation of Rs. 39.76 crores, leaving a balance of Rs. 47.92 crores. Out of this Rs. 36.28 crores have been distributed as profits and about Rs. 11.64 crores, the net saving of the industry was credited to free reserves. Thus about 24.7 per cent of the gross profits were set aside for depreciation, 33.9 per cent provided for tax, 30.9 per cent paid as dividends and 10.5 per cent carried to free reserves.

1938-51:

How the Funds were used	(Rs. crores)
1. Plant and Equipment	33.85
2. Inventories	15.95
3. Liquid Assets	0.03
4. Receivables	11.27
Total	61.10

At constant (1951) Prices.

Uses	Rs. Crores
1. Net Fixed Assets	—1.35
(a) Gross Block added	50.78
(b) Normal Depreciation Provision	52.13
2. Current Assets (less Liabilities (a) (b))	—1.81
(a) Current Assets	0.15
(b) Inventories	9.21
(ii) Liquid Assets	—17.09
(iii) Receivables	8.03
(c) Liabilities:	
(i) Loans and Debentures	5.59
(ii) Payables	7.45
Total	3.16

Taxation Policy:

Since 1948, the tax law adopted the principle of accelerated depreciation allowances allowing the writing-off of fixed assets acquired since 1948 at a rate of depreciation much higher than the normal rate. Although that enables the industry to obtain finances for replacing fixed assets for the time being, it works out in effect only as a system of deferred tax payment, and does not compensate the industry for the over-taxation and capital erosion that has occurred so far. It is felt that the industry could be compensated for the loss of capital through a general reduction in the rates of income-tax and super-tax.

Price Policy.

The industry has been under rigid price control since the time of the war, and has been receiving a retention price, considerably less than the statutory selling price. The difference between the retention price, which the companies get, and the selling price, which the consumers have to pay, is credited to a equalisation fund, the avowed purpose of which is to subsidise imports and equalize the prices of indigenous and imported steel. The actual imports of steel being much less than domestic production, there have been accumulations in the fund.

In fixing the retention prices, the Tariff Commission had been recommending, till recently, a return of 8 per cent on gross block, on gross fixed assets, to cover the expenditure on taxation, managing agents' remuneration, a part of the profit sharing bonus to labour, and also dividends and provision to free reserves. This is by no means an adequate compensation in an industry where the capital investment per man is very high.

The Future of the Iron & Steel Industry

By P. E. MEHTA

THE Iron & Steel Industry is the back-bone of the industrial system of all modern States. Compared to a capacity of 120 million ton ingots per year in U.S.A. 40 million tons in U.S.S.R., 20 million tons in Germany and U.K. and 6 million tons in a small principality like Luxembourg, India's production of 1.2 million tons a year is a glaring indication of her industrial backwardness.

India is endowed by nature with almost all the raw materials required for a large scale Iron & Steel Industry. Her reserves of high grade iron ore is the highest in the world. In comparison to the large scale reserves of ores, however metallurgical coal is found in rather limited quantities but this should not worry us, as due to advance in modern technology, the blending of non coking coal with coking coal and making coke out of non coking coal is in the realm of commercial possibilities. India has ample reserves of limestone, dolomite, manganese, refractory materials, and other minerals required for the Iron & Steel Industry. This country is rather deficient in flourspar, zinc, and tin for galvanizing and tinning and some less frequently used alloying elements.

Most of the raw materials are situated in a reasonable radius and on a study made by U.N.O. of the world Iron & Steel Industry on a ton mile basis for assembly of raw materials for the manufacture of one ton of pig iron, India is very favourably placed.

Government Policy:

The Government of India were well aware of the importance of the Iron & Steel Industry for the future development of the country and a Major panel was set up in 1946 to advise the Government, for the expansion of the Industry. The Iron & Steel Major Panel (1946) recommended for the setting up of two new Steel plants, and the Government of India invited three firms of foreign consultants in 1948 to advise them in implementing the recommendations of the Major Panel. The consultants submitted detailed reports as to the location, the programme of manufacture, the facilities and the capital expenditure and cost of production. The National Government, being pre-occupied with political consolidation and having undertaken large scale River Valley projects and their resources in men and material being overstrained could not

take a quick decision for the expansion of the industry. In 1952 an offer came from Japanese sources for co-operation for setting up a pig iron and steel plant, but after prolonged negotiations the parties could not come to a decision and the matter had to be dropped. Attempts to set up a Steel Plant in the private sector by a well known business house with participation of foreign capital did not materialise. In early 1953, two engineers from the World Bank were called to bring the calculations submitted by the three firms of Consultants up-to-date. But it was on August 15, 1953 that the Government of India signed a contract with the world famous firms of Friedrich Krupp, and Demag A.G. to set up a Steel Plant in the country. This was a beginning after five years of intense negotiations all over the World. In the wake of the agreement with the German firms, the Government of U.S.S.R. approached the Government of India in the middle of 1954 to set up a Steel Plant. A high power mission was sent to India in November 1954, and a project report has been submitted by the Russians. At the time when the Russian proposal was being considered by the Government, a combine of British firms called the Metallurgical Equipment Export Company approached the Government, through a well known firm of Managing Agents to set up a Steel Plant. The offer from the combine is backed by complete guarantees from the British Government, and the British offer made directly to the Government, in the beginning of 1955 has been accepted in principle, and a British technical mission is expected shortly. Thus from 1953 the Government of India has taken intense interest in the expansion of this basic industry by trying to enter into bilateral agreements with Germany, U.S.S.R. and U.K.

Whilst all efforts were made to set up new Steel Plants under the Public Sector, the Private Sector was more or less neglected. Offers to set up new steel plants under the private sector were not given favourable consideration. It is now said that the Government, is going to interpret the 1948 Industries

Policy resolution very strictly, and that in all future expansions in the Steel Industry, in new or existing units the Government, will have major control. Whilst seeking international co-operation and making bi-lateral agreements, it is regrettable that the Government, did not ask for co-operation within the country. We feel that the Government, should seek the co-operation of private enterprise in giving its experience in the local technical know how, and also its vast managerial, administrative, secretarial and other experience in running large commercial enterprises. To our mind this neglect was mainly due to the private and public sector being under two different ministries, and we think that it may be possible to treat the private and public sector on the same basis under one Ministry in the interest of the industry and the country. The Government of India has fixed the target for Steel production in the country to six million ton ingots per year and this target can reasonably be achieved by 1963.

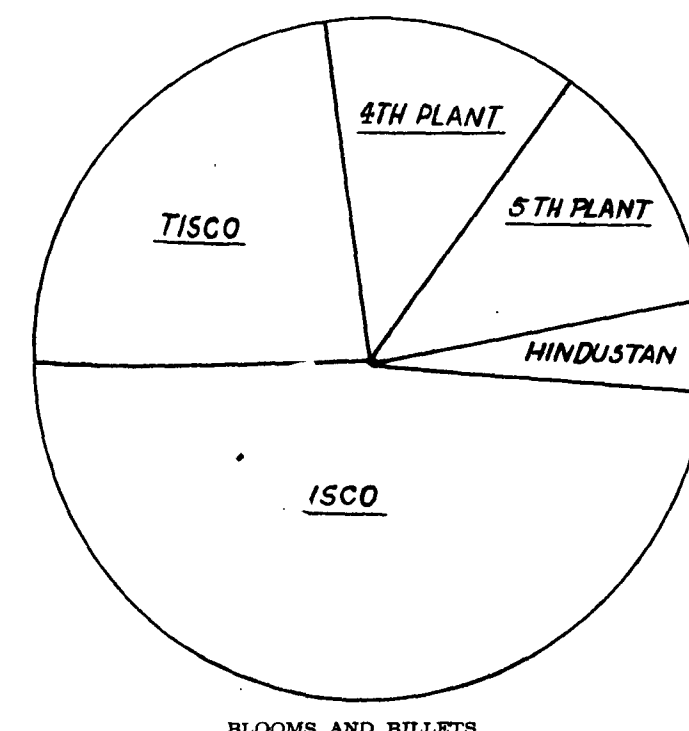
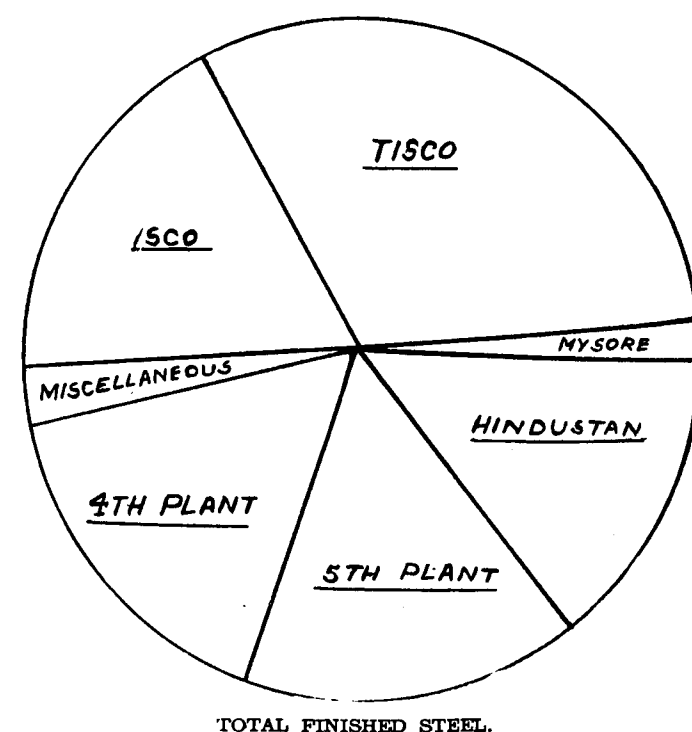
The Third Steel Plant: (Rourkella plant by Krupp-Demag Combine)

We give below a summary of the terms and conditions under which the German combine will co-operate with the Government, of India in setting up a plant at Rourkella (Orissa).

(a) An Indian Company known as the Hindustan Steel Plant Ltd. with an authorised capital of Rs 100 crores (250 million dollars) to own and operate the Steel Plant.

(b) The German Combine will contribute the share capital in Deutsch Marks not exceeding Rs. 10 crores (20 million american dollars). The German investment will be related to the volume of orders placed in Germany and will be determined in accordance with the following formula:

Value of orders	German Investment per cent
(i) Up to the equivalent of first 10 crores	25
(ii) Up to the equivalent of second 10 crores	30
(iii) In excess of Rs. 20 crores	33-1/3



(c) A Board of Directors will be constituted in which the Government of India and the German Combine will have representation proportionate to their respective investment. The Chairman and the Managing Director will be the nominee of the Government of India.

(d) The company will be run on prudent commercial lines

(e) The Combine are appointed as Technical Consultants to the Government in

(i) selecting the most suitable location for the Works within the Union of India

(ii) investigating and advising on the process for iron & steel production best suited under the prevalent conditions

(iii) preparing a preliminary study comprising the general layout of the Works as well as the township appurtenant thereto, but excluding the detailed designing of the components of the township, details being included as to what quantities of energy (gas, water, electricity, etc.) will be required by the township and its administration

(iv) preparing an estimate of the investment capital required and the quantitative estimates of the materials and power required for the works, and

(v) preparing the final project report for the works including the general layout of the township

(f) The Works shall consist of the following departments:

(1) Coke Oven Plant with a capacity to produce the metallurgical coke required

(2) A blast furnace plant and auxiliary equipment to produce the quantity of pig iron required

(3) A steel plant with sufficient capacity to utilize all mill scrap, for an output of 500,000

tons of steel ingots per year, facilities for casting, handling, and stripping ingots and/or slabs

(5) soaking pits with a sufficient capacity

(6) a slabbing mill with a capacity to roll not less than 3000 tons of ingots per day,

(7) Reheating furnaces for slabs having a capacity of 100 tons per hour

(8) a single stand four-high reversing 110 inch plate mill with auxiliaries arranged to roll finished plates or to operate as a roughing mill for the production of hot rolled strip,

(9) a continuous finishing mill for the production of hot rolled strip consisting of six stands 66" wide and arranged to produce flat thin plates or hot rolled strip in coils,

(10) straightening rolls, shears and other auxiliaries required for finishing plates and strip

(11) cold rolling plants with a capacity of 120,000 tons per year, consisting of the following items:—

(i) a continuous pickling unit

(ii) a reversing four-high 66" cold mill and auxiliaries

(iii) annealing furnace for cold-rolled coils,

(iv) a skin pass mill for annealed coils,

(v) shearing, slitting, cold forming and other finishing equipment.

(12) plants for the production, supply and transmission of water, power and gas for the Works and the township,

(13) plants for the recovery of by-products,

(14) repair and other auxiliary shops

(g) The Combine will receive a fixed fee in D Marks of 18.9 millions (Rs. 2.3 crores), but this sum may

be drawn at their option in Indian Rupees or Pounds Sterling convertible into D. Marks. The fixed fee shall be payable in several instalments corresponding to the progress of services rendered detailed below:

	D. Marks million
(i) On the signing of the Agreement for preliminary expenses	1
(ii) On submission of the preliminary study	1.3
(iii) On submission of the final Project Report complete with designs, layout of the plant and all other ancillary services	3
(iv) Monthly payment for 48 months at 200,000 D Marks, commencing January 1954.	9.6
(v) On commission of the Works and proof of the contracted performance and capacity of the Works.	4
Total	18.9

(h) Subject to the contractors entrusted with the supplies and services in connection with the erection of the Works having duly fulfilled their respective supply and service contracts, the Combine shall guarantee that in the Works established on the basis of its plans and recommended processes the capacity namely, 500,000 tons of ingot steel rolled into 360,000 tons of finished steel per annum will be attainable, provided all facilities for the operation are available. This guarantee will be fulfilled by the proving of the contracted performance and capacity of the individual groups of equipment immediately after the completion of erection on the basis of the requisite testing-certificates drawn up by the Government, the Combine and the respective supplier, and by the demonstration over a period of 3 months of the combined operation of the whole plant that the plant can attain planned production. In addition, the Combine will continue to

place its advice at the disposal of the Government, until the expiry of seven years from the signing of this Agreement unless the Combine has fulfilled its obligation earlier.

(i) All claims under this Agreement against the Combine shall be limited to the full amount of the consulting fee.

Whilst the Consultants and the Government must have considered all aspects for locating the plant at Rourkella, we still feel that its location nearer the iron deposits at a location near Bonaigarh should have been preferred.

The Fourth Steel Plant:

Since the Third Steel Plant at Rourkella will only manufacture flat products, we suggest the following mixed programme for the proposed Fourth Plant:—

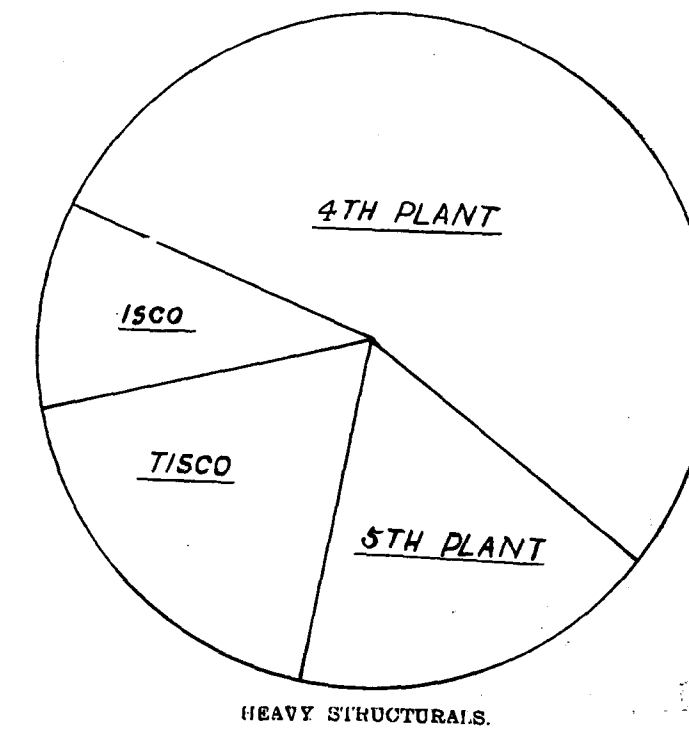
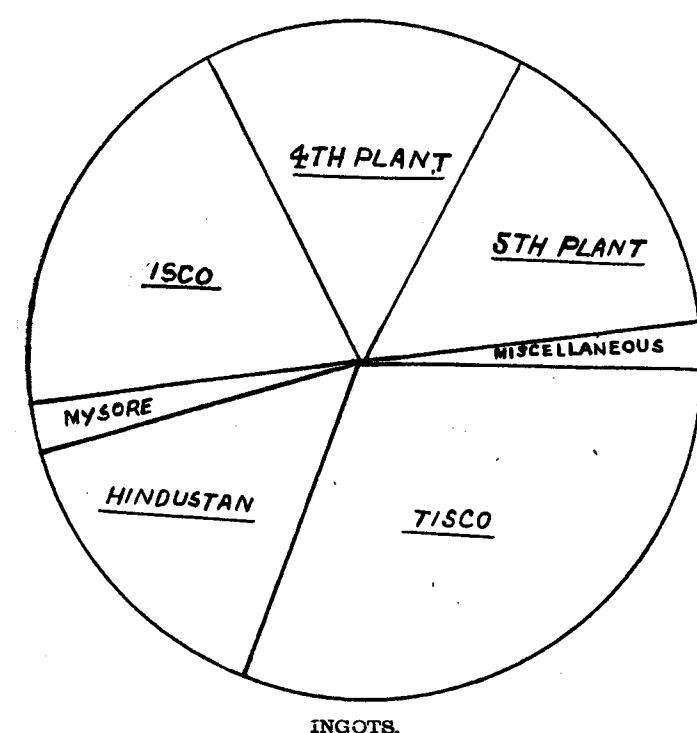
Proposed programme of Production:	
Pig Iron	800,000 Tons
Ingot Steel	1,000,000 Tons

Finished Products:

Medium Structural & Junior beams,	250,000
Heavy structurals, wide flanged beams & channels	260,000
Rails	150,000
Blooms & Billets	100,000
Total	760,000

The plant should have the following facilities:—

- Coal beneficiation plant, consisting of crushing, screening, washing and blending departments
- Coke oven plant with by-product department (an additional battery of coke oven be established for the manufacture of low ash, low phos coke for use in the ferro-alloy and other industries)
- A Blast furnace plant with auxiliaries and ancillaries to produce 800,000 tons of pig iron
- A Steel Plant to produce 1,000,000 ingot tons of steel



annually with auxiliaries and ancillaries

- (e) A Blooming Mill including stripper yard and soaking pits to handle 1,000,000 tons of ingots
- (f) A combined medium section and merchant mill to roll medium sections, Junior beams etc.,
- (g) A heavy Mill, for rolling wide flanged beams, channels and rails
- (h) A Power Plant
- (i) Workshops for maintenance and repairs
- (j) Water supply and sewerage plant
- (k) A township with the necessary facilities

In the mixed programme that we have suggested for the Fourth Plant we have included the manufacture of Junior and Wide flanged beams. These are not at present manufactured in the country and the I.S.I. are standardising the same. The present sections manufactured in India were standardised about 60 years ago taking into consideration the rolling mill practice at that time. The old mills either steam or water driven were mostly three high and running slowly, so that the bars were cooled down at the finishing end as the end temperatures more or less dictates the thickness of the different parts, so the designs were made on that basis. These sections were to a certain extent clumsy, as the distribution of steel in the cross section did not correspond to the calculated figures.

As to-day we have electrically driven high speed mills, working with high pressures and as the end temperatures of the bar can be controlled, we are now in a position to roll the sections economically. For the first time in 1924, Messrs Jones and Laughlin Corporation of U.S.A. under took to manufacture junior beams in a continuous mill of 14" diameter. In this mill are also rolled normal and light structurals, light U-shapes, angles, flats and special sections;

In comparison to normal shapes, the light structurals save 30 per cent or more in weight for the same static properties. It is therefore felt that these be manufactured in the country.

The wide or the parallel flanged beams have been designed and standardized in Germany about 30 years ago and are also manufactured in U.S.A.

The junior beams will have to be rolled in a continuous mill where the different stands are individually driven by electric motors and where their speeds can be precisely regulated. For the manufacture of wide flanged beams and channels a heavy universal mill with horizontal and vertical rolls will have to be used.

In the field of Steel economy and manufacture and design of light weight sections, the pioneering efforts of Dipl. Engr. O.G.F. Paulsen Von Lunebourg of Bombay are getting recognition. The I.S.I. Committees with Mr. Paulsen Von Lunebourg as Chairman are standardising the different sections.

Fifth Steel Plant:

The Fifth Plant should diversify the products manufactured in the first four and its location and programme be so made as to keep in mind the export of steel from India. This plant should manufacture quality steel, as this is not manufactured in India. This steel is necessary for the manufacture of machineries and capital goods.

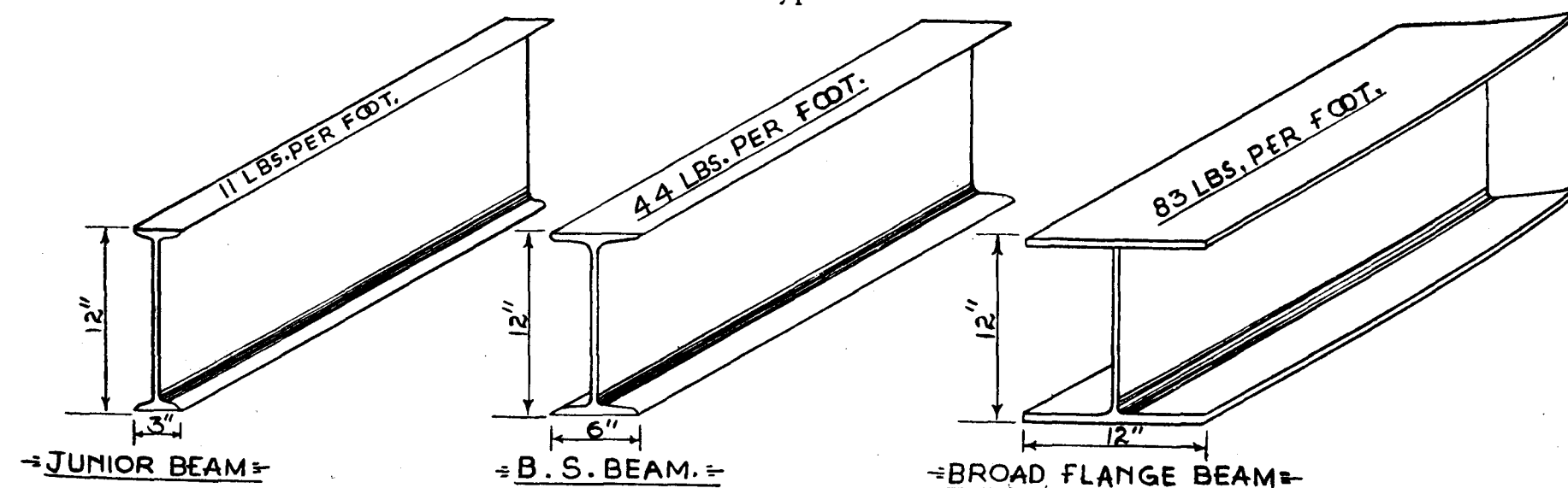
Proposed programme of manufacture

Pig Iron	800,000
Ingot Steel	1,000,000

Finished Products:

Heavy Structurals	90,000
Medium Structurals and flats	125,000
Quality Steel and Tool Steel, rolled and forged to meet the requirements of the automobile and machine industry	150,000
Merchant Products and wire rods	300,000
Blooms and Billets	100,000
Total	785,000

Different Types of Beams



The Plant should have the following facilities:—

- (a) Coal beneficiation plant, consisting of crushing, screening, washing and blending departments.
- (b) Coke oven plant with by-product departments.
- (c) A Blast furnace department with auxiliaries and ancillaries to produce 800,000 tons of pig iron
- (d) A Steel Department to produce 1,000,000 ingot tons of steel annually with auxiliaries and ancillaries
- (e) A Blooming Mill including stripper yard and soaking pits to handle 1,000,000 tons of ingots
- (f) A Heavy mill for rolling heavy sections. Reheating furnaces and finishing departments have to be provided
- (g) A combined medium section and merchant bar mill. Facilities have to be provided to roll quality steels which have to be cast in small ingots including the reheating furnaces and finishing departments
- (h) A forging department for plain and drop forging
- (i) A power plant
- (j) Work shops for maintenance and repairs
- (k) Water supply and sewerage plant
- (l) A township with the necessary facilities

We feel that in view of the programme envisaged the British should be asked to build up this plant. The British have a tradition of manufacturing quality steels (Sheffield Steel is known all over the World) and they would do a good job of it without any doubt of contradiction. The importance of forged steel for the future development of the country cannot be overemphasized.

Designing of Plants and Manufacture of facilities:

We strongly feel that designing of future Steel Plants should be made in the country, and Calcutta may be the right locale for the Designing Office. Indian Engineers

should be associated in the designing from the beginning and all efforts should be made to manufacture a part of the equipment in the country. Japan which started manufacture of Steel by the turn of the twentieth century is now in a position to supply complete Steel Plant facilities to other countries, whereas we in India have always to depend on foreign technicians and designs and even FOREIGN ENGINEERS AND CONCERNS ARE ASKED TO SUPERVISE INSTALLATIONS. Unless this attitude is changed immediately, India should not expect to make the right progress and industrialize herself in the right sense. Private enterprise with an eye towards ultimate profits and gain alone and because of their connections with the manufacturers of equipment abroad has not given much thought to this aspect of national development. One of the most salient features of the Russian offer to set up a Steel Plant in the country is that they would try to take and manufacture as much equipment possible in the country.

A brilliant Indian engineer has designed recently a 1000 tons Blast Furnace and is at present designing a 1500 tons Blast furnace. Indian consulting and other engineers and few foreign engineers who have experience with the existing plants should be associated with the designing of New Plants in the country.

Rationalisation and Mechanical Maintenance:

It has become a fashion now-a-days for Ministers, business leaders and labour leaders to give a slant on rationalisation in their policy speeches. There is a great deal of confusion in many quarters and it is not made clear that mechanization cannot create extra jobs on the spot to absorb the surplus labour but transfer of labour to new avenues, new surroundings and new jobs have to be made. There is no doubt that during the transition period during which rationalization is completed a certain amount of hardships is unavoidable and with all intentions of smooth changeover this cannot be avoided. The Government should make it clear that, though it is its responsibility to try to get every adult a job, the choice of the location and

ROLLING PROGRAMME FOR JUNIOR BEAMS.

Dimensions	lbs./ft. Weight	inch 2 Area	Vertical Rad. of Axis Inch	Horizontal Axis Inch	Interior Mon. of Inch	Section Modul Inch 3
h Inch	b Inch	t Inch				
6	1.85	0.11	4.16	1.22	0.3525	2.353
7	2.04	0.12	5.10	1.50	0.3784	2.722
8	2.23	0.13	6.12	1.80	0.4046	3.086
9	2.42	0.14	7.23	2.13	0.4307	3.449
10	2.61	0.15	8.42	2.48	0.4571	3.809
11	2.80	0.16	9.74	2.86	0.4827	4.171
12	2.99	0.17	11.13	3.27	0.5080	4.531

the type of the job will depend upon the capability of the person. In case of rationalization of industry, if any employee is not prepared to take on alternative employment in another location, the employers should be given the right to discharge. The employees difficulties are for accommodation at a new place, living in a new surrounding, educational difficulties for his children due to regional languages and many others, but in many instances he stands chances of quicker promotion in a new place than in places where there are too many persons of seniority.

We would like to quote a passage from the Report of the Ford Foundation which states:

"Without rationalization, the natural talents of Indian workers and craftsmen are being wasted in a hopeless race against modern technology. Unless and until these workers are helped to produce more goods and more wealth, neither wages nor living standards can be raised. You cannot divide what you do not first produce.

To prevent rationalization, to stop the process of modernization, is not only illogical, but it will force stagnation and retrogression on Indian industry.

Modernization on the other hand creates employment. Improvements mean more and better products at lower and lower cost price, and result in greatly expanded demands and markets."

We in India will have to find millions of additional jobs within a short period to relieve the mounting pressure on the land and we must start new industries and mechanize the old ones and use

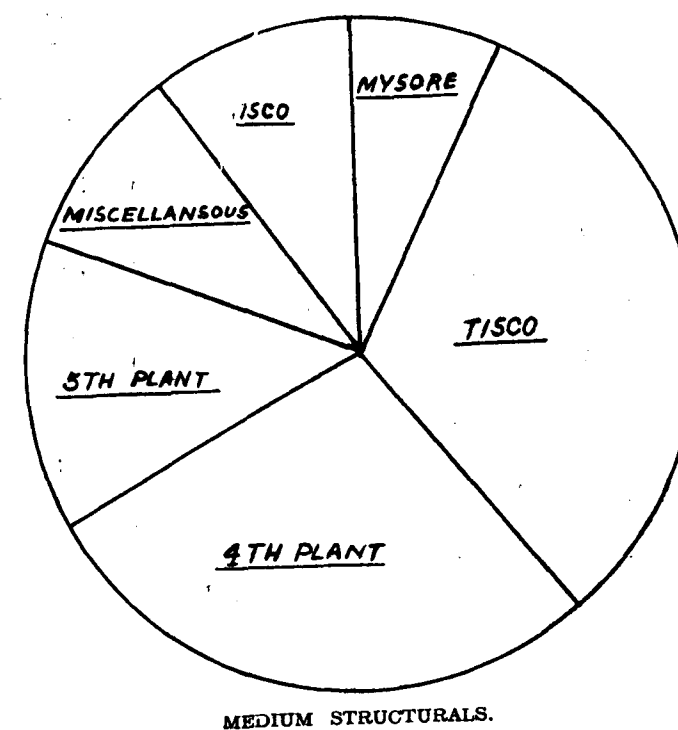
modern technology, so that our industries can be competitive.

There is an all round acceptance to modernization and mechanization, except a few interested parties, and it is not very clear whether the mechanization of our industries has been considered from all aspects. In contrast to Europe and U.S.A., our industries have to depend in most of the cases on imported machinery and spare parts and a definite programme, should be laid down for the manufacture of equipment and spare parts in the country. The other aspect is the maintenance and repairs of the machines to get the maximum production and that workers are not penalised for the machines being not in order. Maintenance in India is very poor and unless this aspect of mechanization is properly looked after, it will bring in a lot of heart burning.

In a mechanized plant, which had an incentive wage-plan and production bonus found that its plant was not working well.

It was found that operators working with two machines earned substantial bonuses, whilst those operating four machines had great difficulty in meeting standard performance. The differences in performance appeared to be greater than could be accounted for by differences in skill of the operators. The Labour Union considered the wage incentive plan to be unfair and demanded that the standards should be changed.

The management called in a team of Consultants who after detailed study found that the key to the problem lay in a previously unrecognized Machine Interference Factor. The consultants work brought out the following equation.



SIEMAG DAHLBRUCH GERMANY UNIVERSAL MILL FOR ROLLING OF WIDE FLANGE BEAMS AND PLATES.

$$P_n = (m/n) (\lambda/\mu)^n P_0$$

where

m = Number of machines tended by one operator

P_n = The probability of finding n of the machines idle awaiting servicing.

λ = Average frequency of machine breakdown

μ = Average time required to repair a machine.

The expected number of machines idle at any time was

$$q = \sum_{K=1}^m K P_K$$

and the expected number of machines waiting for service was

$$w = \sum_{K=2}^m (K-1) P_K$$

The use of the relations when λ/μ equalled 0.1 showed that, while each of the two machines worked by one operator should be running approximately 80 per cent of the scheduled operating time, each of the four machines would run only 86 per cent of this time, since sometimes two or more machines would need service at once, and the mechanic could only service one of them at a time. The operator of four machines, therefore, would have to work at about 105 per cent of the efficiency of the operator tending two machines to meet the same output standard.

The above Machine Interference Factor may come in, in all mass production industries, where rationalization is being introduced.

The standard of maintenance being low in India, it is imperative that the management make a detailed study of the 'MACHINE INTERFERENCE FACTOR' for optimum production and keep a high standard of maintenance for good labour management relations. Before embarking on large scale mechanization in our industries we must carefully study our maintenance standards and the Maintenance Department should be given its due importance as the PRODUCTION FACTOR of the Plant is inversely related to the 'MACHINE INTERFERENCE FACTOR'.

Proposed Expansion Programme of Iron and Steel Industry in India Upto 1963

Figures in '000 tons per year

Plant	Tisco	Iisco	Hindusthan Steel	(4th Plant)	(5th Plant)	Mysore	Miscellaneous	Total
Location ...	Jamshedpur	Burnpur	Rourkela	...	...	Bhadravati	...	...
Pig Iron ...	2,000	1,600	800	800	800	100	...	5,700
Ingots ...	2,000	1,200	1,000	1,000	1,000	100	100	6,400
Blooms and Billets Sheet and Tinplate bars ...	195*	430*	30+ (slabs)	100	100	...	...	855
Heavy Structural ...	90	50	...	260	90	...	...	490
Medium Structural ...	285	70	...	250	125	60	70	860
Rails ...	180	100	...	150	...	...	...	430
Sleeper Bars, Sleepers & Fish-plates	130	...	...	...	...	...	...	130
Merchant products and light structurals and wire rods ...	210	100	...	...	300	...	...	610
Heavy and Medium plates	100	...	200	...	...	...	...	300
Strip and Skelp for tubes and hot and cold rolled sheets ...	170	...	470	...	...	10	...	650
Black and Galvanised Sheets	180	150	...	...	...	...	...	330
Wheel Tyers and Axles	60	...	...	...	...	...	...	60
Quality Steel rolled and forged-Tool Steel ...	...	...	...	...	150	...	...	150
Total (Finished Steel) ...	1,600	900	700	760	765	97	70	4,865

*The further expansion of Tisco and Iisco after their present programme is completed is not finalized and the programme given by us is an intelligent conjecture.
†The Programme of Hindusthan Steel is given in its second stage, when it will have a million ingot ton capacity.

This chart is copyright 1955 by P. E. Mehta and Indian Financial Journals Limited.

The future of the Iron & Steel Industry in India:

The future of the Iron & Steel Industry is bright indeed provided we have the right approach to future development. The gap between the price of indigenous steel (at one time one of the cheapest) and imported products is slowly narrowing down. In the western countries all efforts are made to bring down the price of steel whereas because of the inflexible control and price system followed, the price of Indian Steel is going up every day. We should not only try to manufacture Steel at a very competitive cost, but should be able to market it at a competitive cost also.

Government should see that an atmosphere of healthy competition is created between the Government managed autonomous corporations and private companies and following the world trend Technologists and Engineers should be put in control of running enterprises and the administrators should be relegated to their own jobs. In U.S.A., Germany & USSR and even conservative U.K. engineers and technologists control and run commercial and industrial enterprises.

The greatest problem that we will have to face in increasing our steel capacity is the lack of experienced and trained personnel. Both Tatas and IISCO are on the eve of large-scale expansions and cannot release their key personnel, and it will not be wise to dilute their personnel at this stage. Intensive training schemes will have to be adopted and the right man will have to be found for the right job.

The shortage of skilled labour is more accentuated by many persons in positions of authority wanting to increase their status and ultimately their emoluments by enlarging the number of men under their command by a sort of 'empire building.' Some of the chief executives have the tendency to have a top heavy administration by appointing dozens of technical and administrative assistants to assist them.

Taking an average wage of Rs. 100 per month for a worker, and on the assumption that four workers (one for each shift and one relief hand) are required for each job, and capitalising the wages and adding on the capital expenditure for housing of the four workers, the cost would work out to Rs 1.60 lakhs per man shift. Thus, up to this maximum of Rs. 1.60 lakhs, a piece of labour saving equipment, capable

of saving one man per shift, can be financially justified, provided it does not call for appreciable maintenance or operation costs.

Sufficient attention should be paid to the increase in the production of refractories to take care of the increased production of steel. India has all the refractory raw materials required for the different types of refractories, and there is no need to import refractories from abroad. In implementing this gigantic scheme of expansion, we should try to make use of all up-to-date commercialised processes and the use of oxygen on a large-scale in the manufacture of steel should be seriously considered.

In finalising the blue-print for the planned expansion in the Iron & Steel Industry, the Government of India should take all available expert advice on the subject. All

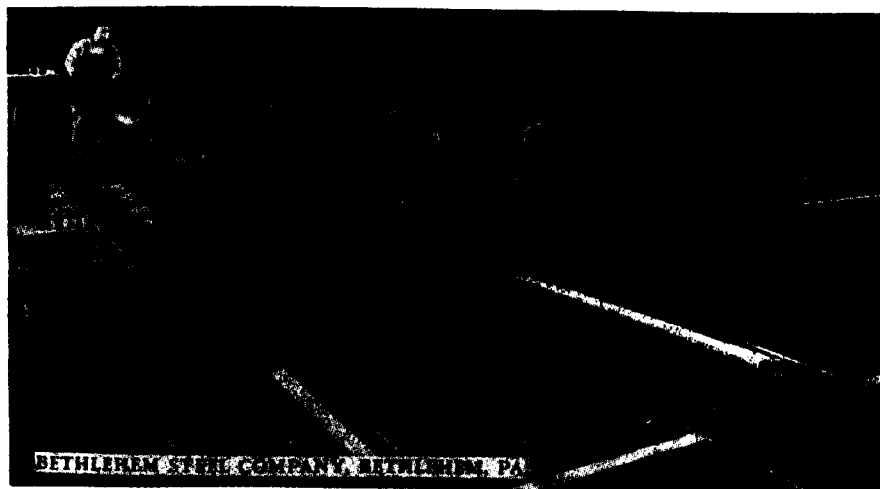
existing as well as new units should be made to make maximum use of their facilities and capacity, and duplication should be avoided as far as possible. It has to be remembered that an Engine Driver with the best record and experience in driving, has no idea about the design and construction of the engine he drives, so due differentiation should be made between the Engine Driver and the Engine Designer in making use of their respective experience in their particular line of activity.

We should make an early start in designing and manufacturing our facilities and we have complete faith in Indian Engineers to rise to the occasion and serve their country. The Government of India and the Planning Commission are well aware of the importance of Steel for the development of the country, and in the Second Five-Year Plan great emphasis will be given for increased production of Steel, Machinery and Capital goods.

The Steel capacity in the country after the whole programme of expansion is completed will be as follows:—

	Tons
Tata Iron & Steel Co. ...	2,000,000
Indian Iron & Steel Co. ...	1,200,000
3rd Plant (Rourkela) ...	1,000,000
4th Plant ...	1,000,000
5th Plant ...	1,000,000
Mysore Steel Works ...	100,000
Miscellaneous ...	100,000
Total Ingot Tons: ...	6,400,000

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COLD ROLLING OF LIGHT WEIGHT SECTIONS.

Though India can take the credit for the manufacture of the first high carbon alloy steel in the world, there is practically no ferro-alloy industry existing in the country. Though indirect mention of the use of nickel and its alloys is found in the scriptures, there is practically no evidence of the development of a ferro-alloy industry in ancient India.

With the power made available from the various multipurpose projects in large quantities and the abundance of ferro-alloy minerals like manganese, chrome, titanium, zirconium and others, India can look forward to the growth of a sizeable ferro-alloy industry. There are good prospects for the manufacture of the different manganese alloys and we shall try to deal with them.

Ferro-Alloys : I

Prospects for the Ferro-Alloy Industries in India

By P. E. MEHTA

Manganese Deposits in India:

Deposits of Manganese are scattered all over India, the important ones being in Madhya Pradesh, Orissa, Bombay, Madras, Andhra and Mysore. India is one of the largest supplier of Manganese to the steel industry of the world and during the last 60 years had exported 30 to 40 million tons of high grade ores for the manufacture of the different ferro-alloys. In 1952 India exported 1.2 million tons of manganese ore which brought in foreign exchange of 170 million rupees.

Comparison of assays of the four large producers of manganese ores such as USSR, Gold Coast (Africa), India and Brazil show that the Indian ores in respect of their manganese content stand first with Brazil as a close second. The Silica is the lowest in the Brazilian ores. The greatest drawback of the Indian ores is their high iron content, and thus a low Mn/Fe ratio. This ratio is detrimental to the production of standard ferro-manganese by the ordinary processes. For metallurgical purposes, mechanically and physically the best qualities of Indian ores are unequalled except by those of Gold Coast. They are hard and lumpy and do not generally break up into powder when handled in bulk or when put in the blast furnaces. In these properties they possess an advantage over the Russian ores.

Metallurgical Use of Manganese:

Manganese melts at 2273°F and boils at 3452°F. The metallurgical functions of manganese are:

- (1) as an essential constituent of certain cast irons.
- (2) as a desulphurising agent in steel manufacture.
- (3) as a deoxidising agent in steel manufacture.
- (4) as an alloying element in steels.

The general classification of manganese alloys is as follows:

	Mn %	Fe %	S %	C %	P %
Ferro-Manganese	30 to 82	60 to 8	0.5 to 1.5	0.5 to 7	0.2 to 0.35
Spiegel	10 to 30	85 to 60	0.5 to 1.5	4.5 to 5	...
Silico-Manganese	55 to 75	20 to 5	20 to 25	about 35	...
Silico Spiegel	17 to 12	60 to 70	9 to 14	11 to 3.5	...

TABLE I

IMPORTS OF INDIAN MANGANESE ORE BY THE FERRO-MANGANESE PRODUCERS OF GERMANY, U.K., ITALY, FRANCE, CANADA AND NORWAY.

Name of the Countries	1948	1949	1950	1951
GERMANY:				
Total ...	24,706	60,620	157,677	260,978
From India ...	3,216	23,480	32,414	145,245
Per cent supply from India ...	...	38.70	19.90	55.70
UNITED KINGDOM:				
Total ...	395,770	470,000	403,732	390,085
From India ...	85,460	109,052	106,929	110,493
Per cent supply from India ...	21.60	23.30	26.50	28.90
ITALY:				
Total ...	49,780	46,680	21,751	54,930
From India ...	33,657	9,300	3,820	48,156
Per cent supply from India ...	70.30	19.50	22.10	87.60
FRANCE:				
Total ...	233,137	260,065	335,073	464,836
From India ...	15,325	7,000	6,850	47,046
Per cent supply from India ...	6.20	2.60	1.90	10.40
CANADA:				
Total ...	207,600	123,000	127,158	208,287
From India ...	...	7,000	11,300	15,470
Per cent supply from India ...	...	5.80	7.69	7.23
NORWAY:				
Total ...	137,570	164,083	167,001	198,440
From India ...	...	4,843	5,970	8,384
Percent supply from India ...	...	2.33	2.70	4.20

N.B.—Norway, the biggest exporter of Ferro-Manganese in the World, purchases a very negligible amount of ore from India due to it not getting the right type of ore for use in the Electric furnaces. She buys 30,000 tons from U.S.S.R. and 1,00,000 tons from Gold Coast (W. Africa) from a mine controlled by U.S. citizens.

Why Ferro-Manganese:

Since iron and manganese will alloy in all proportions, it is natural that use has been found for a group of ferro-alloys that extend through the whole iron manganese binary alloy range.

Manganese is added to steel in the form of ferro-manganese, the most common being the standard ferro-alloy with the following composition:

Mn	78 to 82
Fe	12 to 16
C	6 to 8
Si	1.0 max
P	0.35 max
S	0.05 max

The manganese ferro-alloy is a scavenger of iron and steel impurities for which no practical substitute has been found so far. Manganese removes most of the sulphur impurities from steel which were once responsible for the serious phenomenon of hot brittleness, and hot short steel is very difficult to roll. Ferro-manganese is used in the manufacture of all steels and gives the steel fine grain structures, better rolling and forging properties, and greater strength and ductility. Manganese improves the hot working characteristics of steels, increasing their ability to resist shock and abrasion. It also assist austenitic formation in the manufacture of stainless steels.

With this impressive record of usefulness to steel making, it is a little wonder that the steel industry consumes over 90 per cent of world's production of manganese.

Manufacture of Ferro-Manganese in India:

Manufacture of ferro-manganese in the blast furnaces was started in India in 1915 at Jamshedpur. A sub-standard product is manufactured with a manganese content of 68-72 and a phosphorus content of 0.60. A standard product cannot be manufactured due to the high iron content of the ore and high phosphorus content of the coal. India produces about 20,000 to 25,000 tons of sub-standard ferro-manganese for indigenous consumption and a little surplus for export.

The question of manufacture of standard ferro-manganese in India is engaging attention for the last few years. Standard ferro-manganese can be produced directly in the Electric Low Shaft furnace by use of selected ores or ore-preparation, but due to the high cost of the current and the use of selected ores only, the proposition has a limited application.

In the last three years concerted efforts have been made by a small group to utilize the low grade ores which do not find use in the manu-

TABLE II

FERRO-MANGANESE PRODUCTION IN THE DIFFERENT COUNTRIES OF THE WORLD.

Countries:	1948	1949	1950	1951
United Kingdom	132,700	149,200	130,500	143,575
Canada:				
(Ferro-Alloys) ...	207,798	180,430	162,721	224,000
India ...	7,779	19,200	18,367	19,258
France ...	64,545	83,010	105,694	146,169
Germany ...	8,000	38,000	63,900	72,000
Italy:				
(Ferro Manganese) ...	17,854	14,700	15,228	18,000
(Ferro-Silico-manganese) ...	7,273	2,720	8,552	12,000
Norway:				
(Ferro-alloys) ...	106,150	105,610	96,150	120,455
Spain ...	9,900	8,791	8,756	11,763
Sweden:				
(Ferro-manganese) ...	6,962	10,496	9,300	12,314
(Ferro-silico-manganese) ...	3,708	4,489	5,431	2,879
U.S.A. ...	578,229	515,487	642,571	773,040
Total	1,150,918	1,117,259	1,269,672	1,555,473

facture of standard ferro-manganese. A new double process has been established which has given good laboratory and experimental results. Arrangements are being made for pilot plant and commercial tests for a final decision for the adoption of the processes. The effort of the small group is to utilize the low grade ores or the wastes which have no ready market.

Production of sub-standard ferro-manganese in the blast furnace requires the following materials:

Ore per ton of ferro ..	4,762 lbs.
Flux per ton of ferro ..	2,339 lbs.
Coke per ton of ferro ..	5,400 lbs.
Slag per ton of ferro ..	3,360 lbs.
Blast temp ..	1,453°F
Pressure of blast in lbs. per sq. inch ..	6 lbs.
Wind pressure per minute in c.f.t. ..	28,000

Government Policy:

The Government of India are well aware of the waste of natural assets by the export of manganese ores and have been trying to interest parties for the manufacture of ferro-manganese in the country. The export of ferro-manganese instead of the ores will bring three times the foreign exchange and at the same time give employment to the people in the country.

The Government of India have given licence to a few parties to manufacture ferro-manganese in the country, the total production in the first instance being limited to 100,000 long tons. The most important party to be given the licence are the Tata Iron and Steel Co. Ltd. Tatas are in a very favourable position for the production of the ferro-alloy and they are contemplating to set up a plant at their manganese mines in Orissa. The plant will have an initial capacity of 30,000 tons with a layout to increase its capacity to 100,000 tons. Tatas were the pioneers in the manufacture of blast furnace ferro-manganese in India and it is very logical that they should be in the forefront for the manufacture of the alloy in the Electric-Low-Shaft furnaces. The ore and flux will be supplied from their own mines and they will be using power from Hirakud Hydel Project which will be brought near the mines.

The second party who has embarked on the production of ferro-

manganese on a large scale is Cambatta Industries of Bombay. They contemplate to locate their plant near Tumsar (M.P.). They will use the ore from the CPMO mines and power will be supplied to them from the Madhya Pradesh Thermal grid. Their plant will also use the Electric Low Shaft furnaces and their target of production is 30,000 tons, per annum.

Two small plants for the manufacture of the ferro-alloy will be started at Raygadah (Orissa) and Bhadravati, Mysore. Both these plants will have capacity of less than 5,000 tons per annum. The Raygadah plant will use power from the Machkund Hydel project. Prospects for setting up a plant at Dandeli (Bombay State) are favourable but the project has not taken any practical shape so far to our knowledge.

Production of ferro-manganese in India by electric low shaft process is expected by the beginning of 1957.

COMPARATIVE COST OF POWER PER TON OF ELECTRICALLY MANUFACTURED FERRO-MANGANESE IN DIFFERENT COUNTRIES.

(The calculation is made on a theoretical consumption of 4500 kwh units per ton of ferro-manganese).

Locality	Sources of Power	Price per unit in U.S. cents.	Price per ton
Montana (U.S.A.) ..	Hydro ..	0.1725	\$7.75
Niagara Falls (U.S.A.) ..	Hydro ..	0.1725	\$7.75
Tennessee (U.S.A.) ..	Steam ..	0.22	\$9.90
Ontario (Canada) ..	Hydro ..	0.087	\$3.91
Arvida (Canada) ..	Hydro ..	0.058	\$2.61
Shawinigan Falls (Canada) ..	Hydro ..	0.058	\$2.61
Scotland ..	Hydro ..	0.1725	\$7.75
French Alps ..	Hydro ..	0.119	\$5.36
Germany ..	Steam ..	0.203	\$9.15
Switzerland ..	Hydro ..	0.1725	\$7.75
Norway ..	Hydro ..	0.058	\$2.61
Sweden ..	Hydro ..	0.058	\$2.61
Nagpur ..	Steam ..	0.725(?)	\$32.60
Orissa/Bihar ..	Hydro ..	0.55	\$24.70

Considerations for the Location of Ferro-Manganese Plants:

For the production of the different alloys the following raw materials are necessary:

- (1) Manganese ore.
- (2) Coke and Coke Breeze.
- (3) Limestone and Dolomite.
- (4) High grade silica rock.
- (5) Electrode paste.
- (6) Electric Power.
- (7) Water.

(1) In case of ores it is axiomatic that the ore cannot be transported to long distances except when high grade ores are used. Where only low grade ores have to be used, the plant will have to be located nearer the mines.

TABLE III

IMPORTS OF FERRO-MANGANESE BY DIFFERENT COUNTRIES OF THE WORLD. (The Figures are not complete due to the difficulty of getting correct information).

Name of the country:	1948	1949	1950	1951
United Kingdom ..	500	783	1,485	3,087
Australia ..	59	709	1,339	80
Austria ..	1,913	3,455	5,413	3,444
Belgium-Luxemburg ..	10,000	52,667	48,176	78,626
Finland ..	1,618	1,730	696	1,897
France ..	244	148	102	155
Germany ..	2,365	3,530	1,369	5,090
Italy ..	4,820	3,599	1,696	219
Spain ..	36	3,476	868	868
Sweden ..	2,073	1,866	2,387	2,700
United States ..	87,697	58,000	96,691	107,932
Argentina ..	3,222	1,722	2,217	2,394
Brazil ..	49	25	43	170
Chile ..	132	72	72	52
Total (tons) ..	114,728	128,598	165,162	208,410

TABLE IV

EXPORT OF FERRO-MANGANESE BY DIFFERENT COUNTRIES.

Name of the country:	1948	1949	1950	1951
United Kingdom ..	3,236	9,267	2,530	1,437
Canada ..	66,517	31,507	27,724	60,275
France ..	102	172	34,378	28,827
Germany ..	..	36	510	212
Italy ..	..	597	285	466
Norway ..	58,133	52,879	82,178	79,161
Sweden (F & S) ..	120	725	981	369
United States ..	17,630	5,917	841	641
Chile ..	4,900	4,000	4,178	4,500
Japan ..	620	1,260	2,456	115
Total ..	151,132	106,360	156,101	176,003

(2) In the Electric Low Shaft furnaces coke is used only as a reducing agent and a soft coke with low ash and phosphorus would be preferable. Prospective manufacturers think of using the low phos Giridih and Laikidih coals for this purpose, but we feel that due attention should be paid to the Korba coal for this purpose. The Korba coal is low in ash and phosphorus and semi coking. It is important that the Government of India should take all steps necessary for the early opening of

frequency of the power supply is very important.

(7) The question of adequate water supply for cooling, recirculation and for the workers has to be considered. The question has to be considered in greater detail in Madhya Pradesh, where the annual rainfall is small and the extreme case of drought years will have to be noted.

The high cost of electricity in India is mainly due to the fact that major power installations in the country are of very recent date and consequently capitalization has been three to four times that of installations in countries like Canada, Norway and Sweden. No doubt as the plant overseas in the future when replaced will increase the cost of power in those countries.

Though the high cost of power in India is neutralized by the freight that overseas producers have to pay for the ores, the authorities should consider to give a low power tariff to the industry in the beginning for at least 7 years till it is well established.

Advantages of use of the Electric Furnace:

In spite of the high cost of power in India the manufacture of Ferro-manganese in the electric furnace is still profitable if the whole plant is properly designed by competent and experienced engineers. By a proper design and working of the burdens we feel that power consumption may be reduced to 3000 to 3500 units per ton of alloy. Compared to the blast furnace the manganese losses in the slag of an electric furnace are considerably smaller. In addition to that, the flue dust and volatilization losses of manganese metal occurring in the blast furnace can practically be eliminated altogether if the modern closed type of electric furnace is used.

Further, the quantity of coke required in an electric furnace is limited to the carbon requirements of the deoxidation process, as the heat required for the melting process is fed into the furnace in the shape of electricity. In contrast the coke requirements in a blast furnace are 4 to 5 times that required in the electric furnace.

Indian coke being high in phosphorus, it is therefore necessary to operate a ferro-manganese plant in India with minimum coke, for the sake of avoiding the introduction of large quantities of phosphorus in the charge.

(Continued on page xix)

Ferro-Alloys : II

Progress in Manufacture

*

Development of New Processes

*

By Dr.-Ing. Carl Reschke and
Carl H. Rupp
Demag-Elektro-metallurgie GmbH,
Karlsruhe

The manufacture of ferro-alloys requires the application of high temperatures as the products usually have high melting points and reduction of the ores takes place satisfactorily only at elevated temperatures. The electric arc furnace, therefore, is the "classical" tool for the manufacture of these products and the processes of manufacture carried out in the electric furnace are highly developed. There are actually only a few deposits of good ores for the manufacture of ferro-alloys, and the characteristics of these ores are well known. As the manufacturers usually stick to the same sources of raw materials, each has developed their own ways of processing. If improvements may be expected to take place with regard to the design of furnaces, these will aim at better exploitation of raw materials and power, better economy, easier operation and higher service life of the furnace.

On the other hand there is a great demand for a process allowing of utilizing the huge quantities available of low grade ores and small size, even powdery, ores that lie idle at the mines and mills.

The two main problems, then, are (1) better and more economic furnaces for processes and raw materials already known, and (2) new processes and new furnaces for raw materials hitherto considered to be only of potential use, if not useless.

In the following pages we indicate the improvements in electric furnace design made so far, and to describe a most promising new process which may change the present situation considerably.

General:

The electric arc furnace is very versatile, unequalled by any other type of furnace. The multitude of processes which can be carried out in the arc furnace, ranges from the smelting of ores to the melting of metals and the manufacture of chemical products. The first application of the arc furnace was for the production of calcium carbide in 1894. The experience gained in the production of calcium carbide was soon applied to the smelting of ferro-alloys. In 1906, the first arc furnace was put into operation in Germany for the melting of scrap. The development of both types of furnaces, the furnace for the smelting of ores and the production of calcium carbide, and the melting furnace, went on along different lines but only as far as the ancillary equipment and the changes on account of different working conditions are concerned. The charging equipment, for instance, would be different due to the fact that the smelting furnace is fed a mixture of ore, coke and fluxes, partly in lumps and partly in the form of fines, whereas the melting furnace is charged with more or less bulky pieces of scrap. In the former case one would use charging tubes to feed a closed-top furnace, in the latter case a charging basket, just fitting into the furnace hearth and leaving the scrap behind when retracted, would be indicated. Tube charging can be accomplished with the roof in place, but, for basket charging as in the case of scrap, the furnace roof has to be removed prior to charging. Such differences, of course, are in turn accompanied by further changes. In the working principle, however, there is no fundamental difference between electric smelting and melting furnaces.

This fact is also taken into consideration by the new nomenclature which does no longer refer to "reducing furnaces" and melting furnaces but rather to "smothered-arc furnaces" and "arc furnaces". It thus accentuates the only major difference between the two modes of operation which lies in the method of introducing the electric power into the charge. In fact, the arc in the reducing furnace is smothered, as the electrodes dip deeply into the charge, which has

only a low electrical conductivity, and the current flows from electrode to electrode not only by way of numerous small arcs, but also by direct conduction. In consequence, the burden is heated not only by the heat of the arc, but also by the heat caused by its electrical resistance. Thus the heat is generated directly within the burden, just where it is actually required.

In contrast hereto, the arc furnace has a conducting metallic charge, so that free arcs exist between the ends of the electrodes, which are here outside of the bath, and the bath itself. Since the slag layer floats on top of the metallic bath and thus reaches the highest temperature, the center of reaction is the surface between slag and metal.

The high temperatures that are obtainable permit the manufacture of products which could not, or not of sufficient purity, be produced by means of any other furnace. Although low cost of electric energy is considered a prerequisite for the application of the electric furnace for the reduction of ores, electric furnaces are used in special cases even in countries with high rates of electric power, when the high-quality products can easily carry the expenses for the energy.

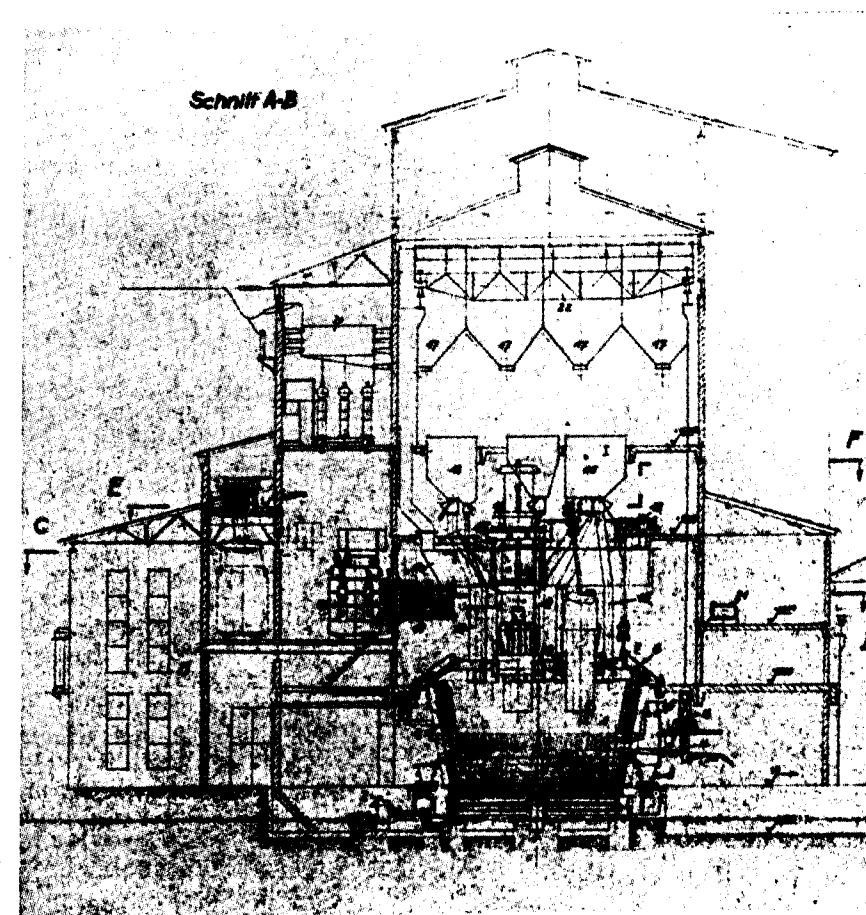


Fig. 1. Cross section through furnace house, 26,000 kVA carbide furnace.

- LEGENDS.
- Fig. 1. 1. Rotating shell.
2. Rotating gear.
3. Carbide pans on tapping wheel.
4. Tapping machine on suspended circular track.
5. Tapping fume exhaust.
6. Furnace roof, capable of being lifted.
7. Electrode holders.
8. Electrode seals.
9. Electrode supporting cylinder.
10. Electrode arm.
11. Electrode slipping device.
12. Electrode support.
13. Roof lifting gear.
14. Gas load.
15. Charging tubes.
16. Furnace hoppers.
17. Main hoppers.
18. Furnace transformer.
19. Busbars.
20. H. T. Substation.
21. Conveyor belt.
22. Electrode servicing crane.
23. Gas washing plant bay.

and building, as it was actually installed.

The Modern Smothered-Arc Furnace:

In the following will be described the present state of development of the DEMAG smothered-arc furnace, and the introduction of various new features, which mark the present DEMAG furnace will be pointed out.

The Furnace Shell. The DEMAG smothered-arc furnace has a circular shell of welded construction. Substantial longitudinal and transverse ribs carry the stresses caused by expansion of the lining under the influence of the heat. The round shape is not only mechanically the most rigid, but also thermally the best suited to the three-phase furnace, where the three electrodes can be arranged symmetrically. As may be seen from Fig. 2, showing the shell of

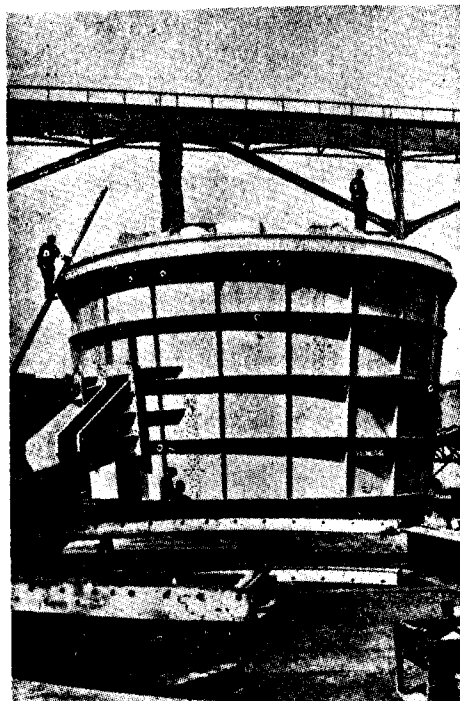


Fig. 2. Shell of a smothered-arc furnace in the course of erection.

a furnace installed in Brazil, the shell has a slightly tapered form, so that the heavy forces imposed on the shell by the lining, are carried only partly by the shell itself. Together with an elastic layer between shell and lining, highest safety of operation and maximum service life of the shell are achieved. The shell rests either on structural steel beams which are supported in such a way as to permit free expansion under the influence of heat, or, in rotating furnaces, on the rotating gear.

Electrode Holders: It is the main purpose of the electrode holders, to conduct the current to the electrodes with as little losses as possible. The weight of the electrode itself is carried by the electrode slipping device, which is to be described later. Therefore, the clamping pressure of the contact clamps can be limited to the degree required for proper conduction of the current. The most notable part of the electrode clamps, which are controlled from the control room, are the tightening devices, arranged radially within the

holder ring. Fig. 3 shows the principle of such a tightening device,

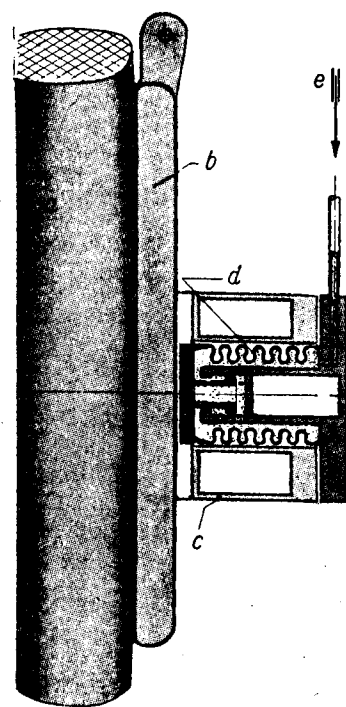


Fig. 3. Electrode clamping system

Fig. 3. a. Electrode.
b. Contact clamp.
c. Holder ring.
d. Dilatation socket.
e. Hydraulic pressure.

consisting of the so-called dilatation socket, a corrugated tube which can be varied in length by the application of hydraulic pressure, and the free end of which, separated by an insulating layer, presses the contact clamp against the electrode. The contact clamps are released by relieving the pressure, and either the spring effect of the dilatation socket, or an additional spring, return the clamps. Despite the high, permanently applied pressure, this method of tightening has worked satisfactorily and reliably on all furnaces equipped with this device.

The contact clamps proper consist of high conductivity copper and have cast-in copper tubes which are connected to the cooling water system. The use of cast-in copper cooling tubes not only increases the mechanical dependability, but also facilitates the transfer of heat to the cooling water. The copper tubes conducting the current to the contact clamps serve at the same time as cooling water pipes. In addition to the contact clamps the entire holding ring is water-cooled. This is necessary, since the electrode holder should be arranged as low as possible, since the electrode has a higher electric resistance than the copper conductors and thus the electric losses are the lower, the shorter the path of the electric current through the electrode. This arrangement, however, brings the electrode holder directly into the furnace heat, particularly in open furnaces. These operating conditions are therefore taken very closely into consideration in the design, selection of materials and construction of the electrode holders, and by a suitable shape the inductive losses caused by the electrode holders are kept to a minimum.

The Electrode Supporting Cylinder. The electrode holder is arranged at the bottom end of a cylinder, the electrode supporting cylinder. At the top end of the supporting cylinder is arranged the electrode slipping or feeding device. The electrode is suspended within the cylinder and protected by same against mechanical damage. The electrode supporting cylinder, and hence, the electrode, are connected by suitable means, such as chains, to the motor-operated electrode winches which raise or lower the electrodes automatically according to the electric conditions in the furnace, so that the power input is kept as constant as possible. Fig. 4 shows a view on

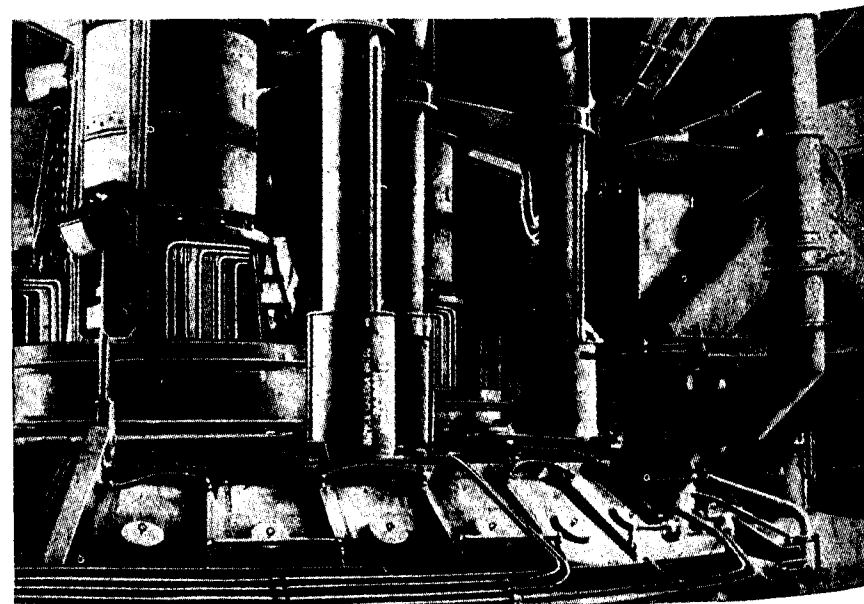
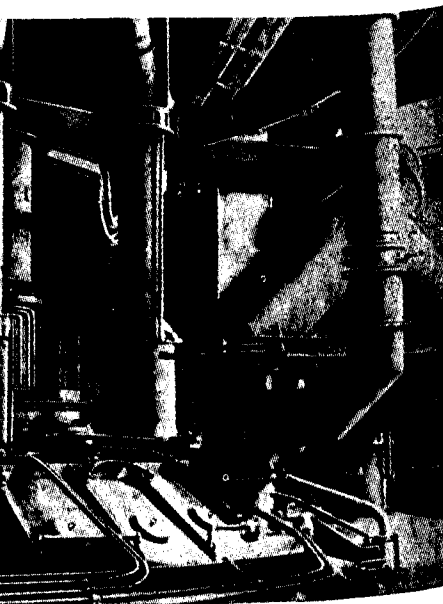


Fig. 4. Part of furnace roof, showing electrode and charging tube seals and gas off-take, also roof lifting arrangement.

the roof of a 26,000 kVA furnace for the production of calcium carbide which was put into service last year in Japan. The electrode supporting cylinders, electrode and charging tube seals, gas off-take and part of roof lifting arrangement are clearly visible. The electrodes employed have a diameter of about 4 ft. 3 in.

The Electrodes. The electrodes introduce the current into the charge. Generally, the electrodes consist of graphite or amorphous carbon. On most ferro-alloy and carbide furnaces, however, the cheaper Soederberg electrodes are preferred which have not only economical but also operational advantages. In contrast to the "baked" electrodes bought as finished products the Soederberg electrode consists of a paste made in the plant itself which is baked both by the heat of the furnace and the heat generated by the electrical resistance of the electrode. The paste is kept in shape by a sheet metal jacket which extends beyond the highest platform of the furnace. As the electrode is consumed during the operation and also the sheet metal jacket melts within the furnace, the electrode has to be built up from time to time. This is being done by welding on a new section of jacket and by filling it with electrode paste. The sheet metal jacket is radially ribbed at its inner

surface to increase the mechanical strength and improve the electric conductivity of the electrode. Particular attention should be paid to the manufacture of the electrode jacket. Apart from the requirement of mechanical strength and low transitory from shell to ribs, the most important demand is that for absolute roundness and smoothness of the shell. Untrue electrodes prevent the electrode clamps from fitting exactly around it, and the area of contact will be insufficient. Where good contact exists excessive heat is generated by the excessive passage of current, whereas arcs will form on places of faulty contact, so that the clamps will soon become unserviceable.



Today two different types of electrode shells are in use (Fig. 5).

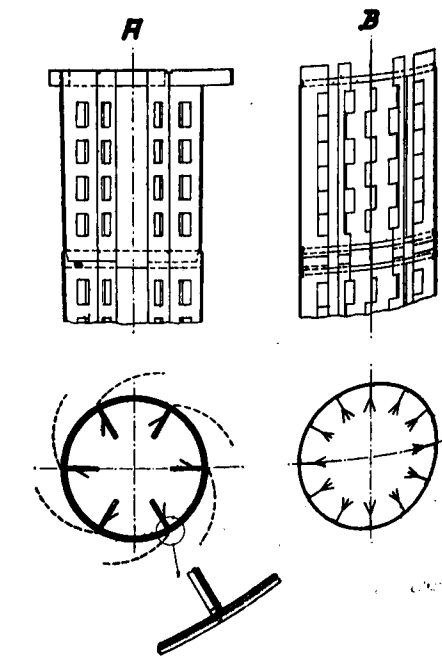


Fig. 5. Electrode jacket types.

Type A claims the lowest transitory resistance between shell and ribs, as one part of the shell and one rib each are made from the same piece of sheet metal. In contrast, type B claims the higher mechanical strength, as the cylinder consists of one piece of sheet metal and has only one welded seam, and, in particular, a high standard of accuracy as the sheet metal can be bent in a bending machine into a true cylinder.

Since exactness is one of the main requirements, the latter type seems to deserve preference. The ribs are here welded to the inner surface of the jacket, preferably with a continuous seam. Fig. 5 shows also the two different ways to improve current transition into the electrode mass. In type A, small windows are cut out and the flaps bent at an angle. In type B, the ribs receive a straight cut every few inches, the flaps being bent alternately to the left and the right. The top and bottom ends of the ribs remain unbent to be welded to the next section.

The Electrode Slipping Device. The electrode, which is consumed during the operation, must be reset from time to time so that a sufficient length protrudes at all times from the holder. The resetting should preferably be done without disconnection of the current as even the shortest interruption of the operation will cause losses. Above all, the resetting must be done safely, that is, the heavy electrode body of a weight of several tons must always be under safe control. All these requirements are met to the fullest extent by the patented DEMAG slipping device. As mentioned before, the weight of the electrode is carried by the slipping device which consists of two clamping rings arranged above each other separated by a set of springs. During operation the electrode is held by both clamping rings. One single manipulation in the control room releases the lower clamping ring, and the weight of the electrode pulls the upper clamping ring onto the lower one, i.e. the electrode is lowered in correspondence with the distance between the two clamping rings. By tightening the lower and releasing the upper clamping ring, the upper clamping ring is returned to its original position. The entire operation requires only a few manipulations on the control panel in the control room. The electrode holder need not be released as the pressure has been set to permit the electrode to slip through. If the weight of the electrode is not sufficient for this, it can be pressed through the holder by means of a hydraulic ram. This method of slipping electrodes has considerable advantages in comparison with the Wisdom ribbon. The wisdom ribbon is a long steel ribbon wound on a drum equipped with a brake and the free end is welded to the electrode jacket. Two or more Wisdom ribbons are used per electrode. When new electrode sections are welded on, the ribbon is welded continuously to the new section. During the operation the brakes are in operation and the weight of the electrode is carried by the ribbons. For slipping, the brakes are released and the electrode slips slowly through the holder. In contrast to the DEMAG slipping device slipping cannot be carried out from the control room. In addition to increased welding work caused by welding the

Wisdom ribbons to the shell, the ribbons running alongside the entire electrode jacket are a potential source of operational trouble since they prevent even contact of the contact clamps. It was pointed out above, how desirable a smooth surface of the electrode shell is.

The method of operation of the electrode feeding device with two clamping rings is illustrated in

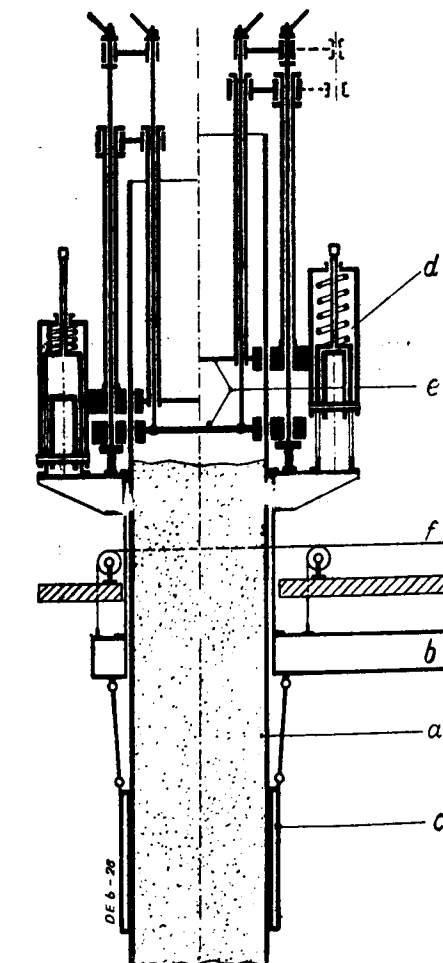


Fig. 6. Electrode slipping device
Fig. 6. a. Electrode.
b. Electrode arm.
c. Contact clamp.
d. Auxiliary feeding ram.
e. Counter clamps.
f. To the electrode winch.

principle in Fig. 6. Counter-clamps are used to prevent deformation of the electrode jacket. In some cases it may be inconvenient to have the counter-clamps within the electrode jacket. A more recent design eliminates this arrangement altogether by the use of chains (Fig. 7), the underlying principle being the same, however. All motions are remotely controlled in both cases.

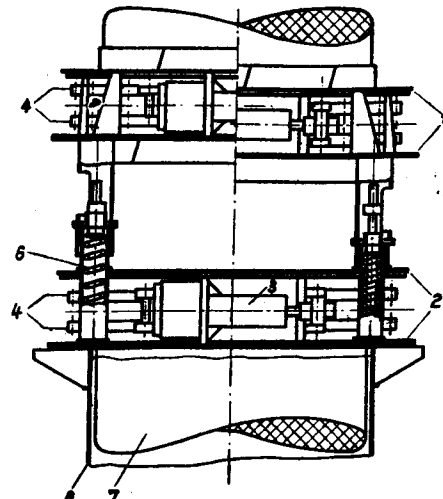


Fig. 7. 1. Top clamping ring.
2. Bottom clamping ring.
3. Clamping cylinder.
4. Chains.
5. Auxiliary feeding ram.
6. Top ring return springs.
7. Electrode.
8. Electrode supporting cylinder.

Furnace Roof and Electrode Passages. The designs of furnace roof and electrode passages of the DEMAG furnace shows some novel features, too. Within the circle formed by the electrodes as little iron as possible will be found. In places where the use of iron is inevitable, unmagnetic material is used. Hence, the electric losses which have already been kept low by a suitable arrangement of the busbars and a special design of the electrode holders could be reduced even further. A further feature of the furnace roof is that it can be raised by the roof lifting gear. This is of particular advantage when starting the furnace, especially after changing to unknown raw materials as the behaviour of the charge can be controlled at any time during the starting period. Also, if an electrode should break, the opened roof will facilitate the removal of the electrode fragments.

The watercooled electrode passages are practically gas-proof thanks to a new construction which is shown in principle in Fig. 8.

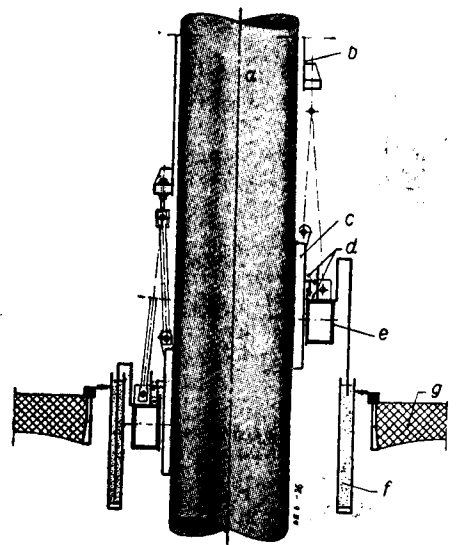
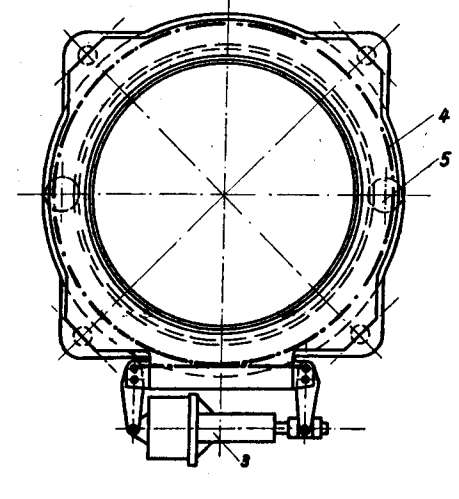


Fig. 8. Electrode seal.
Fig. 8. a. Electrode.
b. Electrode supporting cylinder.
c. Contact clamp.
d. Sand seal.
e. Holder ring.
f. Water seal.
g. Furnace roof.

Together with the sand seal of the furnace roof an almost completely gas-proof sealing of the interior is achieved. Therefore, the precious furnace gas is not devaluated



by any infiltrating air. The nitrogen content is less than 2%. Neither is it necessary to keep a large positive pressure in the furnace which would result in part of the gas burning outside the furnace, mainly at the electrode passages, and being wasted.

Due to its low nitrogen content the furnace gas is well suited for purposes of chemical synthesis, while a higher nitrogen content would not permit such a use.

A further DEMAG patent is the recycling of part of the gas after having been cleaned in the gas washing apparatus and cooled under the furnace roof. Thus the furnace atmosphere is cooled down and the roof refractories are less heavily taxed.

The Tapping Machine. To avoid the time-consuming and laborious breaking-up of the tap hole, it has long been thought of burning the tap hole open by means of the electric current. Today highly developed tapping machines are available for this. Essentially, the tapping machine consists of an electrode connected to one pole of a source of energy, for instance the furnace transformer or a separate tapping transformer. The other pole is connected to the furnace shell. When the electrode is brought close to the tap hole plug, which consists of carbon material, an arc is struck and the tap hole can be burned open without any effort. The electrode carries an insulated handle on its off end and is suitably suspended from rails at the roof of the tapping platform so that it can be moved from tap hole to tap hole. The design of the suspension arrangement permits free movement of the electrode in all directions. A tapping machine is shown in Fig. 9. (See top of next page)

Electrical Equipment. On the electrical side the latest achievements of technology are applied. Sensitive, fast electrode controls, suitable arrangement of the busbars, the use of unmagnetic material, high-quality, rugged furnace transformers with ON-LOAD tap changers, permitting to change the secondary voltage without disconnecting the furnace, mark the modern smothered-arc furnace.

The mechanical and electric equipment listed above in detail is, in the form described, part of the standard equipment of the DEMAG furnace. But since, as mentioned, each furnace is designed in every detail to suit the particular local conditions, special requests can be considered at any time, and it might frequently be advisable to provide semi-automatic or manually operated equipment instead of fully automatic ones.

Plants Installed. Apart from more than 500 electric arc furnaces, DEMAG-Elektrometallurgie has supplied and installed more than 150 smothered-arc furnaces, half of which were designed for all kinds of ferro-alloys. The most interesting recent development is a 26,000 kVA covered rotating

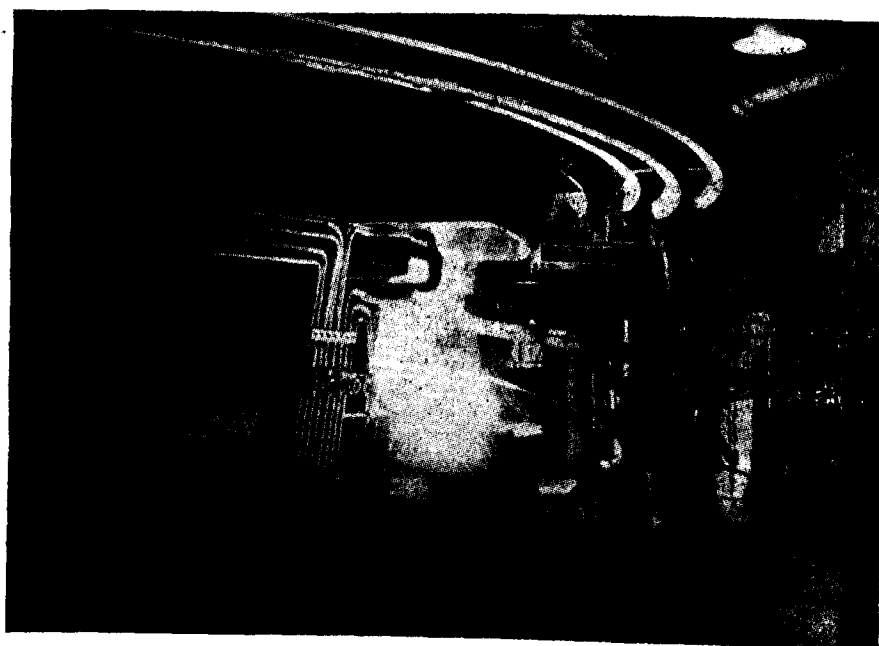


Fig. 9. Tapping machine in operation.



Fig. 12. 3,000 kVA Lubatti furnace.

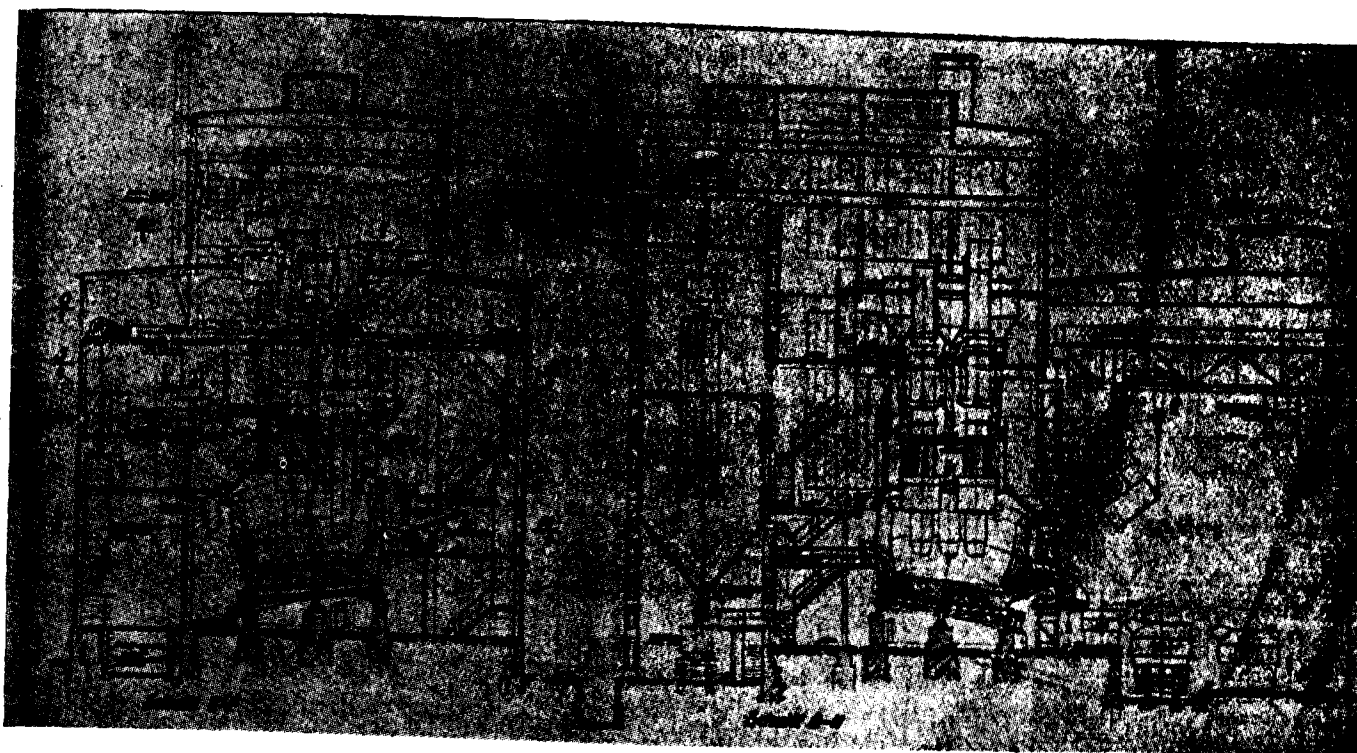


Fig. 10. A covered, rotating furnace with inclined axis of rotation.

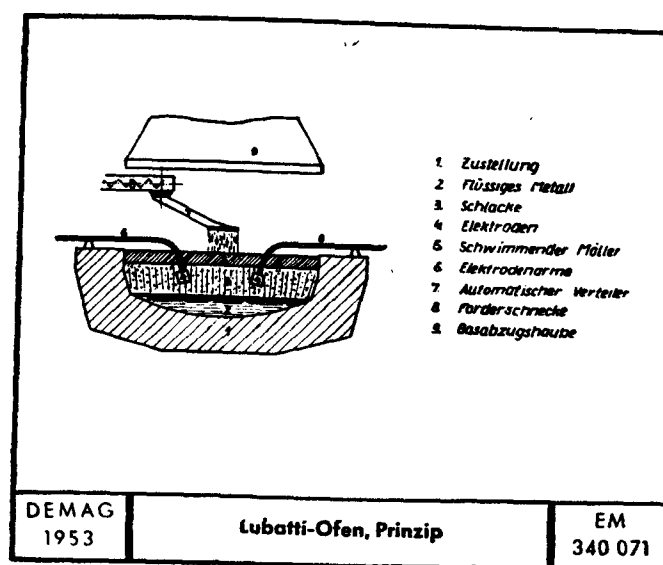


Fig. 11. Principle of Lubatti furnace.

- Fig. 11. 1. Refractory lining.
2. Molten metal.
3. Slag.
4. Electrodes.
5. Floating burden.
6. Electrode arms.
7. Automatic distributor.
8. Tapping screw.
9. Gas hood.

furnace for the production of calcium carbide, installed last year in Japan. Fig. 10 shows a special type of furnace for the reduction of fayalite slag which is under construction at the moment. As can be seen from the illustration, the furnace, which is of the closed type, rotates around an inclined axis.

The Lubatti Process for the Reduction of Ores. The Lubatti furnace, developed in Italy, is used for the processing of powdery raw materials and, with regard to the remaining properties of these raw materials, is as unpretentious as the smothered-are furnace, i.e., fine ores, slacks as well as pyrite ashes may be reduced by coke dust or suitable dust coals, as for instance lignite fines. Previous sintering of the powdery raw materials which would be rather costly is eliminated by this process. The furnace consists essentially of a flat hearth with refractory lining and one tap hole each for metal and slag. The top of the hearth is open. It requires neither a tilting device nor a rotating arrangement. The largest part of the hearth space is taken up by molten slag, which is heated by means of ball-shaped graphite electrodes dipping into the melt (Figs. 11 and 12).

The electrodes—two for two-phase current and three or six for three-phase current—are fitted to electrode arms at the sides of the furnace, permitting a free movement of the electrodes both in horizontal and vertical direction. The electrode arms consist of thick-walled copper tubes which carry both the cooling water and the current. The powdery burden, by means of a mechanical feeding

device, is so distributed on the surface of the liquid slag bath that a layer of app. 6 to 8 inches in thickness floats on the surface. The ore is reduced within this layer. The energy required for this is taken from the slag bath which has a temperature of app. 1500 to 1600°C. The carbon oxide generated during the process escapes through the layer of burden and the thin layer offers no particular resistance to the passage of the gas. Since the particles are very small and thus have a large surface area the carbon monoxide is largely utilized for a pre-reduction within the layer of burden. The gas escaping at the surface of the burden contains on the average twice as much carbon dioxide as carbon monoxide. The energy of the coal is thus considerably better utilized in this process than in the case of blast furnaces or electric low-shaft furnaces. The gas burns away in the surface of the layer of burden in small flames. Enclosed furnaces for the recovery of the gas have not been built up to date, but their development presents fundamentally no particular difficulties. In the contact zone of burden and slag, the reduced metal melts together to form small droplets which descend through the slag layer and collect at the bottom. Metal sump and slag are tapped from time to time. It is worth mentioning that the metal has a relatively low carbon content of about 1.5 to 2.5 per cent. Presumably, in the case of pig iron, for instance, small amounts of iron oxide are dissolved or suspended in the slag bath having an oxidizing effect on the pig iron. By this process not only iron ores may be reduced successfully, but also other suitable metal oxides as, for instance, lead ores or silver residues. For the latter purposes two furnaces of medium capacity are in use now in Italy. Four furnaces for the production of pig iron from pyrite ashes and magnetite slacks have been built and operate with good success. In a 1500 kVA furnace in Acqui, Italy, having six electrodes and a daily output of 10 tons at an

Steel Supplement

average load of 1350 kW. pig iron is produced of the following composition:—

2 per cent C, 1.5 per cent Si, 1 per cent Mn, 0.11 per cent P, 0.23 per cent S.

The power consumption is 3225 kWh/ton pig iron, the charge of 2323 kg per ton of pig iron consisting of the following components:—

Pyrite ashes	1500 kg
Iron sand (Italy)	8 kg
Manganese ore (India)	64 kg
Rolling mill scale	209 kg
Limestone	421 kg
Sand	29 kg
Kaoline (China clay)	80 kg
Loan	2 kg
Bauxite	11 kg

The pyrite ashes have the following composition:—

60.00 per cent Fe, 0.14 per cent Mn, 0.10 per cent P, 1.90 per cent S, 2.00 per cent CaO, 1.00 per cent MgO, 4.50% SiO₂, 0.30% Al₂O₃.

The carbon required for the reduction is added in the form of anthracite (Cogne) and coke. A slag of 763 kg/ton results from this burden. At a lime silica ratio of 1.41 the slag is composed as follows:—

49.50% CaO, 2.27% MgO, 33.41% SiO₂, 8.10% Al₂O₃, 1.20% FeO, 1.43%

SiO₂, 8.10% Al₂O₃, 1.20% FeO, 1.43% MnO, 3.63% S.

The figures show that in spite of a high sulphur content in the burden a desulphurization of about 92 per cent is obtained. The current consumption of 3225 kWh/ton pig iron is not too high, if the ratio of more than 760 kg of slags per ton of pig iron is taken into consideration.

The main advantages of the Lubatti process are the following:

- (1) Fine ores and fine coals are used. Suitable raw materials are concentrates, slacks, flake ores, pyrite ashes (purple ore) as well as Rotschlamm which is found in considerable amounts at the alumina factories and could not be processed economically, so far. In the latter process the recovery of slag with a high titanium content plays an important part. Dust coal, coke dust and lignite dust would be well suited as reducing agents.
- (2) Production of pig iron and ferro-alloys of low carbon.
- (3) Extensive utilisation of the carbon monoxide for Development of closed furnaces is possible and would make use

of the remaining carbon monoxide.

- (4) Excellent insulation against heat losses by the layer of burden.
- (5) Low electrode consumption.
- (6) Almost equal efficiency both for furnaces of very small input of some 100 kVA and for very large units which could be designed for capacities corresponding to those of modern blast furnaces.
- (7) Much less complicated and less expensive furnaces. High buildings with several floors which must be rated for heavy loads, are avoided.
- (8) Applicability to all metal production processes, as far as they are based on the reduction of oxide ores by coal.

A major difficulty is presented by the problem of finding a really durable refractory lining for the hearth. Carbon ramming mix withstands the attack of the slag but is picked up by the low-carbon metal and thus slowly consumed. Magnesite bricks are suitable for the bottom of the hearth but not

for the side walls, as they are attacked by the slag.

Certain technical shortcomings are still to be overcome, but present no fundamental difficulties. Due to its low requirements regarding the physical properties of the raw materials the Lubatti process may be expected to be used for the production of pig iron and ferro-alloys even where the power rates have so far prevented the application of electric smelting furnaces.

Conclusion:

The ever growing production of steel, particularly in hitherto less industrialized areas, has increased the demand for ferro-alloys for the production of special steels. The developments in the field of electric furnaces present the possibility to satisfy this demand. The continuous improvements of the means of production, in particular the electric furnace, permit today of a more economic production than ever. The Lubatti process promises economic utilisation of fine ores and coal which were considered of little or no value, so far, and may even invade countries where high power rates are, at this moment, prohibitive to electric smelting

Prospects for the Ferro-Alloy Industries in India

(Continued from page xiv)

Although at present the Blast furnace is the largest producer of standard ferro-manganese in the world, it cannot produce the medium and low carbon grades or silico-manganese. By its ability to produce these special grades of alloys, the electric furnace has assured itself an important place in the ferro-alloy industry.

On the basis of information gathered in USA, it may be assumed that an electric furnace apparently can use a somewhat lower manganese and higher silica ore with the same recovery as a Blast furnace. Several factors tend to work in favour of electric smelting. Perhaps of primary importance is the smaller quantity of coke introduced in the electric furnace. Since all coke contains a certain amount of ash, about half of which is silica, and since silica exercises control over the volume of slag produced, the more the silica the more the slag, the blast furnace will always tend towards a higher volume of slag. Assuming the same percentage of manganese losses in the slag of the two types of furnaces, the more the slag, the more manganese lost, with a resultant decrease in recovery.

Because of the peculiar position of our ore and coke we cannot manufacture standard high carbon ferro-manganese in the Blast furnace, we should try to manufacture

more of Medium and Low carbon alloys in the electric furnaces for export. The progressive Steel industry of the world will need more of these alloys and we should try to take advantage of this situation.

A New Technical Approach:

Substandard Ferro-manganese is at present manufactured in India in the blast furnace which is the cheapest method. Unfortunately as standard ferro-manganese for export purposes cannot be manufactured in the blast furnaces we have to use the Electric Low Shaft furnace.

For manufacture of standard ferro-manganese in the low shaft electric furnaces only medium and high grade ores can be used whereas the low grade ores which have no export market cannot be utilized. As mentioned previously a small group is finalizing a project wherein only low grade ores will be used.

To those familiar with the technique of ferro-manganese manufacture, it has always been held axiomatic that the production of ferro-manganese (standard grade) is only feasible if the manganese iron ratio is 6:1 or bigger. It is also known that standard ferro is not manufactured from Indian manganese ores directly so far. The practice adopted by ferro

manufacturers the world over has at all times been to blend Indian manganese ores with manganese ores originating from the Gold Coast and Russia which are extremely low in iron.

A two step process using low grade ores is being finalized and this will more than double the present reserves of Indian manganese ores. From the initial data and results the economics look to be very encouraging and a thorough commercial scheme is being worked out.

Prospects and Future of the Ferro-Alloy Industry in India:

Ferro-alloy industry is a highly technical and specialized industry and some of the notions that it could be worked with a push button plant are highly erroneous. The design, layout and running of the plant should be done by specialists who have sufficient experience in India and furnaces of modern design should only be used.

With theoretical calculations of profits on prices based in USA some mine owners who have taken advantage of the boom period in manganese think in terms of a low investment with quick returns of profit. Apart from the initial difficulties of manufacturing a standard alloy acceptable for world market, we should try to get an overall confidence of users in the overseas market. We will also have to face

the resentment of vested interests abroad who have been so long utilizing Indian ore for production of ferro-alloys.

India should immediately take up the manufacture of the different manganese alloys and specially the medium carbon and low carbon alloys which fetch a premium price. We should also go in for the manufacture of ferro-chrome, ferro-vanadium and ferro-titanium. The Government of India should co-operate with private enterprise for the setting up of a plant for the manufacture of Titanium Metal. The increasing importance of Titanium Metal in the metallurgical industries cannot be overemphasized. The use of ordinary Low Shaft furnaces with oxygen enrichment should also be considered.

The first Calcium Carbide plant set up by Birla Brothers has gone into production in late 1954 and a few more plants for Calcium Carbide will have to be set up. If properly handled, the ferro-alloy industry has a bright future. With the expansion in the steel production in the country increasing use of ferro-manganese will be required—when the target of 6 million ton ingot steel is reached, the requirement of ferro-manganese for internal consumption will be about 60,000 to 70,000 tons per annum.

Ferro-Alloys III

The Development of the Elkem Covered, Rotating Furnace

By KARL LORCK

Elektrokemist A. S. Oslo (Norway).

The Tysland-Hole furnace:

The first successful electric low shaft pig iron furnace was the result of the combined efforts of the Norwegian Government, Christian Spigerwerk, Norway, and Elektrokemisk, Norway. This furnace was developed in the early twenties and is known as the Tysland-Hole type (1) and (2).

This article will not deal with the various details which made the Tysland-Hole furnace a success, such as dimensioning of furnace body and electrodes, construction of furnace lining etc. However, since the experience from the operation of this furnace has contributed to a large extent to the development of the furnace type which is the subject of this article, one particular principle of its design deserves to be further described, namely the feed system.

In the Tysland-Hole furnace the charging shafts are placed at a certain distance away from the electrodes. The reaction gases will always carry along considerable amounts of dust that will have a ten-

dency to clog up the charge. With the arrangement mentioned above the reaction gases pass through layers of materials which are in constant movement and which are being renewed by fresh materials in the course of comparatively short periods of time. Dust caught in these layers of the charge is thus carried down to the reaction zone and the gas passage remains porous.

This arrangement permits considerable freedom with regard to granular composition of the raw materials, which has proved to be an essential point to the economy of electric pig iron smelting. Most Tysland-Hole furnaces are today using mainly coke breeze as reductant.

As will be described later in this article, this principle of feeding the raw materials to the furnace has been further developed in the covered, rotating Elkem furnace.

The rotating hearth furnace:

Mr. Tonnes Ellefsen conceived the idea of rotating the furnace crucible in electric smelting furnaces. He

had observed the tendency to formation of crater walls around the electrodes in various ferro-alloy smelting operations. These crater walls leave a much reduced cross section for the escape of the reaction gas, frequently resulting in the well known torch-like gas blows. The crater walls are also hampering the descent of the raw materials. Normal practice is partly to break down the crater walls by means of manual stoking in the furnace. Mr. Ellefsen visualized that in case the crater walls could be removed he would get a better gas distribution throughout the charge thus getting better preheating of the raw materials and less metal loss due to volatilization. Furthermore, the manual labour could be reduced.

By theoretical calculations he found that if the furnace crucible is being revolved slowly enough the charge will not exert any detrimental pressure on the electrodes, inasmuch as these will smelt their way through the charge.

The system was tried out in a 1000 kW pilot furnace by Elektrokemisk,

Indian Finance

Fiskaa Werk, Norway, at which plant the first commercial size furnace equipped with a rotating hearth was installed in 1937, of capacity 12,000 kVA. A second furnace of 9,000 kVA was started in 1942 in Mr. Ellefsen's own plant at Porsgrunn, Norway. Both furnaces have mainly been used for smelting of various grades of ferro-silicon, but have also been used for production of silico-manganese, high carbon ferro-manganese etc.

Since the last war considerable interest has been taken in the rotating hearth feature. The following installations have been made since 1945 of Elkem open, rotating furnaces:

France	...	One	7,250 kVA
	...	One	6,000 kVA
Italy	...	One	6,000 kVA
Norway	...	One	12,000 kVA
	...	One	10,000 kVA
	...	One	9,000 kVA
Sweden	...	One	6,000 kVA
Switzerland	...	One	5,000 kVA

There are additional six furnaces under construction in various European countries.

It has frequently been asked for actual figures showing the savings obtained by use of the rotating hearth principle. Any smelting operator will know how extremely difficult it is produce reliable figures in this respect.

Operating figures collected over longer periods of time would be required, and at the same time all all other factors affecting furnace operation would have to be kept constant, such as furnace load, quality of raw materials, efficiency of furnace crew etc.

Mr. Ellefsen has himself reported (3) that he has obtained a saving of about 15% in power consumption and about 10% in raw material consumption over a six months smelting campaign producing 75% FeSi.

A rotating furnace of 7,250 kVA capacity operated in Rionperoux by the French company Pechiney is producing silicon-metal, 98% Si, with a power consumption of 12-12,500 kWh per ton of metal, which in itself must be considered to be an excellent result. Reductant was then 100% charcoal. The company have, furthermore, reported that when the rotation of the furnace crucible was stopped the power consumption increased gradually to about 14,000 kWh after four days of stationary operation.

The Tennessee Valley Authority in the U.S.A. have taken much interest in applying the rotating hearth principle to the electrothermic production of elemental phosphorus. A pilot furnace of 1,000 kW capacity was built in 1947. From the operation of this pilot furnace the TVA report (4) that the lump nodules in the charge were progressively replaced with—6 mesh nodule fines, and finally the furnace was operated on 100% —8 mesh material. Operation was satisfactory. Similar tests were carried out with —4" uncalcined Florida phosphates. Satisfactory operation was possible on 100% fines in the charge.

Steel Supplement

These results were considered so encouraging that it was decided to build a rotating hearth furnace of commercial size. A 7,500 kW furnace was started in 1950 and TVA report (4) from the operation of this furnace that monthly average indicates about 11% saving in power consumption as compared with TVA's stationary furnaces.

Although the above reported tests have not been carried out over sufficiently long periods of time to be considered conclusive it is believed that they give sufficient evidence that the rotating hearth furnace is offering the smelting industry savings by increased production or savings by use of inferior raw materials.

However, the rotating hearth furnace offers also other advantages of a less tangible nature which should not be overlooked.

For plants which are frequently changing their production the rotating hearth has the advantage that it makes it possible to empty the furnace almost entirely whereby the amount of off-grade production during the change-over period is kept down considerably.

Instead of rotating the furnace continuously it may be oscillated. By oscillating the furnace with the tap hole right in front of one electrode, or by oscillating the furnace with the tap hole in between two electrodes, it is possible to a certain degree to regulate the temperature of the tap hole. This may be quite useful particularly for plants which due to fluctuations in power supply have to operate their furnaces at varying loads.

There is every reason to expect that the rotation will give even wear and thus extended life time of side lining and bottom.

In some smelting operations such as calcium carbide, ferro-manganese, etc. there is a tendency to formation of cavities in the furnace. Subsequent cave-ins of such hangings result in eruptions. These conditions are particularly pronounced if the raw materials contain much fines. The rotating hearth is effectively counteracting the formation of cavities in the furnace. This system therefore opens the road for the use of covered furnaces in several electric smelting operations which previously were considered practical in open furnaces only.

The Elkem covered, rotating furnace

Some of the problems with which the smelting industry has been faced during recent years have been of a nature that has called for new and better furnace designs.

Suitable raw materials have turned more and more expensive, and in many localities they are also hard to get. This goes particularly for coke, and most smelting plants have to base their production entirely on coke breeze, often of low grade with regard to amount of fines and ash content.

The public is getting more conscious with regard to atmospheric pollution, and there are increasing demands that industry installs dust collecting systems or finds other means of reducing dust emission.

When jobs are plentiful it has always been difficult to get labour

for operation of electric smelting furnaces, and particularly when it comes to open, hot furnaces requiring manual stoking. As working conditions are improved in other industries this handicap of the smelting industry is turning more serious.

The Elkem covered, rotating furnace is a result of efforts to solve some of the above problems. A further perfectionated feed system (5) has in this furnace been combined with the rotating hearth principle thus obtaining the advantages of both systems. A valuable top gas is being recovered which in many cases means a considerable contribution to the economy of the operation.

The circular furnace crucible is mounted on a concrete turntable which can be revolved by means of large gear reduction and a one to three horse power electric motor.

The side lining and furnace bottom are made as usual and dimensioned to meet with the special requirements of the smelting process for which the furnace is to be used. The furnace is usually equipped with three tap holes. However, six tap holes have also been applied.

The furnace cover is stationary and is supported by the operating floor. This cover is a welded, double deck, watercooled steel construction. It has openings for the three Soderberg electrodes which are placed in triangle. Each electrode has a watercooled sleeve at the point where the electrode passes through the cover. This cooling sleeve also serves as the inner limitation of the three charging shafts which are arranged symmetrically around each electrode. The reaction gases are collected between the electrode and the cooling sleeve. Between each two charging shafts valleys will be formed in the charge thus permitting the reaction gas to flow freely through the triangular opening under the cooling sleeve—and into the main room under the furnace cover.

Gas sealing between cover and furnace crucible is effected by a sand seal. There are large inspection hatches in the cover which can be used for keeping a check on furnace operation, and also for cleaning out dust which might have accumulated. The cover has also small openings for stoking, normally only used when measuring the depth of the electrodes.

The charging of the furnace is fully automatic. The weighed and mixed raw materials are dumped into nine small bins located above the furnace. From these bins the raw materials are fed by gravity through chutes down to the low charging shafts in the cover. Closed or open connection can be applied between the charging chutes and shafts. Closed connection may give cleaner operation and slightly better gas collection. Open connection, however, gives immediate control that the charge is moving through all shafts. Small gas flames burning in the shafts are also excellent indication of pressure conditions in the furnace. Most operators therefore prefer open connection between charging chutes and shafts.

An improved electrode holder design with spring loaded pressure bolts permits automatic slipping of the electrodes and gives extended life to the contact clamps.

The inductive losses in the furnace circuit are kept low by interlaced secondary busbars and as short as possible flexible connections between busbars and electrodes. The major part of the total reactance of an electric smelting furnace is, however, in the electrodes. It cannot be avoided that a covered furnace will have somewhat longer electrodes than an open furnace. By making the charging shafts below the roof as low as possible and the cooling sleeves around the electrodes correspondingly short, this increased length of electrodes is tried kept at a minimum. On the other hand, in a covered furnace it is possible to have the flexible copper cables closer to the electrodes as compared with an open furnace, thus improving on the total reactance.

The furnace top gas will mainly consist of CO and is therefore valuable both as a fuel and as a raw material in chemical syntheses. The gas may be drawn off from the center of the cover or from the side of the cover. Due to the space conditions between the electrodes a central gas outlet will have to be carried all the way up above the electrode hoists until the gas pipe can be directed towards the gas cleaning plant, thus resulting in a comparatively large volume of gas in the system. Although a central gas off-take gives symmetrical conditions in the furnace and also good settling of dust carried along with the gas, a gas off-take from the side of the cover has been preferred up to now.

Dry or wet gas cleaning systems may be applied or a combination of the two. A considerable part of the dust has a particle size of about 0.1 micron and is therefore difficult to catch in dry cyclones.

Some plants have limited supply of water, or may be prevented from discharging dust-contaminated water from a gas scrubbing plant. In such cases dry cleaning of the gas has to be adopted. If the gas is to be used as fuel adjacent to the furnace dry cleaning in cyclones only may suffice. If the gas is to be piped any distance or to be used in syntheses a final wet scrubbing has to be applied.

A 100% wet system gives the simplest and most compact gas cleaning plant.

A. — In production of Calcium Carbide

The first Elkem covered, rotating furnace for calcium carbide was installed by Stockholms Superfosfat Fabriks AB at their plant at Stockvik, Sweden. The furnace was started March 1950 and has been in continuous operation since.

Without any stoking or other manual work in the furnace it has shown about the same ability to digest fine grained materials as an open furnace.

Below are given some of the operating characteristics:

Raw Materials:

Limestone is taken from the island Gotland in the Baltic Ocean and the plant has to store sufficient supply for the winter season. Segregation in storage cannot be avoided and screen analyses of lime show considerable fluctuations with a high percentage of material below 8 mm. Due to this there are difficulties in burning the limestone and as a matter of fact the lime has a rather high loss by ignition besides the high percentage of smalls.

Due to lack of sufficient crushing facilities the coke size has usually been on the large side, running 40-50% above 25 mm (1"). Material below 8 mm may vary from 5-15%.

The coke is dried to about 1% moisture.

Electrical Characteristics:

The furnace is equipped with 19,800 kVA transformer capacity.

Due to limited power supply the furnace has most of the time been operated at about 14,000 kW. Secondary voltage on the transformers has then been about 145 V and power factor 0.82-0.84.

During part of the time the furnace has been operated at about 17-17,500 kW, at secondary voltage of 165-170 V and a somewhat better power factor.

Also on the higher loads the furnace operation has been regular and smooth, without any serious disturbances.

Rotation:

For reasons of the tapping arrangement the furnace has most of the time been oscillated instead of rotated, and with a speed corresponding to one revolution in about 85 hours.

Tapping:

Tapping has been performed through three tap holes. Due to the varying load conditions the management has not found it worth while to experiment with tapping from one tap hole only.

Power Consumption.

Power consumption per ton of carbide varies slightly with the furnace load. Yearly, average has been about 3,400 kWh at 17,000 kW load and about 3,500 kWh at 14,000 kW load, basis 300-305 liters acetylene per kilogram carbide.

Heat balance calculations indicate that power consumption may be reduced by feeding more raw materials to the center of the furnace, thereby reducing heat loss by radiation from this area. This will be tried out in a covered, rotating carbide furnace of comparable capacity now under construction in Norway.

Electrode Consumption.

Average consumption of electrode paste has throughout the three-year campaign been about 20 kg per ton of carbide. This is about

2/3 of the normal electrode consumption in open carbide furnaces. Even with Soderberg electrodes such saving is quite noticeable in the operating economy.

Cooling Water Consumption:

Consumption has been measured at 200-230 m² water per hour with an average temperature rise of 7-8° C, i.e., water supply is abundant. Calculated on heat loss and measured at furnace load of 14,000 kW these figures show that 12-14 % of the electric energy charged to the furnace is lost to the cooling water.

Top Gas.

On the basis of carbide yielding 300 liters of acetylene per kilogram (corresponding to about 82 % CaC₂ in carbide), the practical yield of reaction gases from the smelting operation is about 400 Nm³ per ton of carbide. About 90 % of the gas or about 360 Nm³ per ton of carbide is being collected. The gas has the following composition:

CO	...	about 88 %
CO ₂	...	— 4 %
H ₂	...	— 3 %
CH ₄	...	— 1 %
Remainder	...	— 4 %

Variations in the CO-content is normally within a few per cent. H₂-content of the gas goes up in case of water leakages in the furnace and is therefore checked at regular intervals.

The calorific value of the gas is about 2,900 kcal per Nm³. The total recovered heat value per ton of carbide is thus about 1,000,000 kcal, which corresponds to about 70% of the amount of heat required for burning the limestone equivalent to one ton of carbide—or it corresponds to about 1/3 of the electrical energy required for production of one ton of carbide.

From the above it will be gathered that the recovered top gas is an appreciable contribution to the economy of the process as a total. Since most carbide plants are burning their own lime, there is usually an immediate application for the gas as fuel in the lime kilns. Many carbide plants are now an integral part of larger chemical plants. In such case the gas will find valuable application in chemical syntheses, where CO forms the basis for a number of products.

At Stockvik discharge of the dust polluted water from a gas scrubbing plant cannot be tolerated, and the top gas is therefore cleaned in a dry system, which has been engineered by the company's own staff.

Gas temperature at furnace exit is 600-800° C and dust content is about 120 grams per Nm³.

The gas is drawn off from the side of the furnace cover through an almost vertical, water jacketed pipe line. Here part of the dust is settling back to the furnace and gas temperature is brought down to 200-400° C. The gas is next passing a high temperature blower and is then conducted to a battery of modified Van Tongeren cyclones. Dust content of the gas after the

cyclones is about 7 grams per Nm³ which can be tolerated in the short pipe line to the lime kilns.

In a suitable wet gas scrubbing system the dust content of the gas may easily be brought down to about 0.05 grams per Nm³.

Time Factor.

The operation has been very reliable. During these three years of operation there has been only one electrode breakage, which occurred in 1952 and caused a shut-down for 42 hours.

Not a single contact clamp on the electrode holders has been changed.

Due to faulty welding there were some leakages on the cooling sleeves. This has now been corrected.

The furnace is normally stopped for one to two hours once a week for control and for sooting. The sooting consists of removing dust that has accumulated in the furnace. With a horizontal, water-sprayed gas off-take such accumulation of dust, and consequently shut-downs for sooting, should be less. This latter system is being used in connection with wet gas scrubbing systems.

As will be seen from the table below, time factor has been quite satisfactory, shut-downs caused by the furnace averaging about 1.7 % of total operating time for the years 1951 and 1952:—

Shut-downs caused by furnace:—				
Year:	Repairs breakage	Sooting	Total	
1951	0.9	—	0.5	1.4
1952	0.5	0.5	1.0	2.0

Operating Personnel:

The charging is fully automatic, no stocking in the furnace is required and slipping of the electrodes is automatic by slacking the Wisdom brakes. All work that has to be performed on the operating floor is, therefore control of the furnace instruments. One man per shift is doing this. This man could, however, take care of at least two, possibly three, furnaces. As compared with one open, stationary furnace, this means a saving of at least one man per shift. In case two or three covered, rotating furnaces, this saving would increase to 2 1/3 and 1 2/3 men per shift respectively.

New Installations:

The first of four Elkem covered, rotating furnaces for carbide was started early this year at Calvert City, U.S.A., by National Carbide Company, A Division of Air Reduction Company. These furnaces are rated at a load of 24,000 kW each. It is yet too early to present any operating figures.

Furnaces of this type are also under construction by British Oxygen at their plant at Odda, Norway, and by the Japanese company Denki Kagaku Kogyo Kaisha Ltd.

B-In Production of Ferro-Manganese

Standard high carbon ferro-manganese has in some few cases been produced in covered furnaces, as

for instance by Lombard Falck, Milan, Italy, and by Union Carbide Company at their Sauda plant in Norway.

The first Elkem covered, rotating furnace for ferro-manganese was installed by Wargon AB, Sweden, and started in the summer of 1952. Due to restricted power supply the furnace has only been in continuous operation at full load during three months. The furnace has thus not been in operation for a sufficiently long period of time to be fully tested.

The following preliminary information can be given from the first five months of its operation.

Raw Materials:

The furnace is operated on a blend of Russian and Indian manganese ore, both running 47 to 48 per cent Mn, but differing in content of Fe, Si O₂, and P. As will be known most Russian manganese ores are of a granular size like coarse sand (everything—10 mm), whereas the Indian ore may be of an even lump size from 50 mm (2") and down, and with little fines. The lump ore from India is, however, expensive. South African manganese ores usually also contain large amounts of fines.

Smelting of fine grained ore is therefore a considerable problem for many ferro-manganese producers. Such ore fines can no doubt be agglomerated. Sintering is, however, not very attractive since coke consumption is high, 8-12 per cent, and dust losses appreciable.

During this short time of operation it has been possible to bring the proportion of fine grained Russian ore up to 30 per cent in the ore blend.

The furnace is working with a well sized coke (10-24 mm, 15 per cent ash). However, equipment for drying of coke is not as yet available. The coke contains some 10-20 per cent H₂O. Optimum results cannot be obtained until the coke is being predried.

Electrical Characteristics:

The furnace is equipped with a three-phase transformer of 5,500 kVA capacity. Furnace load is 4,500, 5,000 kW at a secondary voltage of about 105 V, and power factor of 0.80-0.85.

Rotation:

The furnace is being rotated at a speed of one revolution in about 100 hours.

Tapping:

Tapping is done alternately from two tap holes, and at two to three hours intervals.

Power Consumption:

Power consumption is about 3,000 kWh per ton ferro-manganese, with 700-800 kg of slag running about 20-25 per cent Mn. The slag is being reused for production of SiMn. Any figure for total Mn-recovery in alloy and slag is not as yet available.

Electrode Consumption:

Consumption of electrode paste has been 12 kg per ton of alloy,

which is 2/3 of the electrode consumption in the company's open ferro-manganese furnaces.

Top Gas:

A gas cleaning plant has not as yet been installed and the gas has therefore been bled to the atmosphere through a stack.

In smelting of standard high carbon ferro-manganese ab. 850 Nm³ of gas is being developed per ton of alloy, the amount varying slightly with the oxygen content of the ore. This gas runs about:

CO	...	72%
CO ₂	...	11%
H ₂	...	6%
CH ₄	...	1%
N ₂	...	10%

The calorific value of this gas is about 2,400 kcal/Nm³. Figuring with 90 p.c. recovery of developed gas one gets a heat value of ab. 1.8 million kcal, corresponding to about 70 per cent of the required electrical energy for the smelting operation.

As in all electric smelting operations this gas carries along considerable amounts of dust. This dust contains usually from 30-40 per cent Mn and its recovery and return to the process is therefore important both from an economical point of view and from a metallurgical point of view inasmuch as it improves on the Mn/Fe ratio of the manganese ore used.

Time factor has up to now been extremely good. The Wargon company report that during these first five months' operation shut-downs caused by the furnace account for only 0.8 per cent of total operating time.

Operating Personnel:

Like the covered, rotating carbide furnace this furnace is fully automatic, no stoking is required and slipping of the electrodes is automatic by slacking the Wisdom brakes.

There is one man per shift on furnace operating floor, which means a saving of at least one man per shift as compared with average conditions on open, stationary ferro-manganese furnaces. The furnace has two tappers per shift.

New Installations:

A covered, rotating furnace for smelting of standard high carbon ferro-manganese is under erection by Porsgrunn Elektrometallurgiske A/S, Norway. This furnace is rated at a load of 6,000 kW and is scheduled to be started this spring or summer.

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Blast Furnace Slag in the Cement Industry

By F. E. D'ARCY-SMITH DIPL. ING., A.M.I., MECHE.

I. Introduction:

Profitable use of Blast Furnace Slag has become an economic necessity in many European countries, and may have to be seriously considered in India also.

The main possible uses of Blast Furnace Slag can be listed in four categories:

1. **Lump Slag** for road and rail metalling, concrete aggregate and fertilizer.
2. **Granulated Slag** as raw material (and added material) for cement manufacture, concrete aggregate and fertilizer.
3. **Foam Slag** as insulating material, aggregate for lightweight concrete and lightweight bricks.
4. **Slag Wool** as insulating material.

We shall now deal with the use of granulated Blast Furnace Slag in the Cement Industry and will show that its use will be profitable for the Blast Furnace Works and will allow the production of a cement of normal quality at less cost than Portland Cement. The product is known as Portland Blast Furnace Cement and is the subject of Standard Specifications in most countries.

II. Hydraulic Blast Furnace Slag:

Granulation of Blast Furnace Slag is achieved by rapid cooling of the hot liquid slag either by air or by water. Although air granulation would provide a number of advantages, of which the absence of water from the finished product is of particular importance, most producers have adopted water granulation.

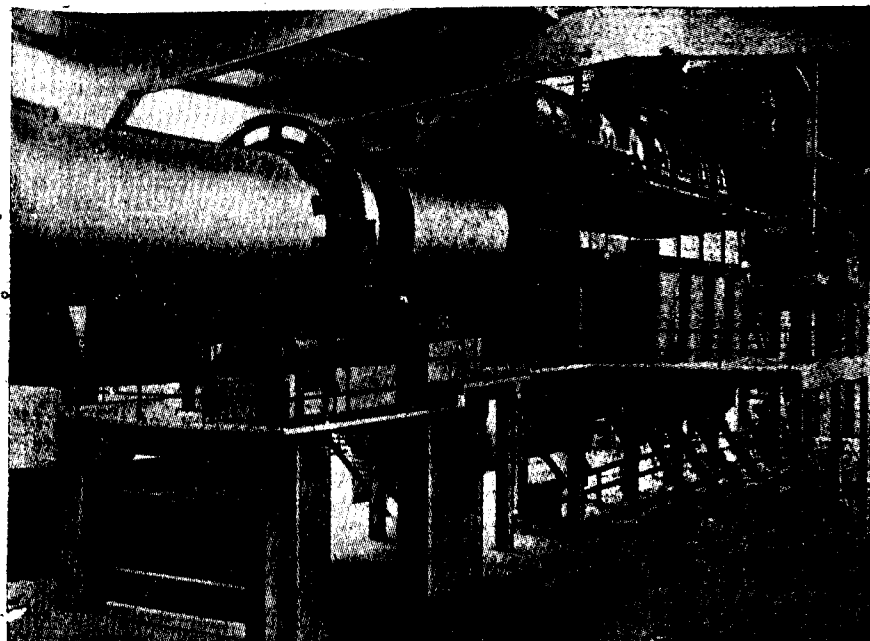


Fig. 5: Double-Pass Lepol-Kiln making Clinker in Portland Blast Furnace Cement Works.

Granulated Slag is a loose sand which, when freshly obtained by water quenching, contains up to 30% water.

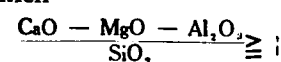
Granulation was first applied to Blast Furnace Slag only in order to convert it into a shape in which it could be easily handled.

It is however the hydraulic character of granulated slag, or its ability, in certain circumstances, to "set" and to "harden" under water—as does Portland Cement—which has led to its use for the manufacture of cement and which in some countries is responsible for as much as 30% of the total production of all the cement made.

Granulation itself must be complete and effective in that it produces a sand with the largest possible percentage of "glassy" as opposed to "crystalline" particles. The relative "glassiness" of the slag sand has long been recognized as the factor which affects the degree of hydraulicity.

Not every Blast Furnace Slag can be satisfactorily granulated and not every granulated slag when "glassy" will show sufficient hydraulicity to allow its use for the manufacture of cement. Certain chemical qualities are necessary in addition to the physical characteristics obtained by granulation.

German Standard Specifications, which allow for cements containing as much as 85% added granulated slag, call for a slag analysis in which



This formula suffices to eliminate unsuitable slags, but closer limits

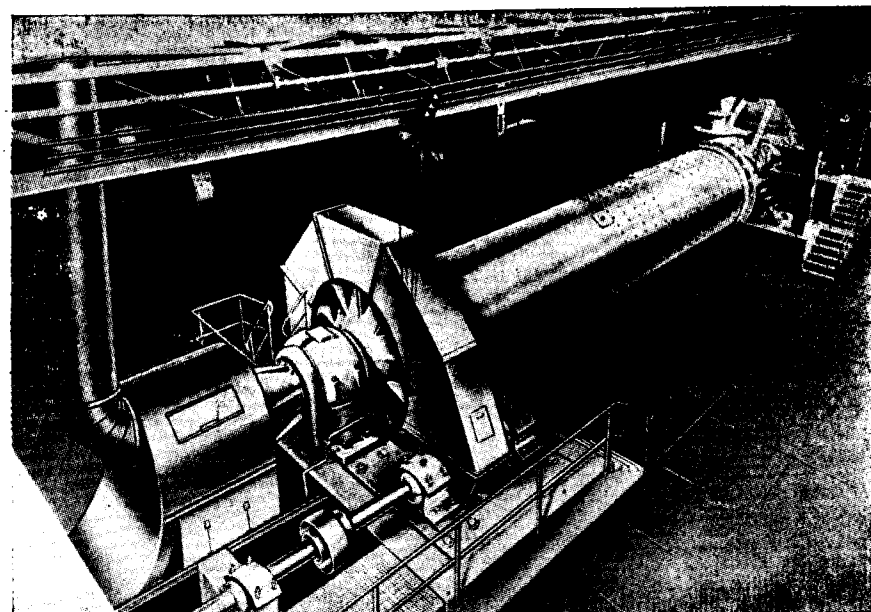
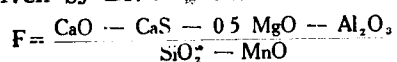


Fig. 4: Typical Cement Mill for Portland Blast Furnace Cement.

can be obtained from a formula given by Dr. F. Keil



where F should be as high as possible between 1 and 2. This does establish a better guide to the relationship between chemical analysis and hydraulicity.

It may be said in general that slags containing a high percentage of CaO are likely to have better hydraulic characteristics, but the temperature of the slag prior to granulation, the effectiveness of granulation and the percentage of "glass" as well as the analysis are all of importance.

The matter is in fact very complex and is affected also by the MgO, MnO and SO₃ content of the finished cement.

The use of slag in the cement industry therefore calls for reasonable constancy and suitability of the analysis, high slag temperatures will not necessarily be popular with the Blast Furnace Manager, the overall benefits of the profitable disposal of relatively large quantities of slag will usually compensate the extra forethought and attention required.

III. Portland Blast Furnace Cement:

While a great variety of cements can be made with suitable hydraulic Blast Furnace slag, the following notes are restricted to Portland Blast Furnace Cement such as is the subject of British Standard 146/1947 and of the corresponding Indian Standard Specification which is in course of publication.

Portland Blast Furnace Cement in fact produces concrete which when used in sea water works and in other special applications is better than that obtained from Portland Cement.

This type of cement which consists of normal Portland Cement clinker ground with up to 65% added granulated slag is based on the fact that the Portland Cement clinker—when mixed for concrete—provides the alkaline stimulant which activates the latent hydraulicity of the slag to such an extent that the finished concrete is as strong as that made from pure Portland Cement.

Manufacture may be divided into the making of ordinary Portland Cement Clinker and the mixing and grinding of this clinker with the relevant quantity of slag.

As will become clear from the following there are two distinct uses of slag in the manufacture of this cement, but since the larger quantity is required as granulated slag, it will in most cases be as well to base the manufacturing process on this type of slag only.

The use of granulated slag as a raw material in clinker manufacture, also secures advantages as regards fuel consumption. This "raw material" slag need not be granulated, but its use simplifies the factory and provides incidental advantages of a chemical nature also.

The process and the quantities of material involved will be as shown in Fig. I.

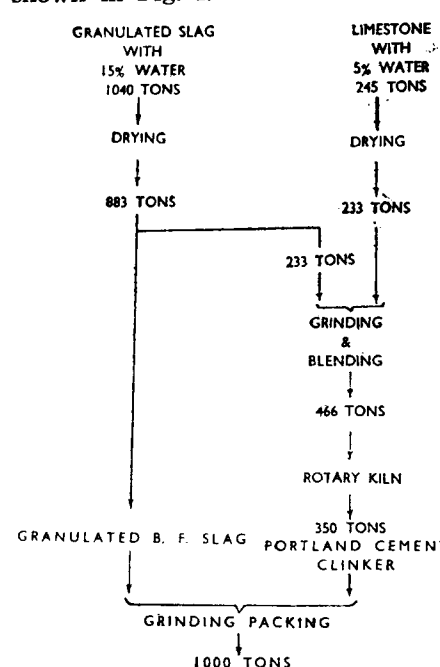


Fig. 1: Diagram of Process and Quantities of Raw Materials.

It will be seen that the manufacturing process requires much the same mechanical equipment as that of ordinary Portland Cement except that the drying of raw materials, slag in particular, calls for special attention. Care must be taken not to overheat the granulated slag during drying since this might destroy or diminish the hydraulic qualities which represent

RAILWAYS AND STEEL

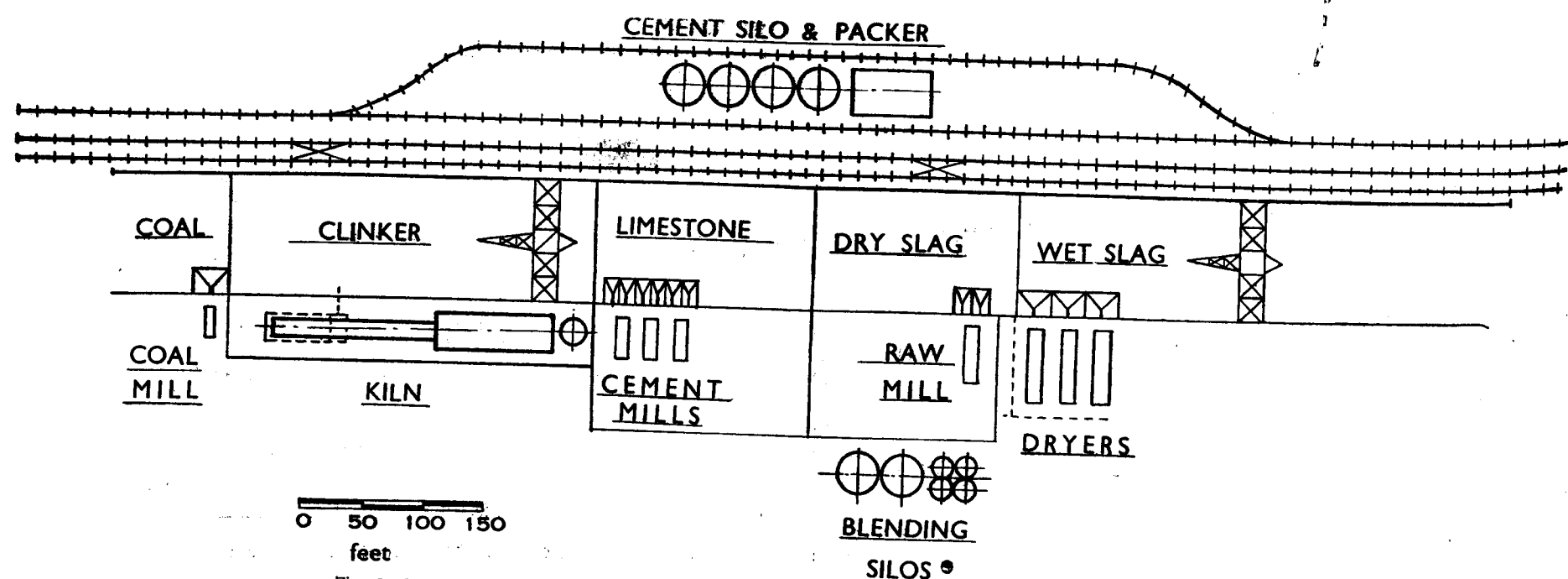


Fig. 3: General Arrangement of a Works for the Production of Portland Blast Furnace Cement.

so important a factor in its use for the manufacture of Portland Blast Furnace Cement.

Since slag forms the greater part of the raw materials required and since—in its watergranulated form—the amount of drying, or water evaporation, is considerable it might be assumed that the wet process of clinker manufacture would prove most economical. The main reason why the dry process is almost universally adopted is to be found in the hydraulic qualities of the slag, which alone make its use possible and which, when processed on the wet or slurry process, lead to difficulties due to uncontrolled setting. This causes blocking of conveyors and pipelines at the worst and loss of hydraulicity at the best.

IV. Economics of Portland Blast Furnace Cement:

Given normal moisture content for usual raw materials, the fuel required for the manufacture of ordinary Portland Cement may be taken at 25 per cent with the wet process, which is not applicable, and at about 13.5 per cent with the special "Lepol" semi-dry process.

When using granulated slag or a raw material for clinker manufacture, the fuel requirement for this part of the process may be as low as 11.5 per cent because the slag is already calcined and the quantity of raw limestone which requires calcination is much less than is the case with normal raw materials for Portland Cement.

If therefore the clinker content of Portland Blast Furnace Cement is 35 per cent the fuel requirement for the finished cement may be as little as 40 tons of standard coal per 1000 tons of cement.

The total consumption is of course increased by the fuel required for drying the granulated slag.

Quite clearly the water content of the granulated slag is of very great importance and affects the overall fuel economy of the process. This accounts for the efforts made in the field of air granulation and in the design of special

water granulated slag. Equipment capable of producing water-granulated slag with not more than 10 per cent water is now available.

Climatic conditions in India are such that much drying could be achieved merely by storing and turning over by means of suitable crane.

The power consumption for the manufacture of ordinary Portland Cement may be taken at approximately 100 KWh per ton on the wet process and say 110 KWh per ton on the semi-dry process with Lepol Kin. With Portland Blast Furnace Cement this power requirement is considerably reduced because a large proportion of the finished cement is ground once only instead of twice. The actual power depends on the grindability of the slag and the type of the grinding mills used, but it may be assumed that about 90 KWh per ton of finished cement would be a safe figure.

Fig. 2 gives approximate comparative figures for quantities of raw materials and standard coal required per 1000 tons of cement for different processes and types of cement. It shows quite clearly the remarkably low fuel consumption for Portland Blast Furnace Cement and the quantities of slag which can be profitably disposed of by the Blast Furnaces for this purpose.

The manufacture of Blast Furnace Cement in fact becomes even

more interesting if the plant is built within a reasonable distance of the Blast Furnaces supplying the slag.

Such an arrangement reduces transport charges for the slag and also allows the use of Blast Furnace gas, which may be available, for drying and—when mixed with coke-oven gas or with pulverised coal—for firing the rotary kiln. The effective fuel bill will thus be reduced even further.

In addition it may be possible to supply to the Cement works small size limestone, not suitable for the Blast Furnaces, but eminently desirable in Cement Manufacture because preliminary crushing can be eliminated.

There are therefore a number of other factors which improve the economic advantages of the manufacture of this type of cement over and above the fuel and power economy already mentioned.

V. Layout of Works and Equipment:

Fig. 3 shows in outline a general arrangement of a works for the manufacture of Portland Blast Furnace Cement. Except for the facilities for drying the granulated slag it is very similar to that of an ordinary dry process cement works.

The dimensioning of the individual units requires special care on account of the difference between the capacities of rotary kilns and

cement mills. While these are much of the same order in the case of ordinary Portland Cement, the plan shows (Fig. 3) one raw mill and one kiln producing say 178,000 tons of clinker per year but cement mills for up to 470,000 tons of Portland Blast Furnace Cement.

Although there are certain detail variations in the grinding technique, called for by the widely different grading of materials, both in the mills for cement, the machines in principle are all as known in the Portland Cement Industry.

An important contribution to the economics of the manufacturing process is the newly developed "Double-Pass" Lepol Kiln. (Fig. 5) This rotary kiln has an exceptionally low fuel consumption and also reduces to negligible proportions the dust loss—and therefore the dust nuisance—from the chimney.

VI. Conclusion:

Given a suitable slag analysis, reasonably maintained, and proper granulation, Blast Furnace Slag shows latent hydraulic characteristics which make it possible to manufacture a Portland Blast Furnace Cement consisting of Portland Cement clinker and up to 65 per cent Blast Furnace Slag.

The qualities of this type of cement are equal to and in some respects better than those of ordinary Portland Cement. It is used in exactly the same manner.

Portland Blast Furnace Cement requires for its manufacture less power and considerably less fuel than ordinary Portland Cement.

The quantity of slag which can be used depends on the hydraulic characteristics and may amount to 88 per cent (dry slag) by weight of the cement made.

Since the greater part of the raw materials used are waste products which normally call for expenditure to cover disposal, a proposal for the manufacture of Portland Blast Furnace Cement requires careful consideration.

Portland Blast Furnace Cement made in Germany amount to about 30 per cent of the total production of cement in that country.

Raw Materials and Coal required tons for 1000 tons of:	Limestone 5% Moisture tons	Clay or Shale 5% Moisture tons	Granulated Blast Furnace Slag 15% Moisture tons	STANDARD COAL FOR		
				Clinker tons	Drying tons	Total tons
Portland Cement (Wet Process) ...	1365	153	...	750	...	250
Portland Cement (Dry Process) ...	1365	315	...	129	14	143
Portland Cement (Dry Process) ...	700	...	785	115	26	141
Portland Blast Furnace Cement (35% Clinker) ...	245	...	1040	40	29	69
German Blast Furnace Cement (15% Clinker) ...	105	...	1115	17	30	47

Fig. 2: Raw Material Quantities and Coal Consumption

THERE still is in this country an inadequate appreciation of the necessity to plan and provide transport in advance of industry. By all modern standards, our Transport capacity is meagre and development slow. In a vast sub-continent with distant coast lines and few natural harbours, it falls to Railways to move the traffic at the speeds and in the volumes demanded by large scale agricultural and industrial expansions. In 1931, undivided India had 120 miles of Railways for every million population against corresponding figures of 2132, 460 and 206 for U.S.A., U.K. and Japan. With the division and growth of population, India has now only 96 miles per million. Its 34,275 miles of rail road lie in 1.14 million square miles (the figures refer to censused regions only), thus giving roughly 3 miles per 100 square miles of territory. Contrasted with a picture of the cobweb like distribution of railways in highly industrialised countries of the west, the last figure is impressive for its insignificance. It is against this that the vital importance of putting Railway capacity in the forefront of any planning has to be understood and appreciated. To the Indian Railways, it is not a question of adjusting transportation capacity within available resources but of creating this anew with all that it means in money, time and trained man power.

2. Every single factor is so important. With the separation of its finance, any project that smacks of the rail element is deemed to be the responsibility of the Railways. But it is a one way traffic. While they must share the burden for all their works, normal or accelerated, their contribution to the general revenues must not fall. This expectation, based on the ultimate benefit to earnings that is oft used as an argument and an inducement, is hard to fulfil. When money is scarce, distant profits cannot alone prompt present investments on large scale to suit one industry, but these must be diverted in channels that will serve the most though individually not as well. In other words it is the total service to the development of the economy of the country as a whole that must govern the railway expansion policy. To this end overall co-ordination and understanding is necessary but it is a hard fact that neither is forthcoming to the desirable degree. The inherent difficulties of detailing a vast National plan to this extent so soon could be admitted only to the extent that the desire and energy to do so are apparent. But whether credited or criticised, railway communications can expand only within this range of rationalised and integrated requirements

and shortfalls in service to any individual enterprise must for the present be met by financing the gap from its own capital outlay budget. It would be well to recognise this principle. So may the risk of retarding benefits by unbalanced developments be eliminated and confidence in investment created by securing an immediacy of promised results. With an all-round scarcity of building materials and technical personnel, such a policy of railway development aiming at service to many needs by one plan, is the only practicable one, even if investment capital were available from other sources.

3. The major impending demands on Railways are from the mineral industries. The River Valley Projects promise to add their share by agricultural improvements but in lead and volume these take a second place to coal and ore. Both have a good future; at least that should be secured as they serve so much in balancing import payments. Manganese ore enjoys a good reputation outside and iron ore must be saved from the fall and the export demands increased. Steel and pig iron output has to be stepped up beyond the existing plans and ferro-manganese made to convert low grade ore to exportable units. Thus may the internal demands be fully met to reduce imports, and surpluses created to foster exports. The heavy industries to be set up will need more coal and further exports should also be secured to gain more employment and development of finance. These then are the immediate needs that the Railways must plan for. In the project phase itself there would be counter movement from Ports of machinery, and from elsewhere, building materials.

4. Out of a total goods traffic of 24390 million ton miles on the Indian Railways, the mineral traffic now amounts to nearly 7500 million ton miles. The Eastern Railway has been carrying the bulk, the rich mineral belts being in its territory. Its share of traffic in coal and ore is over 80% of the total traffic in these items. The expansion programmes of coal and ore, both in export and in processing, fall within its region and it is estimated that this will account very roughly for 2650 million ton miles, distributed as 600 million ore export and 700 million ore processing in the new steel plant and in the expansion programmes of Tatas and Martin Burns in the Asansol area and 750 million ton miles in the connected distribution of finished products. Thus the Eastern Railway will have to handle extra 35% of its existing traffic mostly concentrated over

half its length. Thus the volume and intensity of development required assume staggering proportions.

5. Against this general background of Railway needs the anxiety not to duplicate requirements should be judged and plans to secure the optimum output of all traffic understood. The controversies regarding the location of a new steel plant are happily over, though one wondered why they were allowed to be developed by allowing extraneous arguments to encroach into technical fields. The final decision to locate the third steel plant at Rourkela suits the Railways admirably. Rourkela is about 260 miles west of Calcutta on the Calcutta-Nagpur trunk line of the Eastern Railway, with the big steel industry of Tatas about 100 miles to its east. The section is suitable for heavy loads and high speeds. Rourkela is almost on the fringe of the rich iron and manganese ore deposits of Barajamda, Taldih and Koira.

6. Even when the necessity for a new state-owned steel plant was under examination, the existing steel industries run by Tata Industries Ltd., and Martin Burn & Co., had decided to expand their works and asked the Eastern Railway to meet their transportation demands. Accordingly, detailed investigations to augment its carrying capacity were undertaken and the necessary line capacity works and purchase of new rolling stock and locomotives arranged in a phased programme covering three to four years. The possible requirements of the New Steel Plant were also kept in view. The traffic forecast for raw materials given by Tatas and Martin Burn were:

Material.	Annual Tonnage.	Average Load.	Traffic in million ton miles.
Tatas:			
Ore ..	6,30,000	80	230
Coal and Fuel Oil ..	6,00,000	110	
Lime Stone ..	95,000	120	
Martin Burn:			
Ore ..	14,80,000	175	375
Coal ..	12,00,000	20	
Lime Stone ..	4,60,000	200	

and the corresponding figures for a New Plant of 500,000 ton capacity assumed at a later stage were:

Ore ..	700,000 Tons
Coal ..	800,000 "
Lime Stone ..	230,000 "

leads being dependent on the site.

7. The coal demand of 870,000 tons by the New Steel Plant and the ore demand of 14,80,000 tons from Rourkela, and at the Port loaded with imports. The Rourkela site thus leaves to the Railway the initiative of integrating various demands and rationalising movements to secure the optimum utilisation of rolling stock. Nothing should be done to snatch this away by altering the raw material sources.

the Rourkela Steel Plant. Ore has to move to the Martin Burn industries via Sini, Kandra, Chandil and Adra and coal from Bhojudih & Asansol has also to take the same route. Thus wagons of coal to Rourkela can return with iron ore. After unloading in the works they are moved on to the collieries for their second trip to the new steel plant. From Rourkela to the ore mines via a new line surveyed, it is only 60 miles and from the Asansol mills the collieries are but 30 miles away on an average. The round trip for the wagons in the above plan is a 450 miles journey, in which they run empty only for 90 miles at the most. At all times the Asansol mills have to take their ore from Barajamda area and at any other location of the new Steel Plant, the mines have to receive separate empties or the same after a longer empty haulage.

8. It is seen that the ore requirements for Asansol are larger than the coal requirements for Rourkela. In wagon loads the two amount to 74,000 and 40,000 respectively. For the carriage of the difference, special type vehicles will be used. These being suitable only for ore, have to move empty in one direction and this disadvantage must be offset by the saving in loading and unloading time. Such limited utility stock is designed to give this and since the terminal lines in short leads influence the stock availability more than the transit time, they ultimately turn out to be as economical in outlay. In practical working it is never possible to eliminate the use of general service wagons and in any large scale movements it is essential to plan for their part use and secure their back loading as quickly after release as possible.

The ratio of the demands and the disposition of material resources make such utilisation possible with the new Industry at Rourkela. Whenever greater availability of special stock is secured, the coal wagons can take ore to Calcutta Port via Tatanagar and Kharagpur, a lead of 300 miles via the mines from Rourkela, and at the Port loaded with imports. The Rourkela site thus leaves to the Railway the initiative of integrating various demands and rationalising movements to secure the optimum utilisation of rolling stock. Nothing should be done to snatch this away by altering the raw material sources.

8A. In iron processing the major ingredients are coal and ore, but the flux, so to say, holds the balance of power. The map on page 2 of the steel section will show that the ore and coal concentrations are never at one place, but apart. The Asansol works are on coal, but depending on a nearer but smaller ore mine initially now nearing depletion. The Tata works have ore and flux near and coal far, Rourkela would come under this category but with greater advantage in respect of lime stone. In it will go roughly 40 million ton miles of ore transport, 149 ton miles of coal handling and 4 million ton miles of flux movement. Against this total of 193 million ton miles, the alternate sites under consideration involved over 250 million ton miles of transport immediately with a small reduction possible later with the opening of new mines and lines.

RAW MATERIALS.			
Site	Total quantity in million tons.	Total ton miles (million).	Total freight (million) Rs.
Durgapur (W. Bengal) ..	1.7	24.8	11.7
Rourkela (Orissa) ..	1.7	193	11.2
Bhilai (Madhya Pradesh) (Immediate) ..	1.7	310	12.5
Bhilai (Future) ..	1.7	218	11.3

FINISHED PRODUCTS.		
Place	Total quantity in million tons miles.	Total freight (mill Rs.)
Durgapur ..	360	28.1
Rourkela ..	350	27.8
Bhilai ..	352	28.4

In the above computation the proportion of distribution between various centres is that roughly assumed by the Technical Mission i.e.

Calcutta ..	200,000 tons
Bombay ..	100,000 "
Madras ..	100,000 "
Amritsar ..	50,000 "

Thus wagon utilisation becomes the more important factor in overall National planning.

10. The volume of raw material traffic to be handled for the Rourkela industry is as follows:—

	Number of Trains Daily.
Iron Ore ..	2.3
Coking Coal ..	2.5
Flux ..	1

This is assuming the average net load of train to be 1000 to 1250T depending on the sections of its travel and loading for 300 days in the year. Since the branch line to the lime quarries is from Rourkela itself, this train is no problem but the approach sections to Rourkela have to handle 5 trains more; in practice an extra train must be allowed to cover lapses in loading, flow etc. Beyond the junction of the ore line whether existing or new, the additional capacity required is only for coal i.e. about 3 trains. When the movements are connected with continuous process industries like steelworks it is essential that some reserve capacity exists to meet eventualities. With Rourkela works scheduled to expand within a short time, the extra works done should be such as are capable of easy extension to deal with such expansion in the most economical manner.

With the scope for integrating other traffic demands less, the increase of 20% of transportation volume loomed as a heavy burden to the Railway as the corresponding costs of additional facilities was disproportionate to the extra expenditure for the Rourkela works.

9. The freight charges on the raw materials and the finished products are important considerations governing the location of an industry. In steel, there is a certain concentration of demand in the nearer zones and consequently in this country of great distances, the total freight charges in the distribution of the steel products vary but to a small extent. It is interesting to observe how the natural distribution of the raw materials resources and the rate structure keep even this freight cost varying only in a small range. The approximate figures for the different sites examined are

RAW MATERIALS.			
Site	Total quantity in million tons.	Total ton miles (million).	Total freight (million) Rs.
Durgapur (W. Bengal) ..	1.7	24.8	11.7
Rourkela (Orissa) ..	1.7	193	11.2
Bhilai (Madhya Pradesh) (Immediate) ..	1.7	310	12.5
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Durgapur ..	360	28.1
Rourkela ..	350	27.8
Bhilai ..	352	28.4

11. Iron ore from Barajamda area has to be routed now via Raj Kharswan. The lead could be reduced by 50 miles if a new line about 30 miles long is constructed from that area to join the main line at Manoharpur. Such a construction was mooted to open up the area in connection with export of iron ore through Vizag harbour and the relief required on the existing line from Bara Jamda to Rajkharswan which has no more capacity left to deal with the additional demands for iron ore in the expansion schemes of the existing steel works. This new line from Gua to Manoharpur will now bring the ore nearer to Rourkela and shorten the lead of the back supply of coal empties to the ore mines. The feeding of these being taken off the Bara Jamda-Rajkharswan section it is left with adequate capacity to move all the ore required for expansions and exports through Calcutta Port. Thus incidentally is the Manoharpur-Rajkharswan section enabled to carry more coal trains. The Gua-Manoharpur link is an instance of one work giving multiple relief.

12. There are two sources of coal for the new steelworks. It may be moved from the Jharia area where good metallurgical coal has been pegged against very such demands or from the Bokaro coalfields yielding also suitable varieties from the Government collieries. The advantage with the latter is that large size centralised loadings are possible with the result of easier formation of full loads for movement, whereas in the former mostly in private hands, the supply has to be

collected from various parties to whom the sale advantage must be distributed. West Bokaro supplies do not give the same advantage of returned empties carrying ore for the Asansol steel works, as in the cyclic movement more empty haulage is involved. To move coal from Jharia, extra Railway facilities are required from Kandra to Asansol whereas for the other, the Kandra-Barkakana section has to be improved. In a sense this may be termed a duplicate development for the present as ore in any case has to move to Asansol and this route has to be developed. From Kandra to Rourkela the extra facilities are common to both sources. With Bokaro coal, the empties have to be used to less advantage in carrying export ore.

13. Depending on the distance between stations and the gradients, the capacity of the line changes from section to section and a uniform quantum of development will not meet the needs. The route has single and double line sections but both are worked almost to capacity. Single line sections have to be doubled and double lines provided with intermediate stations and passing facilities to cope with the extra traffic. The minimum line capacity is on the single line section of 8 miles near Kandra which, for other traffic, is due doubling. The next bottleneck is Rourkela—Manoharpur, the doubling of which would be the direct outcome of the steel works at Rourkela. The improvements to the double line sections would be both on account of the new steelworks and the expansions to the existing ores.

14. So far on the raw materials side—movement of the finished products demand similarly improvements in the Bombay and Madras directions. Even towards Calcutta, raw materials do not automatically provide as special rolling stock is required to take the products and these must move as empties in the same direction as the raw materials.

15. On a rough assessment the additional line facilities required for the expansion programme of the existing steelworks are expected to cost Rs 758 lakhs out of which Rs 100 lakhs would be common for the new steelworks. Over and above this the additional facilities serving this alone would amount to Rs 157 lakhs. The nature of expansion is such that in doubling

	Engines.	Wagons.	Ordy.
New Steel Plant ..	37	1175	50
Expansions to existing ..	56	721	80

	Cost of new line works	Total
New Steel Plant ..	15.7	65.7 say 66
Expansions ..	75.8	155.8 say 156

19. Though the productivity of such investments must be viewed against the all round national development it fosters, these must be nearer tests and closer yardsticks of performance for each functional outlay if only as a check

the capacity of the Rourkela plant, extra line works would cost only another Rs 43 lakhs. The share of the steelworks in the development cost of the Rourkela-Raipur section under other plans would be about Rs 25 lakhs.

16. Railway investment is not confined to line capacity works only. The additional handling of 1400 million ton miles of traffic calls for more locomotives and rolling stock. Since the Railways are already on the short side with respect of these, they have to be purchased new. In ordering these, departures from conventional types are to be considered if they would produce an overall saving. The problems of spares for new types and special maintenance are not to be overlooked. The rolling stock commonly used in connection with steel works are:—

- General purposes wagons for coal cost Rs. 11,000/- each.
- Hopper wagons for ore cost Rs. 25,000/-
- Ordinary and hopper wagons for lime stone and
- Bogie rail trucks for finished products—of long lengths—cost Rs. 25,000/-
- Ordinary wagons or platform trucks for other products like ingots plates etc. cost Rs. 11,000/-

A new type under contemplation for the conveyance of ore to Asansol mills is a 60-ton hopper wagon with improved gadgets for quick unloading, these wagons being used in conjunction with mechanical belt conveyor handling equipment at the mines and the mills. Such wagons are estimated to cost Rs 42,000, but are expected to give a turn round of 3 days max. compared with 6 days nearly for the K.O. hopper. Quicker turn round reduces capital expenditure as the number of wagons required for handling a particular traffic is the daily requirement multiplied by the turn round time in days. There is general difficulty in obtaining sufficient wagons for annual purchase and any special types must take longer to procure but the Railways expect to provide all stock in time to meet the traffic, by indigenous manufacture, if possible, import, if necessary.

17. According to these hopes and estimates the rolling stock requirements and outlay are put down as:

	KOs.	Spl. hopper.	BRT	Cost in M. Rs.	Total
New Steel Plant ..	262	216	50	50	50
Expansions to existing ..	1041	375	195	80	80

	Cost of Rolling Stock (in million Rs.)	Total
New Steel Plant ..	15.7	65.7 say 66
Expansions ..	75.8	155.8 say 156

against fanciful planning. To Railways which though a public utility service have to be run on commercial concepts, with its separate finance and budget, such immediate tests are vital. They

(Continued on page xi)

Machine Tools & Production Machines

By F. FUCHS, V.D.I.

Introduction:

Machine Tools and Production Machines cover a wide field but only a short resume of the fundamental principles can be given here although they play an important part in our daily life. No industry can be developed without Machine Tools and Production Machines and it must be the aim of all responsible people in under-developed countries to get their Machine Tool Industry developed or re-organized. Countries highly developed technically, whose raw material basis is fully developed can manufacture almost everything for our daily requirements made from iron, steel and also from any other metal.

In technically under-developed countries, mostly by private initiative, industries have been started based upon imported semi-finished materials. It goes without saying that such industries are liable to be very sensitive to market disturbances as recent history has proved. It must be the aim of every government in technically under-developed countries to develop first their raw material sources and on the strength of these developments to build up their different industries. There are many forces which compel governments to develop their industries in order to:—

- become independent of foreign goods as much as possible, especially in times of political disturbances
- balance their export and import trade in order
- to save foreign exchange of which many countries are still very short.

The main raw materials required for industrial development in every country are Iron and Steel. If in a country iron ore, coal and any other auxiliary materials are available, it must be the first step to develop these sources and produce semi-finished materials such as Pig Iron, Iron and Steel Bars, Beams, Rails etc., on the strength of which special industries can be developed. Of course, this must go together with the development of power supply, transport installations such as railways, waterways, and ports. A constant flow of standardised semi-finished materials must go to the industries built upon the basis of the raw

material sources. The most important industry to be built up is the Machine Tools and Production Machines Industry, as Machine Tools and Production Machines are the life line to start other industries like Locomotive Works, Wagon and Carriage Works, Shipbuilding Yards, Motor Car and Truck Factories, Diesel Engine Factories, Pump Factories and others. The above-named industries alone will take the bulk of the semi-finished materials fabricated in Iron and Steel Works. Of course, there is a multitude of other smaller and medium-sized industries which also need a proper flow of semi-finished materials such as Bolt and Nut Factories, Wire Products Factories and Utensils manufacturing factories. Those responsible for the development of the country may do well to consider first developing the Machine Tools and Production Machines Industry in a rational way keeping in mind the overall development of the country. When this industry is properly developed the right progress will be made to lead the country to prosperity. Statistics are the guide of economics and provide the tools on which these officials should formulate their policies.

History of Machine Tools:

Man is a tool-using being. He knows how to make tools and how to use them; with these he can turn rocks into dust and form hot iron just as easily as wax. Nowhere do you find him without tools because without them man is nothing, whereas with them he can do almost anything.

The Machine Tool is the basis of all machines because it is the only machine which can reproduce itself. It is therefore one of the most important factors in the improvement of our civilization because it serves our ability to use certain tools without a special knowledge how they work or how they are made. At the beginning of human life the primitive man discovered the use of fire and applied it to cook his food. At a later stage he learned to melt iron and forge it into sword for self-defence and into ploughshare to help him grow his food. He did all that without preliminary knowledge. Even in our present semi-civilized stage we do not as

yet know too much of the basic principles involved in many of the processes in our daily life.

Slow progress without basic knowledge is possible; but in recent years we have learned that our rate of progress has accelerated tremendously as knowledge has been acquired. In fact only by acquiring such knowledge we can find a solution to technical problems which now confront us.

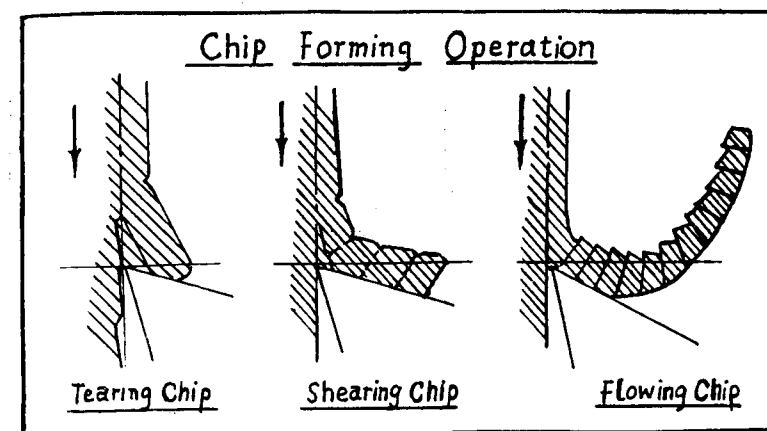
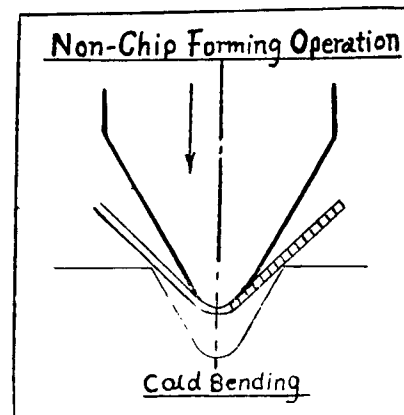
Over the past years we have learned to use all metal cutting tools without really knowing how they are used. We have learned a lot about speeds and feeds, but in order to improve the mode of production for greater output and higher quality of finish it is necessary that we obtain a clear understanding of what is taking place at the cutting stage. In spite of a great deal of research we still find many false conceptions of cutting tool actions, both in shop and in theory. It is a matter of fact that today there is a constant race between Tool Steel Manufacturers and Machine Tool manufacturers. The Steel manufacturers today are compelled to do constant researches in order to meet the requirements of the industries and of course due to higher qualities of tools, Machine Tool manufacturers have to follow suit in designing machines suitable to make the full use of tools possible supplied by the Steel manufacturers. Nearly everyone of the older generation of engineers knows that in the beginning we had only ordinary Tool Steel (Carbon Steel). Then the time came when High Speed Steel (Tungsten Steel) was developed. Most of the Machine Tools at that time could not stand the strain when using the full capacity of the High Speed Steel. The same situa-

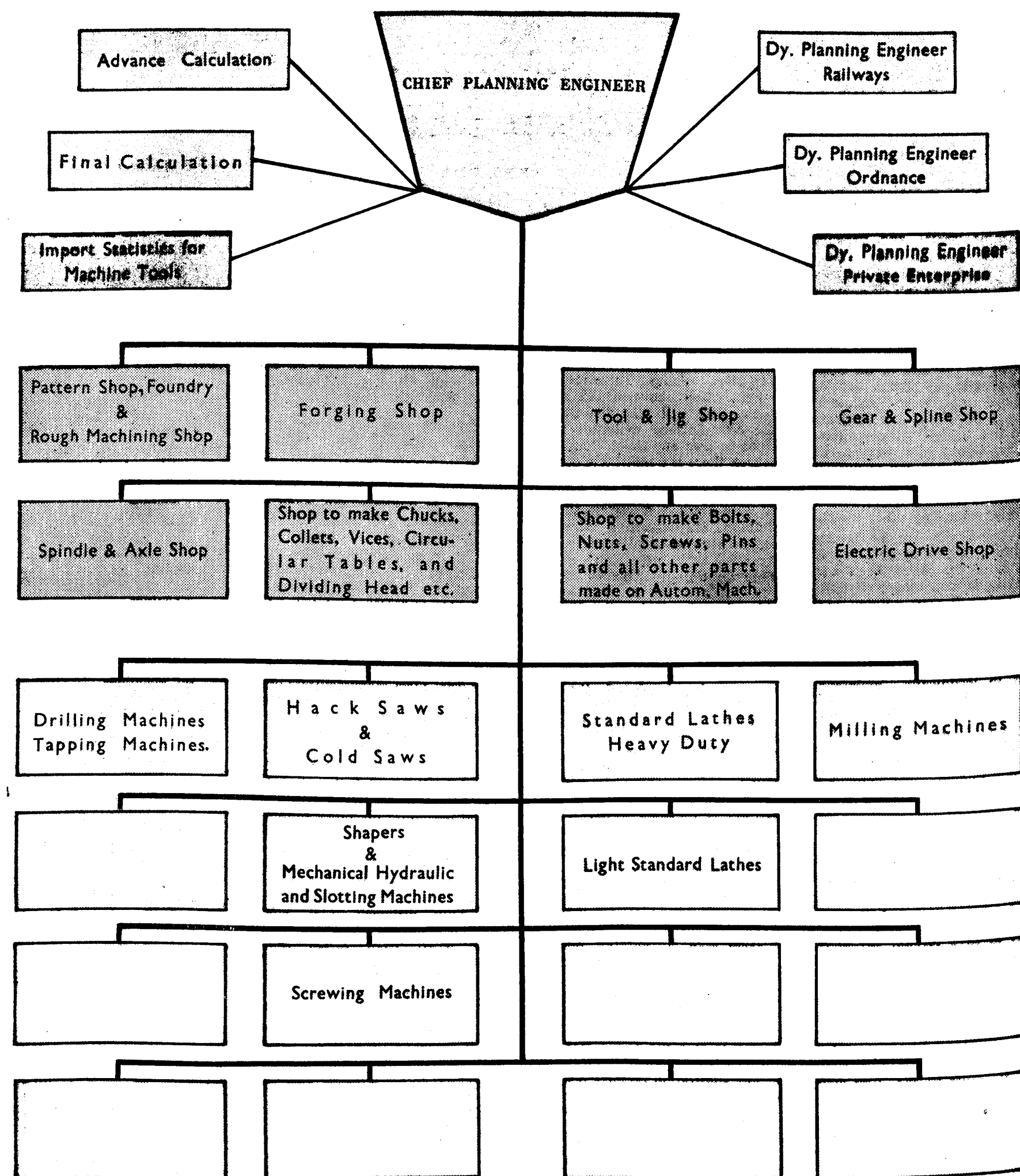
tion repeated when Carbide Tungsten Steel was invented. If we compare Machine Tools of these 3 stages we find that the weight of Machine Tools has almost doubled in order to make full use of the improvements on cutting tools.

Classification of Machine Tools:

Before going any further we have to make a classification of the Machine Tools and Production Machines which are at present used. There are two main groups:

- (1) Machine Tools for metal-cutting shaping:
 - Planing, Slotting, Broaching Machines.
 - Lathes, Parting-off Machines and Threading Machines.
 - Turret Lathes and Automatic Lathes.
 - Drilling, Boring and Tapping Machines.
 - Milling Machines and Combined Boring and Milling machines.
 - Sawing, Filing and Cutting-off Machines.
 - Grinding, Lapping and Polishing Machines.
 - Gear Cutting Machines.
 - Universal Machines for Metal-cutting shaping.





(2) Machine Tools for non-cutting shaping:

Hammers for Hand Forging.
Bending and Straightening Machines.
Riveting Machines.
Drawing Machines.
Special Machinery for the manufacture and subsequent treatment of tubes.
Presses Hand and Treadle operated.
Sheet Metal Working Machinery (except presses).
Wire Working and Wire Converting Machinery.
Machines for the non-cutting shaping of Bolts, Screws, Rivets and Nuts (including the necessary metal-cutting machines).

There is a third important group of Machine Tools and Production Machines which has only been developed during the last 3 to 4 decades. These are Machine Tools for special purposes, the so-called Single Purpose Machines.

We often overlook the fact that the most useful thing that man has developed is the Machine Tool. How many of us consider that being everything we have in daily use leads back to a machine which has produced it—the Machine Tool. Machine Tools for any kind of forming and shaping such as planning, turning, milling, grinding or polishing are called Metal-Cutting shaping process, whereas pressing, drawing, forging, casting, diecasting etc., are non-cutting shaping performed either in cold, or hot or melting processes. One should talk more often about the progress of these performances, dictating the progress of civilization because it is a subject which is inexhaustible.

We daily discuss the tremendous progress of technique of our century. Most of the time we speak about the great achievements of the techniques of aeroplanes, ships, automobile construction, jet engines, turbines, rockets etc., but very seldom will you hear anything about Machine Tools without which not even a single motor, piston, ball bearing or even the smallest screw needed in any of these productions could be made possible.

The times are long over when articles of daily use were made by hand in small shops. The population of the world is ever increasing; simultaneously their demands have grown. Consequently many things in our daily use have to be manufactured in mass production. The simple tools like Hammers, Saws, Files, Scrappers and Drills used formerly by hand have been replaced by Automatic and Semi-Automatic Machines, Mechanized Hammers, Sawing and Filing Machines, Drilling Machines etc., because they are able to do the same work much more economically, accurately and reliably.

More than anybody thinks, Machine Tools are influencing our time, our culture and our civilization.

The Tool is a product with a history reaching as far back as the

time when the first man walked on this earth. Throughout this time we have achieved a technical perfection with considerable improvements in the design and material which are the keynote of the latest requirements throughout the world. Many thousands of designers of Machine Tools are working all over the world to make them better and better. The aim of highest efficiency is achieved by three principal points:—

1. More powerful and rigid design to keep pace with the development of Tool Steel.
2. Adopting semi-automatic and automatic working methods to make the machines fool-proof and as much as possible independent of skilled labour.
3. Design of the Machine Tool as a special or single purpose machine to achieve the largest possible output and highest possible precision and interchangeability of parts.

Since we already know that the Machine Tool is the basis of all machines, it is also the original source of every manufactured article we use. It influences almost every phase of our physical life. Not only is it the only machine which can reproduce itself, it is also the only one which can create other machines as well as an improved image of itself. In simple terms, a Machine Tool is a power-driven machine designed to cut or shape metal and other materials. From the Machine Tool flows every object of our industrialized world such as automobiles, aeroplanes, diesel locomotives, washing machines, electric stoves, radio sets and many other things. Other articles such as food, drugs, lumber, paper, toilet articles, clothes etc., are brought forth from machines which themselves were born of Machine Tools.

Without the Machine Tool the engineer would be stripped of his power and opportunities. Every tool, machine and even some materials used by the engineer to accomplish his purpose trace back to Machine Tools or are evolved from machines which themselves were produced by Machine Tools. The engineer is the guiding force behind the Machine Tool; without the engineer the Machine Tool cannot function. His chief purpose is developing power and making things. He takes an idea and develops it into a final finished product. The finished product may be a pen point, a sewing machine, an electric razor, a steam turbine or almost anything.

In a complex mechanism like a steam turbine, one engineer seldom touches on every phase of the development. The turbine may require and use the services of a Mechanical Engineer skilled in the application of thermodynamics or the flow of heat, a Chemical Engineer to utilize all the by-products of the fuel used, an Electrical Engineer to convert the mechanical energy into a convenient form of power, an Engineer skilled in the calculation of stresses

to design the turbine blades, a Production Engineer to plan the smooth flow of material into the finished product, as well as the Research Engineer who conceived the idea in the first place.

In order to make an idea work, or do what it is intended to do, it may need to have many parts added; a power supply, gears, controls, or a container. As these components develop into a complicated mechanism, detailed drawings are made of all the component parts, as well as such sub-assembly drawings and assembly drawings as may be needed. After these drawings have been finally checked and found satisfactory, materials are ordered. While this is being done, operations on materials are planned, particular Machine Tools are assigned for each component part, time is allocated in which to make these parts, and proper tooling is decided upon. The planning of operation and tooling may be bound by the machine tools already available in the plant, or those which are found suitable to purchase.

Finally, production is begun with the material ordered by the Planning Engineer and the tools designed by the Tool Engineer and following the specifications given on the drawings by the Design Engineer. As completed, the various components are inspected under the direction of the Quality-Control Engineer, and then final assemblies. At all these stages plans may be altered in order to improve the functioning of the product, or make it easier or cheaper to manufacture.

During its development the idea must be constantly altered to fit Machine Tools. Since Machine Tools must produce this product, either directly or indirectly, the part can never be made in economic quantities unless some Machine Tools or combination of them can manufacture it.

Since all things trace back to Machine Tools, these tools are the foundation of our industrialized civilization. Like the root system of a tree, they originate all machines while helping to produce the necessities and luxuries of our life. In this way our civilization expands and becomes stronger.

Industry and civilization being mutually dependent, it is the function of the Engineer to translate our needs to the Machine Tool and machines created by it. He plays the role of a tree trunk conveying the lifeblood to the numerous branches which represent the strength of our kind of world.

What can be done with the Machine Tool and the materials available depends on the ingenuity and imagination of the Engineer. He is concerned not only with what to make, but also with making it faster, cheaper and more accurately.

Consumers are like the leaves of a tree. They are infinite in number and in potential requirements. So, too, is engineering infinite in possibilities, in ideas, and

in goals. The Engineer must understand consumers and be able to communicate his ideas to them as well as to receive their ideas. He must be able to direct them, co-ordinate them, understand their needs, and supply them with the resulting products. Without this vital characteristic, the Engineer loses his purpose and value.

From the foregoing it can be seen that the Engineer and the Machine Tool are completely dependent upon each other. Without both our mechanized society would slowly come to a halt.

Practical Suggestions for India:

In a country like India where, with the exception of a few factories which manufacture Machine Tools, this industry is in its early stage, there is an ideal field to build up a Machine Tool Industry in the most advantageous way. India should take advantage of the experience gained in highly developed countries where the Machine Tool Industry had to struggle hard to re-organize its production due to destruction by war. In countries which are already highly developed technically, it is very difficult to re-organize on account of many obstacles and the tremendous amount of money involved, because while the industry is working the flow of products cannot be stopped without heavy losses. As already stated, India is in a very favourable position as there are no obstacles to hinder development of the Machine Tool Industry except of course for the fact that big investments have to be made. It is essential to take proper care so that the already existing Machine Tools Industries, however small, are properly lined up in the General Scheme, as they have already done some spade work for the good of the country which should not be wasted.

There are three distinct phases which it is recommended should be observed in successfully starting a Machine Tool Industry:—

(Please see chart)

- (a) Planning Group
- (b) Group of Auxiliary factories serving the forthcoming Machine Tool Factories
- (c) The Actual Machine Tool Factories

In the following it is explained how these 3 groups should co-ordinate and work.

Planning Group. From the scheme it will be seen that the heart of the industry is the Planning Office under the guidance of the Chief Planning Engineer, who must be a highly qualified Machine Tool Expert having experience in designing, manufacturing and cost calculating of Machine Tools. In such an office the projects should be planned to the last and fullest detail. The Chief Planning Engineer should be assisted by:—

- (a) A Deputy Planning Engineer who should be fully acquainted with the needs and requirements of the Railways.

- (b) A Deputy Planning Engineer who should be fully acquainted with the needs and requirements of the Ordnance Factories.

- (c) A Deputy Planning Engineer who should be fully acquainted with the needs and requirements of the country in general and who should at the same time act as an adviser to private enterprises.

Provision should be made by the government that no Machine Tool Factory, as a private enterprise, should be started before the Government is consulted and a proper manufacturing programme is laid out to fill the gaps of the actual requirements. To the Planning Office should also be attached the following offices:—

- (a) An office where all advance calculations are made.
- (b) An office where all the final calculations are made.
- (c) A statistical office where all the statistics are kept for each and every Machine Tool imported into India.

The statistical office is one of the most important offices as statistics will indicate a proper way for development.

It goes without saying that the Planning Group is the most important factor in the whole scheme. Neither effort nor money should be spared to equip this Planning Office in the best possible manner. It should be centrally situated in a place where the climatic conditions will enable the staff to work without exhaustion.

Group of Auxiliary Factories serving the forthcoming Machine Tools Factories. Before starting the actual production in Machine Tool Factories a number of auxiliary factories should be erected first to serve the forthcoming Machine Tool Factories, as want of certain machine components would hamper proper flow of production in the Machine Tool Factories. Every Machine Tool has certain parts such as Castings, Forgings, Splines, Axles, Bolts, Nuts, Screws and numerous similar parts and it goes without saying that such parts can be manufactured better and cheaper in special factories. It would save a lot of money in investment as otherwise each individual Machine Tool Factory must have a different department for each of the abovementioned parts.

We can now consider the second group of the scheme. The auxiliary factories are specified as under:—

1. Pattern Shop, Foundry & Rough Machining Shop.
2. Forging Shop.
3. Tool & Jig Shop.
4. Gear & Spline Shop.
5. Spindle & Axle Shop.
6. Shop to make Chucks, Collets, Vices, Circular Tables & Dividing Heads.
7. Shop to make Bolts, Nuts, Screws, Pins and all other parts made on automatic machines.
8. Electric Drive Shop.

It has to be stressed that these shops should be erected near the raw material centres. Their different duties are specified hereunder.

1. **Pattern Shop, Foundry and Rough Machining Shop.** This shop gets the supply of the drawings from the Planning Office and its duty is to manufacture patterns according to the drawings. This pattern shop should be attached to Foundry. The Foundry will cast the different parts made from cast iron and after this they will have to be inspected very carefully. All the faces of the castings have to be rough machined in order to check their suitability. When this is done, the castings should be seasoned for at least one cold and one hot season in the open air. Seasoning castings for Machine Tools is absolutely essential just as wood has to be seasoned before it can be used. After seasoning the castings should be supplied to the different Machine Tool Factories.

2. **Forging Shop.** The Forging Shop should be so equipped that all the forgings for the forthcoming Machine Tool Factories can be forged in this Shop and then supplied to the different Machine Tool Factories.

3. **Tool and Jig Shop.** When the drawings from the Planning Office for the different Machine Tools have been finalised operation sheets for the different operations have to be made. For many operations special tools and jigs are necessary because Machine Tools are made in batch production and it is absolutely essential that all parts of a Machine Tool are interchangeable. This can only be achieved with proper special tools and jigs; and therefore, the jigs and tools for a certain machine tool should be made in a special shop and then be supplied to a particular Machine Tool Factory.

4. **Gear and Spline Shop.** Every Machine Tool has numerous gears for the movement of certain machine components. The manufacture of gears needs very long experience and an accurate and proper knowledge of the duty of a gear. Most of the time, after hobbing or shaping, the gear has to be hardened followed up by grinding of the teeth as well as the bore of the gear. It goes without saying that if all the gears for the Machine Tool Factories are made in one Shop, the number of skilled workmen can be kept at a minimum. Further, such a shop can be equipped with excellent Automatic Machines and with most suitable Heat Treatment Equipment. In the same shop the splines should also be made as such splines are mostly used in connection with gears and they are also manufactured on production machines of similar construction as for gears.

5. **Spindle and Axle Shop.** The duty of such a shop is to make first of all main spindles for Machine Tools which have also to undergo a heat treatment process. Lead Screws, Feed Rods and other spindles should be made as an absolute speciality of this shop.

6. **Shop to make Chucks, Collets Vices, Circular Tables, and Dividing Heads.** The above-named parts are essential parts on most Machine Tools, but are seldom made in a factory where Machine Tools are manufactured. In other countries there are special factories to manufacture the above parts and Machine Tool Factories, the products of this shop can be independently sold according to the needs of the industries.

7. **Shop to make Bolts, Nuts Screws, Pins and all other parts made on automatic machines.** It would be a great help in the production of Machine Tools if small parts, as named above, which are made on automatic machines, are manufactured in a special shop so that they can be made to an even standard. These parts should be interchangeable.

8. **Electric Drive Shop.** In this shop all the components of the electric drive for the Machine Tool Factories should be developed and manufactured.

Selection of manufacturing programme. It is advisable when starting such an industry to make a proper selection of the machine tools which should be manufactured. This production scheme should be built up step by step. One should start first with normal standard Machine Tools such as: Drilling Machines, Lathes, Milling Machines, Shapers, Metal Sawing Machines etc.

A rough selection of these is given hereunder:—

Drilling Machines:	
Up to 1" —also Line Drills.	
Up to 1 1/2" —also Line Drills.	
Up to 1 1/2" —also Multiple Drilling Heads.	
Up to 2 1/2" —also Multiple Drilling Heads.	
Accessories:	
Electrical Equipment, Machine Vice fixed and swivelling, Drill Chucks and Reduction Sleeves.	
Tapping Machines:	
Up to 1"	
Up to 1 1/2"	
Accessories:	
Electrical Equipment, Chucks, Fixed and Swivelling Vices.	
Hand Saws:	
Up to 4"	
Up to 6"	
Up to 8"	
Up to 10"	
Cold Saws:	
Up to 4"	
Up to 8"	
Up to 12"	
Up to 16"	
Accessories:	
Electrical Equipment, normal Machine Vice, Building Vice and stand.	
Screwing Machines:	
Up to 1" pipe thread or 1" Whitworth.	
Up to 2" pipe thread or 1 1/2" Whitworth.	
Up to 4" pipe thread or 2" Whitworth.	
Accessories:	
Electrical Equipment, Die Heads, Dies and Vices.	
Standard Lathes Heavy Duty:	
Height of centres 8"—Between centres 10"	
Height of centres 10"—Between centres 12"	
Height of centres 12"—Between centres 16"	
Height of centres 16"—Between centres 20"	
Height of centres 20"—Between centres 24"	
Accessories:	
Electrical Equipment, Independent 4-jaw chuck with hardened reversible jaws, Dog Plate, Fixed and Following Steady Rests, Chip Tray, Length Stops, Standard Centres, Reduction Sleeve	

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for Spindle Taper, Tables, Cranks, Spanners and Lubrication Device, Taper Turning Attachment, Self-centring 3-jaw chuck with 2 sets of jaws, Self-centring 4-jaw chuck with 2 sets of jaws, Wet Turning Attachment, Four- and Six-Tool Holders and Chasing Dial.

Light Standard Precision Lathes:
Max. stroke 8"
Height of centres 3"—Between centres 20"
Height of centres 4"—Between centres 30"
Height of centres 5"—Between centres 40"
Height of centres 6"—Between centres 50"

Accessories:
Electrical Equipment, Universal 3-jaw Chuck, Face Plate, Dog Plate, Lever Operated Tool Holders, Collect Attachment with Collects, Capstan Heads, Six-Tool Holders, Tailstock Capstan, Drilling Spindle, Tailstock and Stops.

Shapers Mechanical or Hydraulic Type:
Max. stroke 8"
Max. stroke 12"
Max. stroke 20"
Max. stroke 32"
Max. stroke 40"

Accessories:
Electrical Equipment, Fixed and Swivelling Vices, and Slotting Attachment.

Slotting Machines:
Stroke 8"
Stroke 12"
Stroke 20"

Accessories:
Electrical Equipment, Fixed and Swivelling Vices and Circular Table.

Milling Machines:
Plan—Size of Table:
30 x 8"
45 x 12"
60 x 15"

Accessories:
Electrical Equipment, Fixed and Swivelling Vices and Circular Table.

Universal—Size of Table:
30 x 8"
45 x 12"
60 x 15"

Accessories:
Electrical Equipment, Dividing Head, Circular Table, Fixed and Swivelling Vices, Self-Centring Vice and Vertical Milling Head.

Vertical—Size of Table:
30 x 8"
45 x 12"
60 x 15"

Accessories:
Electrical Equipment, Fixed and Swivelling Vices and Circular Table.

After the Machine Tool Industry has been developed up to the stage described above, manufacturing of other Machine Tools as mentioned under Classification of Machine Tools should be taken in hand, as by this time the Machine Tool Factories already under production will have enough skilled labour for the next stage in this development.

Statistics of Machinery Imported into India (Taken from Government of India Publications—Accounts—Relating to the Foreign (sea, air and land) Trade and Navigation of India).

Total Metal Working Machinery (Including Machine Tools).	
March:	Value.
1951—	Rs.
U.K. ..	8,50,024
U.S.A. ..	88,878
Others ..	4,92,197
1952—	
U.K. ..	15,64,983
U.S.A. ..	4,53,006
Others ..	12,95,979
1953—	
U.K. ..	23,14,787
U.S.A. ..	8,91,179
Others ..	11,87,683
12 Months April-March:	
1950-51—	
U.K. ..	2,25,81,055
U.S.A. ..	25,24,948
Others ..	74,63,060
1951-52—	
U.K. ..	1,73,45,101
U.S.A. ..	20,00,881
Others ..	58,47,994
1952-53—	
U.K. ..	1,85,85,709
U.S.A. ..	34,99,842
Others ..	90,03,744

Steel Supplement

Trade Unionism in the Iron & Steel Industry in India

By MONI GHOSH

Vice-president, Tata Worker's Union

Introduction.

The trade union movement in India is of recent origin as compared to that in other industrially advanced countries. Although the original Indian Factories Act for the regulation of labour was passed in 1881, it was not until 1926 that trade unions were protected through the Indian Trade Union Act. The beginning, however, was made when Messrs. S. S. Bangali and N. M. Lokhande championed the cause of women and child workers employed in the Bombay cotton mills. The Bombay Millhands' Association was established in 1890 by Mr. Lokhande and it succeeded in getting a weekly holiday for workers. The first labour organization to be registered in the country was the Amalgamated Society of Railway Servants of India and Burma in 1897. From then on till the end of World War I the pace and pattern of the labour movement was set mainly by the textile and railway workers. The late Mahatma Gandhi gave a new life to the labour movement during the strike of textile workers at Ahmedabad in 1917. His approach to the movement was different from that of the West and in the later stages his ideas have influenced the Trade Union Movement in India to a great extent. The Railway and textile workers were joined by a new force in 1920, namely, the steelworkers.

Trade Unions at Jamshedpur

The Tata Iron & Steel Company was established in the year 1907 mainly by the pioneering efforts of the late Jamshedji Tata. The workers were drawn mainly from the peasant class and the skilled men and technicians were imported from abroad, e.g. England, America, Germany. In spite of many difficulties, some accentuated by the then foreign Government, the first heat from the Blast Furnace was tapped on 11-11-1911.

If we analyse the history of the Labour Movement in the Iron & Steel industry in India, particularly in Jamshedpur, we can divide it into four phases. The first phase was for getting recognition of the labour organization (1920-29). The second was self-preservation from the employer's aggression (1929-36). The third was the period of struggle for privileges for the workers (1936-47). And the fourth, the post-independent period was signified by mutual understanding and responsive co-operation.

First phase: It goes without saying that in this period the labour had no security of service nor protection against exploitation. They were not conscious of their rights nor for need to organize

themselves. The impact of World War I and the rising tide of nationalism woke them up to take the first step towards collective action. The first of its kind took place in 1920 to obtain redress to some of their grievances. The workers showed their reaction by going on a spontaneous strike on the 24th February 1920 without any previous organization or experience. At the same time, a workers' organization under the name of "Labour Association, Jamshedpur", was formed with Shri S. N. Halder, a Barrister of the Calcutta High Court, as President. After a strike of 20 days there was police firing on the 15th March 1920, in which 5 persons were killed and 24 injured. Sir Dorab Tata, the then Chairman of the Board of Directors of the Tata Iron and Steel Company, arrived from Bombay, after the incident and in consultation with the workers' leaders made an announcement in which certain demands of labour were conceded and the Labour Association recognized. It was agreed that settlement of grievances were to be arrived at by mutual consultation.

In 1922, there was another strike by the workers demanding several amenities in the service conditions. There was difference of opinion amongst the workers, but the strike was decided upon by a majority of votes in a mass meeting, though the President himself was against it. The strike was called off after a few days at the intervention of Dewan Chamanlal, the then President of the All-India Trade Union Congress to which the Jamshedpur Labour Association was affiliated. The agreement made with the Steel Company, was verbal and it is regrettable that it was not honoured. On the contrary, recognition of the Association was virtually withdrawn and the leaders and office bearers were victimized by the Management. Meetings were not allowed on any open place within the jurisdiction of the Company. The case of the Tata workers was represented to the leaders of the Swaraj Party—the late Shri C. R. Das and Motilal Nehru—when the recommendations of the Tariff Board came up before the Central Assembly for the first time for acceptance. At the intervention of Shri Motilal Nehru, a Conciliation Board was formed with Shri C. R. Das as Chairman and eminent leaders of workers as well as representatives of industrialists and politicians as members to settle the outstanding disputes between the Labour Association and the Management. The recommendations of the Tariff Board in favour of the Tata Iron and Steel Company were accepted with the support of the Swaraj Party in the Assembly, but the attempts of the Conciliation Board to arrive at a settlement of the dispute did not

succeed. It was then left to Shri C. R. Das and Shri C. F. Andrews to take up the cause of the steelworkers. Shri C. F. Andrews induced Mahatma Gandhi to come to Jamshedpur and through his intervention a satisfactory settlement was arrived at in 1925. The Association was recognized by the Management and Shri C. F. Andrews became the President of the Labour Association (1926). The constitution of the organization was also changed and made more democratic. Two of the Officers of the Company were made vice-presidents of the Labour Association in the hope that it would encourage mutual understanding, but unfortunately this did not bring the desired results.

Meanwhile, a definite rift grew in the Working Committee of the Association in matters of policy. Shri Andrews and his supporters wanted to direct the activities of the Association on the lines of the Ahmedabad Textile Workers' Association (sponsored by Mahatma Gandhi), while the rest wanted the adoption of a militant programme. Departmental strikes followed one after the other. Andrews, however, brought about a few settlements and obtained the grant of a general concession in the form of General Production Bonus for all departments. Strikes in some departments, however, continued and an ex-employee of the Company, Manek Homi, then a Lawyer, took the lead on behalf of the strikers, and these troubles ended in a lockout. Throughout this period the Association officially stood by the settlement of Shri Andrews and would not recognize Shri Homi's leadership. The result was more division and rivalry amongst the workers and after a prolonged struggle of three months, the late Shri Subhas Chandra Bose was brought in by Homi. The Association made Subhas Chandra Bose its President and joined in the struggle under his leadership. A settlement was arrived at but Shri Homi opposed the settlement, and formed another union under the name of "Labour Federation of Jamshedpur". Bitter struggle followed between the rival groups and Shri Homi had the advantage in the matter of the number of followers.

There was a strike in the Tinplate Company of India, Limited, Golmuri, in 1929, where Shri Homi was given the leadership and also made the President of the Union. He lost his hold on the workers very soon when they discovered that he could not be trusted, and Sri Subhas Bose was elected President. The Tinplate Company's strike, which lasted for eleven months and attracted national and international attention, ultimately collapsed, as the then Government took all steps

to thwart attempts in favour of the strikers. Although the strike failed, it at least did this service to the workers in that it brought to light two outstanding men who were later to play a leading role in labour's cause, viz., Professor Abdul Bari and Shri Michael John. The Tinplate strike at the same time revealed true intentions of Shri Homi. Incidentally it may be mentioned here that a case of defalcation was filed against him by a group of his associates, and he was found guilty under different charges and was sentenced to six years' imprisonment.

Second phase: The labour movement at this time was at a very low ebb. Shri Homi was in jail and his Federation was practically extinct. The top leaders who supported the Labour Association were all in jail as a consequence of the Civil Disobedience Movement in the country. The management took advantage to remove all traces of genuine labour organization. Suppression of the Labour Association to extinction at this juncture by various methods was the active intention of the then Tisco management. They resorted to objectionable methods of breaking up the labour meetings and even made an attempt to assault Shri Subhas Bose in a mass meeting; Shri John was belaboured in the Union office itself. Electric light, telephone and water supply to the office of the Labour Association were cut off by the management and some of the active workers were transferred to the mines situated in jungles and were not allowed to come to Jamshedpur—a step similar to the transportation of political workers to Andamans. Not satisfied with all these, a labour organization under the patronage of the management was started, but it had a very short life and died a natural death. Even the intervention of Dr Rajendra Prasad, and Shri Subhas Bose who was then in Vienna, could not improve the situation. It was at this time that the communists made a bid to capture the field but did not succeed.

Third phase: In 1936, the situation changed when the Indian National Congress agreed to accept to run the Provincial Governments. Prof. Abdul Bari was requested to come and accept the heavy responsibilities of becoming the President of the Labour Association. He changed the name of the organization to "Tata Workers' Union Jamshedpur", to signify its severance from all traces of past unhappy associations. In 1938 a settlement with the management of the Tata Company was arrived at, which obtained many gains for the workers. There were strikes in the subsidiary industries, viz., Tinplate Company of India, Golmuri; Indian Cable Company, Golmuri; Indian

Copper Corporation at Mosabini; etc., in all of which the workers gained in the form of settlements between the parties or through Conciliation Boards. Prof. Abdul Bari as President of all these organizations tried to ameliorate the conditions of the workers through the Legislative Assembly also. It was on his initiative that the "Labour Enquiry Committee" with Dr Rajendra Prasad as its Chairman was formed to enquire into the conditions of all industries in the State of Bihar. There was great enthusiasm in the labour ranks during the enquiry, but the recommendations, unfortunately, came too late, as by that time, the Congress Ministry had resigned on the question of India's support to World War II and the State under Governor's rule took no steps to implement the recommendations.

During the time of the enquiry there was an incident in Jamshedpur which is worth recalling. It is customary in Tisco to observe the Founder's Day on the 3rd March of every year, and in the year 1939, the management wanted to observe the centenary of the Founder's Birth Day. Prof. Abdul Bari did not like this idea, as he thought that if workers' psychology was affected by worshipping an industrialist however benevolent he might be, it would be difficult to run a labour movement. The management wanted to discharge some workers who took an active part in opposition to the celebrations, and Prof. Bari countered with the threat of a general strike. The matter was ultimately referred to Shri Jawaharlal Nehru and Dr Rajendra Prasad for arbitration and their verdict was against the move of Prof. Abdul Bari to boycott the Founder's Day celebrations.

Prof. Abdul Bari had also at this time to meet another challenge from the local Congress officials who became antagonistic to his leadership in the labour field, in spite of the fact that he himself was a Congressman. He was also the vice-president of the Bihar Congress Committee at that time and later the President of the Provincial Congress Committee. He, like other leaders had suffered and made sacrifices for the Congress movement. In fact, he was a Congress leader since 1920, before he appeared in the labour field. When no compromise was possible, he contested and captured the Congress organization itself. The consolidation that was gradually taking place under his leadership received a setback when the Congress Ministry resigned and individual Satyagraha against the war effort was started by Mahatma Gandhi. Ultimately, as is well known, the agitation culminated in the 'Quit India' movement. Prominent men of the Tata Workers' Union joined the individual Satyagraha as well as the mass movement of 1942, and they were all arrested. In spite of the arrests

there was a complete political strike in the steel works for a fortnight and the return to normal operation took a long time.

During the absence of Prof. Abdul Bari, Shri Michael John and others, the communists captured various unions and tried their best to enhance the war effort, but they did not succeed in capturing the Tata Workers' Union. It was therefore an easy job, for Prof. Abdul Bari and Shri Michael John to reorganize this Union after they came back from jail. Gradually the other unions also were taken over from the communists and since then, the labour movement has made a steady progress.

Fourth phase: Prof. Abdul Bari did not rest with his success in Jamshedpur. He extended his activities to Jharia Coalfields, where there was opposition from the Socialist Party, and there were open clashes on occasions. The Socialists also made a series of attempts to capture the Jamshedpur Union, but failed each time.

In the year 1947, there were two major incidents, in the history of the Labour Movement, the first being the death of Prof. Abdul Bari. He was on his way by car to see Mahatma Gandhi at Patna from Jharia. Near Khasurupur, 20 miles away from Patna his car was stopped by the Government Anti-smuggling squad and it is said that through some misunderstanding the personnel of the squad shot him dead. This happened on the 28th March, 1947, and it came as a shock to the workers and to the labour movement in India. The affections and esteem with which the late Prof. Bari was held found positive expression in the spontaneous decision of the workers to raise a fund for helping his family and also to create a Memorial in the various centres of his activities. In all, Rs 55,000/- were contributed for the well being of his family.

The leadership of the movement has since then fallen on the able shoulders of the late Prof. Abdul Bari's closest associate, Shri Michael John.

The second incident occurred when some of the workers of the Steel Company used violence against their supervisors. There were some discrepancies in the payment of Performance Bonus according to a scheme agreed between the Union and the Management. The scheme, however, was introduced before a final scrutiny by the Union and there was occasion for some mistakes. The result was that some workers, who were adversely affected indulged in acts of violence and it extended rapidly from one department to another. The Union brought the situation under control after three days. The Union did prevent acts of violence in Jamshedpur even during the communal massacre throughout the country. In no

place where Bari-John had their control, was there any act of violence on communal or any other lines. While in Asansol, for example, there were communal disturbances of an extreme nature, Burnpur and Kulti which are only four and eight miles away from Asansol were safe from the riots or acts of violence. This sudden outburst in Tisco, therefore, took the Union and its leaders certainly by surprise. The Performance Bonus Scheme was revised after the incident.

It was at this time that Shri Michael John felt the necessity for uniting the supervisory staff into a section of the Union under guidance of a common President and took suitable steps in that direction. Since then, the relation between both the sections of employees have very markedly improved. The supervisors upto the cadre of General Foreman have also, at the same time, a channel for redressing their grievances through the Union.

The organization in Jamshedpur was affiliated to the All-India Trade Union Congress. This organization was running since 1920, on the lines of the British Trade Union Congress. In 1928, there was a division between the communists group within it and the rest when Shri Subhas Chandra Bose became its President in Calcutta. Two or three years later, further differences grew up between extreme political group and the other that wished to run the organization free from politics. Occasional attempts to bring about unity between the groups came to nothing. The Jamshedpur labour organization that took some active part in the All-India Trade Union Congress since its inception, ceased its connections with it at this time. In 1942, when all the other groups had joined the Quit India movement, the communists with the help of the Government, captured the All-India Trade Union Congress and helped the war effort. Besides this, as long as the close cooperation between the Government and the communists lasted, all the other unions with the exception of of the Tata Workers' Union were taken over by the communists, till as stated above, they were thrown out again with the return of the jailed leaders.

It should be mentioned here that Ahmedabad Unions were never affiliated to the all-India organization. They kept themselves out of it, perhaps, on the advice of Mahatma Gandhi. The Ahmedabad Unions also joined in the 1942 movement and had a prolonged political strike in the textile industry. After the achievement of independence, it was thought by Ahmedabad and Jamshedpur groups and also by many others that they should have influence over the all-India movement. Some felt that the unions should affiliate themselves with the

All-India Trade Union Congress and capture that body, but others including Prof. Abdul Bari thought that it was a waste of time and energy. Instead, they believed that another all-India organization with well recognized principles and policies was necessary. They hoped also that most of the unions would join the new organization. Thus in 1947, an all-India organization under the name of the Indian National Trade Union Congress was established. Though Prof. Abdul Bari was one of the promoters of this body he died before it saw the light of day, but the Tata Workers' Union and the other unions in this area have extended the fullest support to the new organization.

Soon after this the Government called a Tripartite Conference consisting of representatives from the employers, all groups of workers' organizations, and a temporary agreement for a period of two years was reached under which all parties agreed to maintain industrial peace, the labour representatives not to call any strike, the employers not to indulge in lock-outs, while the Government undertook to look after both their interests and settle up any dispute through conciliation, arbitration or adjudication. This pact and its working gave an impetus for both the workers and employers through out the country, particularly in Jamshedpur and Ahmedabad labour areas to work together and settle matters across the table or accept any decision given by the Government machinery.

The success of such a scheme, however, depended on the personal temperaments of the leaders of agreeing parties. Both the top management of the Tatas including the Chairman, J. R. D. Tata and the President of the Union, Michael John, were eminently suited for settlement of disputes by negotiation. The Tata management and the management of the other smaller industries around Jamshedpur have learnt by experience that they do not gain much by taking up an antagonistic attitude towards the workers' organizations and that fair and honest dealings with well-meaning and responsible organizations pay dividends. It must be said to the credit of the representatives of both the parties that in the Tata Iron and Steel Company there have been no strikes, no arbitration or adjudication for the past so many years. Yet the union has achieved benefits for the workers more than most of the other unions in India have been able to do. As a result, of this method of mutual understanding and cooperation, 1. Joint Committees have been formed in all branches of steel works; 2. a Supervisory and Technicians' unit under the Union had been formed which fosters the mutual understanding at the lower levels; 3. a permanent Joint Rates Com-

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mittee (Wage Board) has been established; 4. a Higher-level Committee (which reviews and give a final decision on cases of appeals on the decisions of Joint Committees) has been established and

Rules, some of which are non-existent in many countries. In this achievement the steelworkers and their leaders have played a very important part. 5. Study Circles have been started to train the workers

in all branches of labour work including industrial finance and management.

To sum up we see that in the last part, independent phase, the whole outlook on labour relations

has changed, thanks to the interest of a 'People's Government' and a sense of urgency and cooperation between managements and labour unions. Today, the Indian worker is protected by a number of Acts.

TABLE I.
Table of Concessions and Privileges for Workers Obtained by and through the Tata Workers' Union.

Date.	Signatories to the Agreement.	Results of Agreement.	Date.	Signatories to the Agreement.	Results of Agreement.
20-3-1920:	Declaration of Sir Dorab Tata ending the strike.	1. Eight to sixteen per cent: wage increase and in June further increase of ten to twenty per cent. 2. Provident Fund with Company's contribution of one month's salary per year. Full amount to be paid after twelve years. 3. Production bonus to be paid to the Indian employees also when holding the posts of covenanted hands. 4. Gratuity to be paid on retirement after 12 years continuous service out of the lapsed Provident Fund. 5. Two weeks leave annually to the daily-rated staff.	18-9-1946:	Shri J. R. D. Tata and Prof. Abdul Bari.	1. Revision of wage structure on a new scheme based on three elements: (a) basic wages, (b) good attendance bonus, and (c) performance bonus.
12-9-1928:	Sri C. A. Alexander, General Manager and Sri Subhash Chandra Bose, Labour Association President.	1. The men of sheet mills and boiler house, who were discharged for going on strike were restored continuity of service. 2. The following procedure was adopted for reduction of men considered surplus in the Standard Force: (a) by allowing men to leave voluntarily within three weeks of time by providing them with Railway fares to their homes; full payment of Company's contributions of Provident Fund and one month extra wages for each year of completed service. 3. Payment of one and a half month's wages as loan, to be repaid in easy instalments. 4. Safety equipment was sanctioned wherever necessary. 5. Maternity benefit was agreed to.	31-10-1947:	Sri J. R. D. Tata and Prof. Abdul Bari.	1. The basic wages to be graded on incremental scales of pay. The minimum wage for the unskilled weekly paid labour, mazdoor "A" class to be graded from As. 8 and As. 10 to As. 9 to As. 11 and As. 10 to As. 12 according to job factor with an annual increment of As. 1. The wages for other jobs were similarly graded according to job factors. 2. Good Attendance Bonus: 20 per cent of the basic wages for the weekly paid mazdoors and for daily rated mazdoors outside the works and monthly rated employees drawing Rs. 150 or below per month and 10 cent attendance bonus to all daily rated workers inside the works. 3. The Performance Bonus: 40 per cent of the basic wages for average performance for the maintenance personnel 50 per cent for Production personnel and additional 10 per cent for good attendance bonus for both groups. 4. A permanent Joint Rates Committee with equal representatives of the Union and the Management to be set up for periodic reviewing of cases brought up by the Union on the following matters: (a) changes in designation, (b) changes in point rating jobs, and (c) changes in the average production figures forming the basis for performance bonus. (The grades of a large number of employees were satisfactorily changed for the better through this Joint Rates Committee. 5. Profit Sharing Bonus: An ex-gratia payment was being made as bonus since 1934. This was later changed into a Profit Sharing Bonus Scheme linking it up with the amount with the dividends at half-a-month's wage for each Rs. 25 lakhs above the first Rs. 1 crore. It is now linked up with profits. The employees are entitled to a share of 22½ per cent of annual net profits of the company, calculated after reduction of taxes, depreciation, previous losses if any, fixed on Preference shares and 5 per cent on all other subscribed capital including premium received from shareholders on subscription. This bonus to be distributed to all employees in the service of the company at least for a period of one year, in proportion to the basic wages earned by each employee during the year. Three quarters of the bonus to be paid in cash and rest one quarter to be deposited in the Employees' Provident Fund. 6. Quarters: Management to build 1,500 and 2,000 quarters in 1947 and 1948 respectively. The terms of lease and facilities for loans for house building by the employees were made easier.
1942:	Shri J. R. D. Tata, Chairman, Tata Iron & Steel Co., and Prof. Abdul Bari, President, Tata Workers' Union.	1. An emergency bonus of 10 per cent of wages for those workers drawing a basic salary of Rs. 500/- or below.			
3-11-1945:	Shri J. R. D. Tata, Chairman, Tata Iron & Steel Co., and Prof. Abdul Bari, President, Tata Workers' Union.	1. A special bonus of half a month's wages. 2. An increase in food subsidy from Rs. 3-11 to Rs. 4-14. (Food subsidy is in addition to D.A.). 3. An increase of one anna in the wages of all employees getting a daily wage of Rs. 2-15 or Rs. 70 per month or below, subject to the proviso that the minimum basic wage of an adult male worker should be not less than ten annas per day. (The minimum wage was As. 8 p.d.) 4. The maximum payment of gratuity was raised from 12 months to 15 months. (The payment was at the rate of half a month's wages per year of service.) 5. Extension of service for a maximum of three years after super-annuation age, if the employee was medically fit. This was a provision to see the country through the difficult times it was passing. 6. Twelve days' leave with pay to the unskilled workers at the end of each year of service. 7. Seniority to be the normal criterion of promotion, subject to consideration of efficiency. 8. Eight hundred quarters and 200 bungalows to be constructed during			

Date. Signatories to the Agreement.

Results of Agreement.

7. Supercession and Neopotism: (a) Definite rules were formed to guide promotions, etc. and also for the necessary trade tests which would be required to be passed by the employees. (b) A training course to be provided for those intending to undergo trade tests.

1947: Sri A. R. Dalal and Sri M. John.

The performance part of the wage structure of 1946 was revised as follows after the exhibition of dissatisfaction and violence by the workers.

1. The Production and Maintenance Bonus of all departments except Agric to get a uniform basis calculated on the average production of finished steel. The average production being the average of the previous 11 months together with the month for which bonus has to be calculated. The attendance factor was excluded.
2. The Production and Maintenance personnel to earn bonus from 41,200 tons and upwards at 10 per cent and 20 per cent rising up to 90 per cent and 80 per cent respectively. The target of production being 61,200 tons the bonus would be 50 per cent and 40 per cent respectively.

27-2-1948: Sri A. R. Dalal and Sri M. John.

The wage structure was further revised by a Joint Committee of the Management and Union in which the great majority got further advantages and a further grade of As. 13 to As. 15 was added to the grades of unskilled workers.

31-8-1949: Sri J. R. D. Tata and Sri M. John.

The percentage of Profit Sharing Bonus to the employees was raised from 22½ per cent to 27½ per cent of the net annual profit of the Company.

30-8-1951: Sri J. R. D. Tata and Sri M. John.

1. A Service Bonus to be paid to all employees in Jamshedpur, who were not getting production or maintenance bonus at the rate of one-third of the maintenance bonus.
2. The bonus to the burra weeklies to be 66⅔ of the production bonus and maintenance bonus as the case may be.

31-8-1953: Sri J. R. D. Tata and Sri M. John.

1. Profit Sharing Bonus was further revised and the workers' share was increased to 30 per cent.
2. Medical: The number of beds in the Tata Main Hospital to be increased including those in the maternity ward. Specialists are to be appointed.
4. Education: Increased provision for schools and educational facilities to the children of the employees of the Company. (It now amounts to Rs. 12 lakhs a year. Primary education is free to the low paid staff and higher education available at concession rates).
5. An incentive bonus scheme was introduced based on time study by the Industrial Engineering Department.
6. The minimum wage of an unskilled worker was raised to Re. 1 p.d.
7. Dearness Allowance: On a graded scale it was revised starting from Rs. 20 for those whose basic wages are Rs. 50 or below and progressively increases to Rs. 37-8 plus a 10 per cent of the basic wage up to a basic salary of Rs. 500.
8. Food Rebate: In addition to D.A. food rebate of Rs. 12-8 and Rs. 17 for married and unmarried persons respectively were given. Hundreds of individual cases are being redressed by the Union every year, through negotiation with the management.

Trade Unions at Burnpur and Kulti.

The Indian Iron and Steel Company's Burnpur works started production in 1919 though the Kulti works, however, are more than seventy five years old. Trade unions in these two works began rather late. It was as late as 1937 that unions of steelworkers were started in Burnpur and Kulti under the leadership of Sri Manek Homi. The first strike lasted for a short time in Burnpur works and a few demands were conceded by the management. The union at Burnpur, however, did not last for more than a few years owing to internal weakness and bad leadership.

In 1944, some communists of Calcutta formed the Asansol Iron and Steel Workers' Union. At that time the management was in a strong position owing to the stringent Defence of India Regulations during the World War II and they did not allow any unions to flourish. The aim of the communists also was to help in the war effort and they also did not take any earnest action to improve the conditions of the workers.

By 1946, the workers felt dissatisfied with the inactivity of the communist office-bearers of the Union, as the workers had heard of the achievements of Prof. Abdul Bari at Jamshedpur. In March 1946, the workers of Burnpur invited Prof. Abdul Bari and Sri Michael John to Burnpur and accepted them as their leaders.

The new leadership, immediately infused a new life into the union at Burnpur. As a 'Satyagrahi' Prof. Abdul Bari violated the Company's rule prohibiting any mass meeting in Burnpur town and the Company had to yield in the matter. He placed a number of demands before the management including better wages, granting of dearness allowance, production bonus, profit sharing bonus, provident fund, gratuity, etc. At that time the minimum daily wages were annas six for females and eight annas for males, there was no dearness allowance nor production bonus nor provident fund. After prolonged discussions when no agreement could be arrived at, Prof. Abdul Bari called on a strike in August 1946. From the point of view of organization this strike was a great success. The workers exhibited good morale throughout and the strike was called off in December 1946 when a tribunal was appointed with Justice McSharpe as the Chairman.

In February 1947 during the proceedings of arbitration, an agreement was arrived at, in a large measure to the efforts of Sri Michael John, and this was incorporated by Justice McSharpe in his award. By this the workers gained many advantages.

Unfortunately after this agreement Prof. Abdul Bari died on 28th

March, 1947 and thereafter, the burden of leadership fell upon the able shoulders of Sri Michael John.

A branch of the Asansol Iron & Steel Workers' Union was opened at Kulti and this branch union achieved much for the Kulti workers. The agreement made for Burnpur was also applied to Kulti and the original union at Kulti under the leadership of Sri Manek Homi, which was on a weak footing, was merged with this branch union and soon the organization at Kulti which is shown in table II.

Under the leadership of Sri Michael John, the unions at Burnpur and Kulti made great progress which is shown in Table II.

On 1-4-1949, a graded scheme of wages for all workers and a revision of existing scale of wages was introduced by the management. Although this granted substantial improvements, there were still many anomalies and to remove these an agreement was arrived at whereby a committee consisting of eight members having equal representation for the management and the union was formed. This 'Anomaly Committee' was given wide powers to reconsider the wages of the workers and it was agreed by the management to accept the unanimous recommendations of this committee. Any dispute was to be settled between the union and the management and all the four representatives of the workers and the committee worked as a team. Substantial increases were agreed to by this committee, as a result, the wages bill for the Company increased by several lacs of Rupees per month. It has been estimated that the average income of the workers of Burnpur has increased by more than double since 1947, i.e. after the McSharpe Award.

It is very reassuring that since 1947 all the benefits to workers were obtained by mutual discussions and negotiations across the table. This was made possible only because of the realization on the part of the management that to settle matters mutually with a properly organized and reasonable trade union was much better than putting up a fight. It was also possible due to the high degree of union organization achieved at Burnpur. The union has regular income from the members and it owns its own building and has a well equipped office and machinery for collection and representation of workers' grievances.

In spite of these concessions achieved for the workers there were individual cases where the workers felt that justice was not done to them, as in matters of grades and bonuses, etc. This kind of dissatisfaction was mostly due to their comparative position with some others who probably had better terms. Because the union approved of the grade, these people entertained a kind of grievance against the union officials.

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Besides, the method of promotion and running of the Works Committees in Burnpur created some troubles for the union. The workers' representatives in the Works Committees were elected from the employees irrespective of the fact whether they were members of the union or not, with a legal status. In such cases where the Works Committee decided in favour of an employee against another employee, the Union found justice in other. Although a good relationship had been established between the local management and the union, certain persons who held important posts in the management did not like the union to be strong and powerful. They took advantage of the relationship between the Works Committees and the Union and started to disrupt the workers' unity and organization. Such kind of grievances, right or wrong, accumulated against the union. The union in Jamshedpur had not to

face such troubles from the Works Committees, as in the Bihar Government Labour Advisory Board it was decided that the union with a membership of fiftyone per cent or more will have the right to nominate workers' representatives in the Workers Committees. Besides, such committees with workers' representatives were existing in Jamshedpur even before the Act was promulgated.

Without any attempt to settle up the increase in shifts in some departments or change in the scheme of bonus in others, the workers were directed to slow down. The union's appeal to revert to normal work on the assurance of taking up their cases had no effect. Ultimately, such troubles in the Works increased with strikes and lock-out and discharges. The political parties, even a group of Bengal Congress and the District Congress of Singhbhum (Bihar) joined together

including the communists to form an Action Committee to conduct the struggle and encourage violence against the union officials and its supporters. No fruitful effect was observed for some months even by the intervention of the Central and Bengal Governments.

Ultimately, on the request of the Central Government, the union held a fresh election giving sufficient opportunity for unpaid members and even nonmembers to become members and participate in the elections. The procedure of the elections was watched by the Central and Bengal Governments.

The lock-out was withdrawn at the request of the union and the Government. The work is now going on and the workers have shown record production during the last few months.

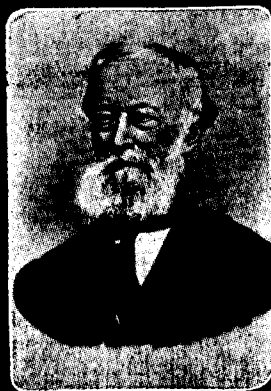
The union is functioning normally but the newly elected Committee is not allowed to function as there is

an Injunction order brought against the election by supporters of the Action Committee, in the Sub-Judge's Court, at Asansol. It may be mentioned here that another case for interim Injunction was instituted in the Calcutta High Court by the Action Committee, but the High Court had dismissed the case.

This phase in the labour movement at Burnpur reminds the situation created nearly 25 years ago in Jamshedpur when Sri Homi formed a rival union and put the then Labour Association into similar difficult position and naturally due to the differences among the workers advantage was taken by the management. Since the trade union movement is more developed and better understood by the workers, Burnpur was not so hard hit by this division in the rank and file as had happened in Jamshedpur twenty-five years ago.

TABLE II.
Table of Concessions and Privileges for Workers Obtained by and through the Asansol Iron & Steel Workers' Union.

Date.	Signatories to the Agreement.	Results of Agreement.	Date.	Signatories to the Agreement.	Results of Agreement.
1937:	Management and Sri Manek Homi, the Union President.	1. The Union was recognised. 2. Wage scales of workers were revised and increases obtained. 3. Sick Leave Granted: Full payment of wages upto a period of 14 months in case, sickness was over 14 days.			3. For involuntary unemployment compensation or provision for alternate employment were agreed upon. 4. The wages were further increased: The minimum wage for an adult worker was raised from As. 8 to Re. 1 for male and As. 13 for female. The minimum payscale for clerks were raised from Rs. 35/- to Rs. 55 p.m. Wages of skilled workers were progressively increased. Dearness allowance was also increased. For those who drew Rs. 50 or below the D.A. was made Rs. 25; over Rs. 50, the D.A. was made Rs. 35 and it progressively increased to Rs. 50 per month for those whose basic wage was Rs. 200.
Mar., 1946:	Management and Prof. Abdul Bari, Union President.	1. Right to hold meeting within Co.'s area was established through 'Satyagraha'.			5. An 'Anomaly Committee', with equal representation of workers and management was formed to go through the anomalies in grades. Consequently the amount in wages bill of employees was more than doubled since 1947, i.e. McSharpe award.
Feb., 1947:	Management and Prof. Abdul Bari, Union President. (The settlement was endorsed as an award of arbitration by Mr. McSharpe).	1. Minimum wages were increased to As. 8 for both female and male workers. 2. Increases in wages of skilled worker were obtained by 17½ per cent to 25 per cent of the former wages. 3. Production bonus in the steel corporation of Bengal was increased. 4. A Provident Fund Scheme was introduced which provided equal contribution by workers and employer. 5. Retiring gratuity was granted: 15 days' wages for each year of completed service as base and increase progressively as the workers' service became longer. 6. Profit Sharing Bonus was Granted: 2 days' wages for each per cent of dividend to the shareholders.			6. Production bonus scheme in different departments were further revised in favour of the workers. 7. System of issuing charge sheets was introduced to explain the workers point of view before any punishment was made. In such cases Joint Enquiries were made with representatives of the Union and management to find out whether the accused was really guilty.
1947-52:	Management and Sri M. John, Union President.	1. Joint Committees in different works and departments were formed to settle individual complaints and grievances. 2. Per cent of Production Bonus was granted to the employees of Town and Medical Departments.			8. Though there are extreme shortage for residential quarters, yet some houses were built during this period. 9. A Production Bonus Scheme was introduced in I.S.W. According to the scheme workers are getting an average of 150 per cent and cent per cent of their basic wages in production departments and service departments respectively.



ALFRED KRUPP.
Born April 1812.
Died July 1887.

FOUNDER'S SON.

The Story of Krupp

BY
FRIED KRUPP A. G. ESSEN



ALFRIED KRUPP.
VON BOHLEN
UND HALBACH
Born—1907.

PRESENT HEAD.

Foundation and Beginnings of the Enterprise:

One of the early 18th century pioneers in cast steel production was Friedrich Krupp, founder of the firm that still bears his name. On November 20, 1811, he laid the foundation stone of the Gubstahl-fabrik (Cast Steel Works) in his native city of Essen in Germany.

The young enterprise was in no way favoured by fortune. Several of Friedrich Krupp's assistants proved unable to fulfill various promises. Krupp's not inconsiderable means were consumed, and he struggled with lack of working capital and heavy indebtedness. In spite of never-ending difficulties and after many years of assiduous experimenting, Friedrich Krupp succeeded in setting up his own process for producing so-called "crucible" steel. This brought him the first financial returns. The first finished products turned out by the Essen factory were tanner's tools, drills, coining dies, and small rolls, which were supplied to artisans, smelting works and government mints. But again and again Friedrich Krupp suffered heavy reverses; continuous care and lingering sickness exhausted his energies; he died in 1826, at the early age of 29.

Alfred Krupp:

After Friedrich Krupp's death, the small factory, which at that

time employed 4 workmen, was taken over by his widow and heiress, Therese Krupp. She, together with her son Alfred, then 14 years old, carried on the enterprise. In 1848, the factory, up to that time a family concern, became the personal property of Alfred Krupp. As a young man, Alfred Krupp increased his technical and commercial knowledge through travel and private study. He improved both crucible steel production and the crucibles used in the process. The finished products turned out by the factory at that time consisted chiefly of rolling mills for precious metal work and cutlery factories, and mint mills for use in Germany and abroad.

As early as 1835, Alfred Krupp installed his first steam engine, supplied by the Gutehoffnung-shutte, to drive the so-called "tail hammers". At the same time, the first mechanical workshop was erected. In 1845, Krupp invented a spoon roll for simultaneous stamping, rolling and cutting of spoons and forks, for which he obtained patents in many countries. With the beginning of the railway era, new and important markets were opened for Krupp's crucible steel: the factory now supplied axles, springs and machine parts.

At that time the first important change took place in the manufacture of steel. This change was

brought about by the invention of the puddling-process, which offered a reliable basis for crucible steel manufacture. In 1851, Krupp erected a puddling works. In the same year he sent a cast steelingot weighing 4,300 lbs. to the World Exhibition in London, along with springs, axles, bright-finished rolls and a cast steel gun barrel. Also the first seamless railway tyre was shown at this exhibition. The manufacture of these tyres, Alfred Krupp's personal invention, was soon universally adopted. It is in remembrance of this epoch-making achievement that the firm's trade mark shows the famous three interlaced rings. The manufacturing programme was then further enlarged by heavy crankshafts and marine shafting, and the number of employees, which about 1850 had numbered 300, rose by 1857 to nearly 1,300.

To meet the demand for forgings of larger and larger sizes, Alfred Krupp installed steam hammers of greater tup weight in order to ensure thorough kneading of the ingot. He personally prepared the plans for the famous steam hammer, called "Fritz" after his father, which had a tup weight of 1,000 cwt and was put into operation in 1861. Sales of railway material were increasing considerably in these years. By the middle of the 'sixties, annual deliveries had risen to about 7,000 railways springs,

more than 10,000 railway axles and 20,000 railway tyres.

Krupp was the first industrialist to introduce (about 1860) the Bessemer-process on the continent. He had formed a connection with Henry Bessemer several years before, at a time when the Englishman's invention was not taken seriously. Although it was found that the use of Bessemer steel did not ensure the technical perfection obtained with crucible steel, the new material was nevertheless fully suitable for many products such as smaller axles, springs, wheel tyres (except locomotive tyres), wheels and various mass products. Production of steel rails was also begun in those years. The first rail rolling mill of Krupp was completed in 1864. Bessemer steel rails were soon adopted by all railway systems throughout the world. A second Bessemer steel-works was established in 1865. About the same time a sheet rolling mill and a boiler shop were set up, so that steam boilers were no longer purchased, but were manufactured in the Essen factory over and above the factory's own requirements. The Open-Hearth-Process, adopted about 1870, marked new progress in steel production. Open hearth steel, though less expensive than the crucible products, proved superior to Bessemer steel for the manufacture of many articles of higher quality.

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In his search for new applications for crucible steel, Krupp had already in the 1840's taken the first steps in gun making. In 1844, he submitted his first quotation for a cast steel gun barrel to the Prussian Government, which about the same time received a similar offer from the Bochumer Verein. The Prussian authorities, however, were not interested in this revolutionary innovation and it was not until 1859 that they placed an order for guns with the Krupp Works. In order to keep pace with the ever-increasing demand for high-quality steel, Alfred Krupp began, in the middle of the 'sixties, to acquire coal and ore deposits as an essential raw material basis for his factory. In 1864, he took on lease the coal mine Graf Beust at Essen and in 1865 purchased the Sayner Hutte with the adjoining ore concessions. Other mines, ore deposits, and blast furnaces were acquired in the Middle and Lower Rhine districts.

In the 'seventies and 'eighties the factory was further enlarged, and the manufacture of wheels and rails improved. At that time, production of ship propellers, for shipbuilding purposes and locomotive construction as well as other steel products of high strength was commenced and developed into a new sphere of activity. In the second half of the 'seventies more orders for guns were received from foreign countries. Later, considerable quantities of rails were ordered by the United States of America, whose railway system was then developing on a vast scale.

Meanwhile, Alfred Krupp's only son, Friedrich Alfred, had joined the management of the factory and in 1882 was appointed a member of the "Direktorium". Alfred Krupp himself, nevertheless, continued to hold the reins of the management. He lived to see the acquisition of the Spanish ore mines near Bilbao and the first beginnings of the firm's own ore fleet. He died in 1887, at the age of 75.

Friedrich Alfred Krupp:

Friedrich Alfred Krupp was at the head of the establishment for only 15 years, during which time the number of employees rose from 20,000 to 43,000. His activities were characterised above all by the planning and acquisition of important plants outside Essen, including the Grusonwerk at Magdeburg and the Germania-Werft, a shipyard at Kiel.

In the 'nineties the general economic development had taken a favourable turn, and the rapid advance of international trade and traffic had given increasing work to all sections of the Gubstahl-fabrik. Another enlargement of the raw material basis became necessary. The erection of a new blast furnace plant in the neighbourhood of the Essen works, a plan which had already been considered by Alfred Krupp, could no longer be deferred. In 1895, a decision was made to

acquire a suitable site on the left bank of the Lower Rhine, near Rheinhausen. In 1897, the first two blast furnaces were blown in, and from that time on, the plant was continually enlarged. After the death of its founder, the plant was named "Friedrich-Alfred-Hutte".

The adoption of nickel steel for the manufacture of gun barrels and gun elements as well as the development of quick-firing guns were milestones in the manufacture of arms under Friedrich Alfred Krupp. He also paid special attention to the Scientific Research Department of the Gubstahl-fabrik. The Chemical and Physical Research Laboratory of Krupp became a well-known institution in iron and steel research. Many important discoveries and inventions had their origin there.

Development in the 20th Century:

After the death of Friedrich Alfred Krupp in 1902, his eldest daughter, Bertha, became owner of the works. In 1903, the firm of Fried. Krupp was converted into a jointstock company. However, this conversion brought no change in the enterprise, since nearly all shares remained in the hands of Bertha Krupp. In 1906, Bertha Krupp married Dr. Gustav von Bohnen und Halbach, who was authorised to add the name of Krupp to his own and soon joined the Board of Directors of the firm. On becoming Chairman of the Board in 1909, he took over the management of the enterprise. The following years were characterised by a steady economic development, which continued until World War I.

With the acquisition of the Friedrich-Alfred-Hutte, the firm of Krupp had ranged itself among the biggest iron and steel producers. The shops for steelworking and mechanical engineering kept pace with the great increase in pig iron and steel production. The open hearth plants were enlarged and supplemented by a large steel foundry. In 1907, the first electric steel plant was erected. As early as 1890 and 1892, hydraulic forging presses of 2000 and 5000 tons pressure had been installed in the factory, to replace the old hammers. The steam hammer "Fritz", after nearly 50 years of service, delivered its last blow in 1911. During World War I, the number of workers employed at the Essen works rose to 115,000, while that of the whole Krupp organisation reached a total of 180,000.

After the armistice all efforts were directed towards the conversion and re-equipment of the works for peace-time production. The first important steps in this direction were the establishment of a locomotive and railway wagon factory and the start of motor vehicle production. These innovations were soon followed by other activities such as the manufacture of agricultural machinery, and Diesel engines. Even some production of precision instruments was adopted. The way for a slow but steady recovery seemed to be

open, when the occupation of the Ruhr and the inflation of the Reichsmark brought new heavy reverses. The number of employees of the Gubstahl-fabrik dropped to 20,000, that of the whole organisation to 48,000.

In 1926, conditions were slowly improving, so that long-deferred projects for new plants could be realised. An up-to-date metallurgical plant, comprising blast furnaces, a steel-works, and a rolling mill, was erected on the Rhine-Herne Canal at Essen-Borbeck. With the inclusion of pig iron production Krupp added the last link to the manufacturing programme of the Essen works. They were now in a position to carry out all stages of production, from the raw material to the finished product. This made possible a reduction of prime costs, the more so as generation of electric current had become considerably cheaper by the use of blast furnace gas. A steam-hydraulic forging press was erected with a capacity of 15,000 tons, which for a long time was to meet all requirements of modern heavy engineering, with regard to shape as well as to weight of the forgings. The increase of the personnel in the Gubstahl-fabrik from 20,000 to 29,000 and in the whole firm from 48,000 to 66,000 illustrates the development between 1926 and 1930.

These few years of economic recovery were followed by a world-wide depression of unprecedented gravity, whose devastating effects were also felt at the Krupp Works, where the number of employees dropped back to the 1926 level.

After 1933, orders were again coming in on a larger scale, so that the pay-roll again comprised 37,000 employees. Besides the building industry, it was chiefly transport activity that gave the firm plenty of work; considerable orders were also received from agriculture. The Locomotive Factory of the Gubstahl-fabrik, having completed its 1500th locomotive for the railways of Germany and other countries in 1934, turned out No. 2000 by 1939. "Stahlbau Rheinhausen" was fully engaged in supplying steel bridges for German highway programme.

While, after 1918, no war material had been made except for a small amount permitted under the Versailles treaty, the Krupp Works were now receiving more armament orders from the government authorities. This led to a resumption of armament production on a larger scale. Peace production was nevertheless taking up the greater part of the firm's activities and was maintained to the largest possible extent in World War II.

Alfred Krupp von Bohnen und Halbach:

The eldest son of Dr. Gustav Krupp von Bohnen und Halbach und Bertha Krupp, Alfred, born in 1907, joined the firm as a deputy

Director in 1936. In October 1938, on decision of the Board of Directors, he was appointed a member of the "Vorstand" (Managing Board) of the Fried. Krupp Aktiengesellschaft. In December 1943, when the firm was reconverted into a personal enterprise pursuant to the so-called "Lex-Krupp", the whole of the firm's property was conveyed to Alfred Krupp von Bohnen und Halbach, who had taken over the chairmanship of the "Vorstand" of Fried. Krupp A.G. in March 1943.

At the same time Dr. Gustav Krupp von Bohnen und Halbach retired from active participation in the enterprise. Having been at the head of the firm for three-and-a-half eventful decades, he lived in complete retirement at Bluhnbach in the Salzburg district until January 1950, when he died after a long illness.

At war's end, in 1945, Alfred Krupp von Bohnen und Halbach was arrested, tried as a "war criminal" in 1947 sentenced to 12 years in jail and confiscation of his property. In early 1951, US High Commissioner John J. McCloy reviewed the case and decided: "I can find no personal guilt in the defendant Krupp sufficient to distinguish him above all others sentenced by the Nuremberg courts." McCloy pardoned Alfred Krupp von Bohnen und Halbach and cancelled the property-confiscation order. It then took two years of intricate international legal negotiations before Alfred Krupp von Bohnen und Halbach could officially retrieve his empire. Now he holds less than one fourth of the properties that functioned under the family banner in the early 1940. The shrinkage was caused by three forces: the war, dismantling, and the deconcentration and decartelization program.

There were dozens of air raids on the Essen works alone. More than 32 per cent of all buildings were totally destroyed and an additional 29 per cent heavily damaged. The postwar division of Germany meant further losses of plants in the Russian zone.

The allies' reparations policies hit Krupp even harder than their bombs. Another 40 per cent of the Essen factories were erased in this way. Krupp holdings elsewhere also fell under the dismantling hammer.

To get back his other plants Alfred Krupp von Bohnen und Halbach had to agree:

- (1) to sell all his crude-steel factories and coal and ore mines within five years;
- (2) never again to acquire a controlling interest in any firm engaged in those industries.

Alfred Krupp von Bohnen und Halbach is back in the saddle now nearly a year. His firm has emerged from the havoc of war and dismantling to resume its old role in Ruhr industry and also to create a new place for itself in the world's markets.

The Story of Demag

By DEMAG A. G. DUISBURG

The history of DEMAG begins 135 years ago in an old castle at Wetter on the Ruhr river. It was here that Friedrich Wilhelm Harkort, together with Heinrich Daniel Kamp, in the fall of the year 1819 founded a company named "Mechanische Werkstatte Harkort & Co." thereby laying the keystone of a mechanical engineering concern of world-wide renown.

Of course, it was a long, and at times rather burdensome way to success. In 1832 the "Mechanische Werkstatte" turned into "Maschinenfabrik Kamp & Co.", in 1872 into "Markische Maschinenbauanstalt vorm. Kamp & Co.", and in 1906, through a merger with Messrs. "Ludwig Stuckenholtz" established in 1830, into the "Markische Maschinenbauanstalt Ludwig Stuckenholtz A.G."

Thus, by slow yet steady development, a company had grown up which as early as about 1900 supplied not only the neighbouring industrial district between the Rhine and Ruhr, but all Germany and many other European countries with machinery and cranes for the iron and steel industry, mines and harbours.

Several ingenious engineers and farseeing industrialists exercised a deciding influence on this development. Among these, some deserve special mention: Alfred Trappen, an engineering genius, designer of mechanical equipment for steelworks and rolling mills; Rudolf Bredt, originator of German crane engineering; Wolfgang Reuter, creative engineer and leading authority of the country's national economy.

Beside the Wetter works, there were two other companies, dealing with nearly the same engineering spheres, that had gained an excellent reputation. These were Messrs. "Duisburger Maschinenbau-Aktien-Gesellschaft vorm. Bechem & Keetman" of Duisburg, and Messrs. "Benrather Maschinenfabrik A.G." of Benrath. The Duisburg firm had been established in 1862 by the engineer August Bechem and the merchant Theodor Keetman. It excelled above all in the construction of rolling mills and large hoisting appliances, whereas the strength of the Benrather works, which was founded in 1861 by Wilhelm de Pries, was mainly embodied in the construction of blast furnace charging equipment and cranes of all kinds, especially dockside cranes, shipyard cranes and floating cranes. The fact that these three firms with their partly identical and partly complementary working spheres were operating in competition with each other was bound to result in inexpediences of various kinds. Hence, it was to be regarded as a timely and fortunate solution to both the three works

involved and their customers when, owing to the organizational skill of W. Reuter, the three firms combined into a working association, which was soon—on the 27th June 1910—followed by their complete amalgamation into the "Deutsche Maschinenfabrik A.G." or in abbreviation DEMAG, Duisburg.

As a consequence of the amalgamation, the designing, manufacturing and sales operations could be reorganized to improve the economy of the undertaking which actually progressed rapidly on the road to success. Under the name of DEMAG its renown soon spread all over the world. Later on, further works were merged with it and manufacturing rights were secured from others, all with the object of supplementing the manufacturing program to an extent that not only specific classes of machines, but complete production units could be designed and manufactured by the company's own effort. In the course of this coherent development, on the 27th August 1926, by the merger with Messrs. "Maschinenfabrik Thyssen & Co." the DEMAG Aktiengesellschaft was created.

Since that time, an uninterrupted series of outstanding engineering achievements, one excelling the other, resulted from the activities of the DEMAG Company. Giant compressors travelled across the ocean to the South-African gold mines. The world's largest tower winding engine was supplied to Manchuria in 1937.

Since the turn of the century, DEMAG took a leading part in the construction of as much as 150 new metallurgical plants throughout the world, including works in England, France, Italy, Switzerland, Belgium, Luxembourg, Holland, Sweden, Norway, Spain, Yugoslavia, Rumania, Russia, Turkey, India, China, Japan, Manchuria, South-Africa and Chile. 275 blast-furnace charging installations and blast-

furnace frames were built. 19 complete steelworks and hundreds of converters, open-hearth furnaces and hot-metal mixers were made. The total number of rolling mills built since 1900 comes close to 2,000. These include many notable special designs, such as, e.g. the largest wide-flange beam mill, the first modern 11-stand wide strip mill in Europe, continuous structural and sheet-bar mill, tube-rolling mills of all kinds, and, finally, the world's largest armour-plate mill, built in 1940.

The crane building department has on record similar distinguished achievements, including the DEMAG mammoth floating cranes. 60 of which range in lifting effort from 100 to 400 tons. The largest of them, with jibs towering 112 m. above the water, carry loads of 350 tons. Thousands of dockside cargo cranes and 600 loading bridges were supplied to the harbours all over the world. For example, the wharfs of Buenos-Aires, in 1928, were equipped with 150 DEMAG cranes. Other large series of cranes were supplied to harbours of South-America, Africa, East Asia and Europe.

Special care was also devoted to the series manufacture of small products. Separate workshops for compressors, pneumatic tools, drives for underground conveyors, air-turbine motors and gear drives were built. The production facilities for electric hoist blocks and for the suspension cranes and mono-rail systems developed in connection therewith were raised to a standard ensuring maximum economy in the manufacture of these handy hoisting appliances whose trade name "DEMAG-Zug" is internationally accepted as a mark of quality.

The company's means of production were consistently improved by the acquisition of modern high-precision machine tools, a process

of development which was still carried on at a steady pace as soon as the disaster of 1945 was overcome. At the present time, the works of DEMAG are stocked with better and more machine tools, as well as other means of production, than ever before. Again, approximately 50 per cent of the volume of production is destined for export. Again industrialists and representatives of foreign governments visit Duisburg, the principal place of business of DEMAG, in order to obtain expert advice in the planning of new industrial plants. The extensive work performed by Messrs. DEMAG after the war in the reconstruction, extension and development of blast-furnace plants, steelworks and rolling mills is reflected by the following figures:

Orders booked during the past 5 years:

Blast-furnace plants of a combined capacity of 3,000,000 tons of pig iron per annum.

Steelmaking equipment of a combined capacity of 7,100,000 tons of ingots per annum.

Blooming and slabbing mills of a combined capacity of 10,500,000 tons per annum. This figure represents the maximum rated capacity which however is not yet in all cases fully utilized.

25 rolling mills, comprising 235 mill stands, for structural shapes, sheet, strip and rod.

39 cold rolling mills for sheet and strip from 100 to 2,000 mm. wide. Installations for the production of seamless and welded tubes, comprising 104 stands.

Within the scope of the rolling mill orders, a total of 7,900 motor-driven table rollers and 223 auxiliary units and such finishing machines as shares, sawing machines, straighteners, levellers, coiling machines, presses etc. Within the scope of orders for blast-furnaces, steelworks and rolling mills, and as separate orders, 214 metallurgical cranes, including 36 ingot stripper cranes and stationary stripper devices.

Thus, Messrs. DEMAG managed to take extensive advantage of the sole asset abundantly available in Germany, that has been saved over the years of war and devastation, and to which the success of reconstruction secured within such a remarkably short period is due: the ingenuity and resourcefulness of her engineers and the diligence and skill of her working people. It is this asset that enables the DEMAG Company to maintain the highest standards of engineering and workmanship and to consolidate its excellent reputation in the world.

Modern Rolling Mill Drives

Development and Present Technique

By
von Dipl. Ing.
H. Optiz

FOR rolling mill drives the electric motor has, since its first application about the turn of the century, increasingly gained against competition with the steam-engine which up to that time was practically the only drive being employed. Neither the progress in, nor the improvements of steam-engine drives could hinder the advent of the electric drive since electrical engineering also made meanwhile remarkable headway in developments.

Preference of electric drive for rolling mill is generally due to its superior economy in spite of several steps in transforming the energy, to simplicity and high degree of safety of operation, long life expectancy and very low maintenance requirements. It is largely the ideal speed control of the electric drive, in particular of the DC motor, which perfectly adapts itself to the production requirements of modern rolling drives, which would be never possible with other types of driving machinery.

The increase in production and improved quality, as intended with modern electric rolling mill drives, generally demand higher requirements in controlling the driving motors, and increased use of high-grade automatic auxiliary equipment in connection with rotating and stationary magnetic or electric amplifying equipment. Simultaneously, the three-phase motor drives, generally appreciated on account of their simplicity, are more and more replaced by speed-controlled DC motors which, together with motor-generator sets or rectifier plants give the desired speed-control characteristics for adapting them to the varying conditions in rolling mills. Also, according to the purpose and special operation conditions the electrical design and constructional features of the motors are of growing importance. More than ever before it requires an intensified collaboration of the electrical engineer and the designer of rolling mill. It is only natural that under such circumstances the electrical equipment, as part of the total investment for a modern rolling mill, has considerably expanded when compared to that of the old days.

For heavy reversing mills such as blooming, slabbing or plate mills, formerly the Ward-Leonard controlled DC motor only was available in connection with an Ilgner motor-generator whose flywheel served, in the well-known manner, to relieve the three-phase supply from the heavy surge loads in rolling. Although the control characteristics of this kind of drive were already quite satisfactory, by employing suitable high-speed excitation devices they could be considerably improved further by using modern amplifying machinery, in particular through the modern current limitation as well as by simplifying the control equipment, part of which has now been designed for foot operation.

For reversing mills the German electrical industry has also, during the last few years developed, and already practically tested grid-controlled rectifier plants which, as compared to the Ilgner system permit savings up to 20 per cent of the average power consumption, by higher efficiency and by elimination of the flywheel losses. The capital investment does not generally increase thereby, on the contrary, in many cases, it is even less. The rectifier system has shortest possible reversing time since no inherent magnetic inertia as usual with motor-generators and exciters, is present. It should be kept in mind, however, that all surges in the load and the reactive power are passed on, in their full amount, to the high-voltage supply system which, therefore, should provide adequate capacity.

For further processing and finishing of materials from roughing mills into medium and small-sized products, or wire and strip-iron, a continuous row of roll stands with individual motor drives is increasingly used. For such arrangements the speed of the motors must be variable in a wide range in order to permit proper adjustment of the speed of each pass for its pre-fixed rolling programme which is a necessary condition for continuous production of the material. The provision of a wide-range speed-control equipment only permits the balancing-out of speed variations due to sudden load changes with the rolling material entering or leaving individual roll stands, which otherwise would upset their conditional synchronism. It should be noted that the requirements on the drive-control, regarding accuracy and regulating speed as a means to ensure a steady run of the material without undue pulling or looping between adjacent roll stands, are increasing with the rolling speed and inversely with the distance of the individual stands. In a modern continuous wire mill, for example, having an output speed of 25 to 30 m/sec (appr. 85 to 100 ft/sec.), an accuracy of 0.1 sec. may prove necessary with load changes of 100 per cent.

In order to meet such extreme operation requirements the German electrical industry largely uses rectifiers for supply and control of continuous rolling mills, thereby, with a view to the economical investment, making use of various possible methods to control the speed. The synchronized speed-control of all motor drives of a continuous mill is thereby achieved either by individual regulation for highly accurate speed performance of each motor, or by the so-called dependent control. The latter employs either field-control by rotating, magnetic and electronic amplifiers or armature-control by controlling the grid of individual rectifiers for each motor drive.

The selection of the appropriate arrangement depends on the

planned rolling speeds and the distances between the roll stands, and therefore on the required speed of regulation. Also, the proper selection of the main rectifiers for the mill motors depends on whether (in case of field-control) the motors are fed from a common busbar or (in case of armature-control) from individual rectifiers to be provided for each motor. In the latter case the capital investment is obviously higher and therefore, depending on the particular conditions of the work, usually the field-controlled drives with a common busbar rectifier-system are chosen. In this connection it should be noted that individual supply and regulation of motors of continuous rolling mills by grid-controlled rectifiers, differ from the American technique; the latter preferably employs busbar supply, however individual motors with very small speed-drop under load, thus requiring larger and correspondingly more expensive motor types.

Not only the hot rolling mills, but also the modern cold rolling mills for strip-iron, plates, sheets, etc. are presenting difficult problems in the engineering of the electrical equipment since, as compared to older plant the rolling speed has been considerably increased for raising the production. The reversing mills with tension-reels ahead and after the roll-stand as well as the tandem-mills—the usual name for continuous cold rolling mills—require an especially careful choice and design of the electric drives to closely meet the special work conditions.

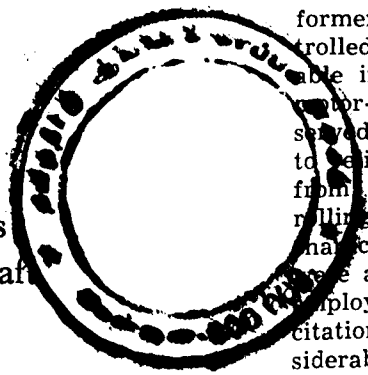
In order to obtain here high quality and accurately sized products, it appears necessary to apply—besides the actual rolling power—a certain pull on the rolled material which should possibly be kept constant at all rolling speeds, i.e. at standstill as well as during run, and also at increasing diameter of the reel when winding strips.

For such requirements the electrical engineer has developed an elaborate system for DC-mill-drives with specially designed motors in Ward-Leonard arrangement, and extensively using regulating and amplifying machinery; going into details would be, however, beyond the scope of this article.

This short survey on modern mill equipment may not be concluded without pointing to the wide field of auxiliary mill drives which, although less conspicuous in size than the large main drives, are however, of no less importance for productivity of a plant.

This fact has been recognised in recent years more and more, resulting in new and remarkable developments for this field of machinery with the increased application of Ward-Leonard or rectifier-controlled DC-motors, and also incorporating regulator and amplifier equipment as already well-known from the main drives.

Allgemeine
Elektrizitäts-
Gesellschaft
Berlin



Manufacture of Tubes by the High Frequency Welding Technique



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In the wake of India's efforts for quick industrialization.

KALINGA TUBES LIMITED will go into production of Galvanised Tubes 1 to 2" diameter using high frequency welding technique, known as the LAR Process.

The LAR Process is essentially based on high frequency welding the coils of strips being welded end to end, and form a large reel which feeds the forming and welding machine continuously. The strips are used in its original form, without etching or sand blasting of the surface, and without cutting the edges

Once the strip is put into shape, it passes under one or two welding heads which heat the metal strictly on the edges, which are then pressed together. Greater power can be put into this operation as the rest of the metal is cold and absorbs all the strain. A slight seam is visible, which is then removed, leaving a smooth surface. The tubes are then cut to length and go through the normal process of pressure testing, thread cutting etc.

The performance of these machines are:

- (1) with a welding heat of 200 Kw/H.F., the manufacture of tube 1" with a thickness of 3 m/m. requires 85 Kw/h Power per ton.
- (2) The out-put of this machine which is built in Germany, with generators of 400 Kw/H.F. gives a production of 35 to 50 meters per minute, in sizes up to 6".

The tubes manufactured by this process range from thin wall tubes to normal gas and water pipe tubes, according to British or International specifications; including tubes which can stand the test for oil industry; and even boiler tubes. For all practical purposes, it is now an accepted fact that high frequency welded tubes are practically equivalent to seamless tubes.

The factory is situated at Chowduar, near Cuttack, and installed capacity of the plant at present is to manufacture 30,000 tons of tubes per year.

Apart from its use for water, gas and oil industry, the tube can be

used as a construction component is receiving increasing attention all over the world. It is the strongest known construction component when we take the ratio of its dimensions to its weight. The reed and the bamboo are good examples wherein nature has provided mankind with excellent building material. It takes almost perfect adjustment of stress relations with good stability and elasticity. The tubular part is effectively reinforced by nodes at regular intervals. In the same way the steel pipe has a uniform bucking, torsional and bending strength. It lends itself to easy fabrication, and can easily be transported. Its surface area being comparatively small, it therefore requires less coating or similar protective agents against corrosion.

Pipes and tubes have not so far been used as construction components in India, because there was no plant manufacturing them so far. Because of the difficulty of import and the higher cost of imported material, designers have not yet learnt to think in terms of "Light Weight Construction".

With light constructions, especially with tubes, there is very little usage of bolts, nuts, rivets and screws, since most connections are made by welding. This being a departure from normal construction practice, require a good deal of vigilance and care in testing and supervision. For light weight construction with tubes it is not at all necessary to make use of the expensive seamless tubes. Welded tubes which are thoroughly tested are best suited for the purpose. This opens a new avenue for the use of tubes.

It is now possible to give any reinforcement to the walls of a pipe either from inside or outside or from one side only, by forming nodes through compression. The form of this reinforcement can be conical, cylindrical or insteps. KALINGA TUBES will thus, have to play a great part in supplying tubes for household, power plants, oil industry and constructional purposes.

RAILWAYS AND STEEL (Continued from page xxvi)

can invest solely only where such investment appears prudent. From all this outlay for steel, the Rail-

	(In millions of Rs.)	
	Total freight	Expen.
New Steel Plant	39	31.2
Expansions	44	35.2

Much of the outlay on the latter being common to the former the investments should be analysed together when an overall return of 7.5% results and the expenditure stands justified on its own without reckoning benefits in other fields. These works must in their turn stimulate ancillary developments yielding more traffic. In the ultimate analysis public expenditure must not only pay its dividends in money, but must help to

way expects increased freight earnings, the estimates being as below:—

	Net earning.	Capital Outlay.	% Return.
	7.8	66	11.9
	8.8	156	5.7

expenditure on Railway developments prompted by the Steel Industry steps up immediate employment and sustained operation, being linked with a permanent demand, improves the quality of employment as more men are trained to greater ability and skill to raise the standards of occupation and income. Rationalised Transport serves not steel or coal alone but all and the Nation. National planning should enable and not cripple such multiple service.

