ATION'S
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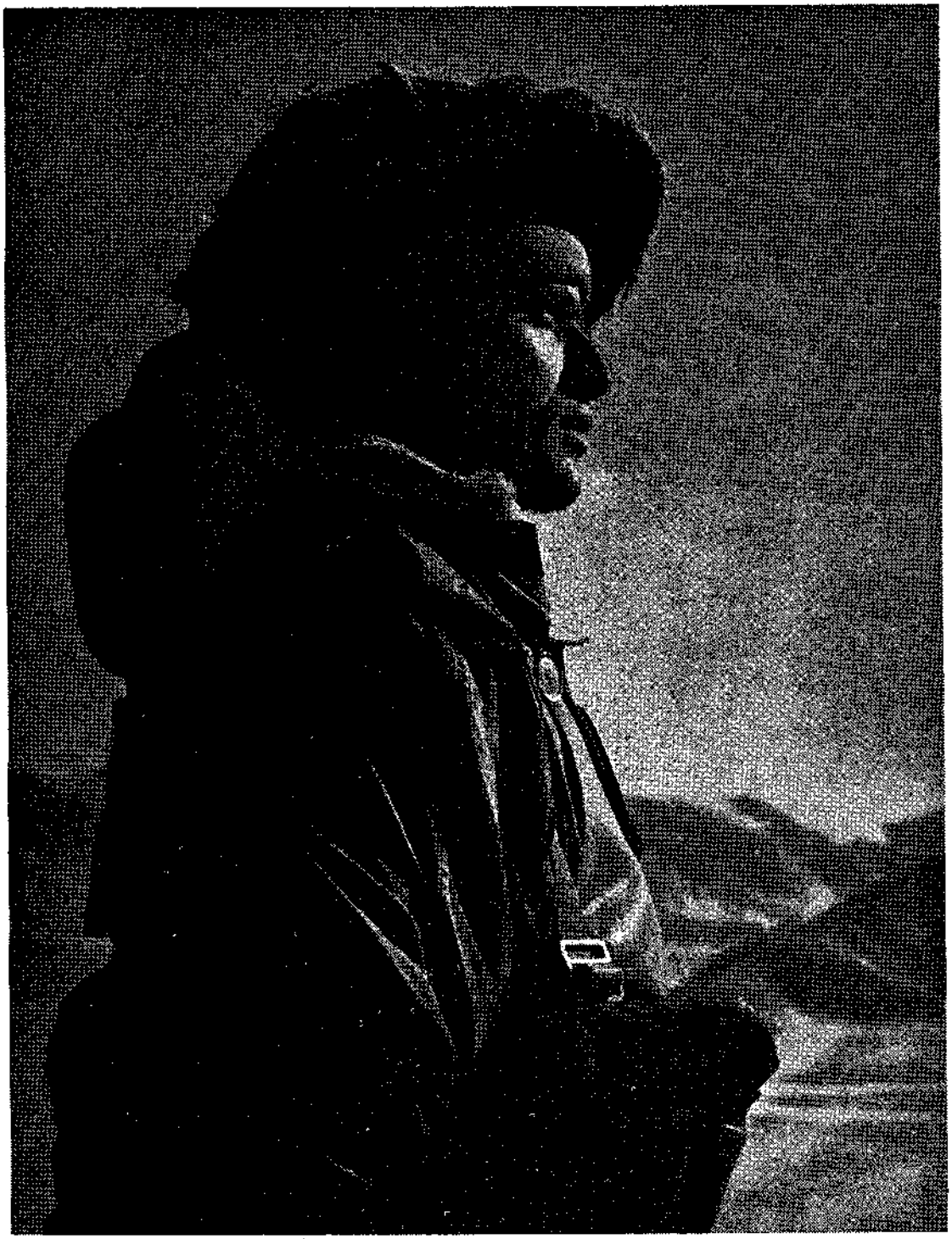
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Editorial

NATION'S STRENGTH

OUR entire struggle for freedom was governed by the spirit of revolution by consent. Appropriately it culminated in our Constitution which is one of the world's great charters of individual freedom and worth. We undertook planning to fulfil the promise embodied in the Constitution—the promise of social and economic justice for all. As a people our world view is moulded by the view that our national movement generated, namely that no change is worthwhile which is not peaceful change. Under the Constitution and under the Plans we have been growing in freedom and we have been moving towards welfare widely shared. But during the last hundred days we have been made to realise that in our absorption with building up prosperity in freedom we should not forget to be strong. The way of life that we cherish must encompass the strength to defend it.

What are the elements of a nation's strength? Love of the country and of the national ideals—the source of nationhood—is itself the first element. The will to fight is the second. The military ability to fight is obviously a third element. Economic ability to sustain a prolonged struggle is a fourth element. The ability of the administration to undertake all these tasks is yet another of the elements of strength.

At the present juncture and on this particular day when our thoughts turn towards making our Republic enduring, just and strong, we present the views of scholars and experts on several aspects of national endeavour that will build up our defensive power. *Yojana* considers it a privilege to offer this symposium as it steps into its seventh year.

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

It is issued every fortnight in two separate editions, English and Hindi.

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TARLOK SINGH

PLANNING AND IMPLEMENTATION

Gap Must Be Narrowed

NATION'S



STRENGTH

A NATIONAL emergency points swiftly to the many directions in which weaknesses have been permitted to continue in the past. Among these, one of the most important naturally is the machinery of administration and the processes of implementation, co-ordination and consultation through which it functions. The demands which the Emergency makes upon the administration are different in degree from those made by the continuing challenge of planned economic development, but the essential features are common. One expects that the Emergency will help strengthen the administration, sharpen its tools and make it more capable of working to schedules and producing results in time. For such a result to be achieved, aside from the reorientation of outlook and the sense of urgency, there has to be greater readiness to re-examine administrative assumptions familiar in the past, to make as explicit as possible the steps by which a given goal is to be reached, and to identify the agencies and the individuals who are expected to accomplish the specified tasks at each stage. Reflecting over our experience through more than a decade, it would seem that with given resources much more might be realised if detailed and rigorous administrative analysis and planning were to become a normal feature in the preparation and implementation of plans and projects. The gap between planning and implementation and between policy and administration, which frequently mars the quality of our achievement, is in fact capable of being greatly reduced and indeed largely eliminated.

There has always been a general awareness that each Plan had larger administrative implications than the one preceding it and that the administration was being asked to bear steadily increasing burdens. Through greater attention to training, expansion of personnel and improvements in methods and organisation, the administrative structure has been enabled to carry a larger load. However, it cannot be said that there has been a self-evident gain in speed or in the ability to evoke public response or in the capacity to reach given objectives according to pre-determined schedules. A democratic framework easily lends itself to elaborate processes and may become tardy and halting in action. There is all the greater reason, therefore, for a more systematic and considered approach to such questions as the making of policy decisions, allocation of funds, inter-agency consultation and fixation of responsibility and to the setting of appropriate administrative norms and practices.

OVER the vast field to which these remarks could apply, three areas which merit special attention at the present stage of development might serve to illustrate the argument. These are — (1) co-ordination between related developments in different branches of the economy, (2) administration of public enterprises and (3) extension services in agriculture and small industry and the role of government agencies in the field of social welfare.

Problems of co-ordination in related sectors of development are likely to become even more complex in the future than they have been in the recent past, and it is by no means easy to see one's way through them. Fundamentally, they call for better and more systematic plans within each sector. Each plan has to be framed with due understanding of other related plans, and between them there have to be the necessary breakdowns at various operational levels. For such interlinked plans to succeed, there are certain common preconditions to be secured, for instance availability of investment funds, of foreign exchange and of material resources. This aspect of co-ordination falls within the province of organisations outside the agencies responsible for the actual implementation, such as the Planning Commission, the Finance Ministry and committees charged with the allocation of resources. Continuous contact with the problems and thinking of the operating agencies, appreciation of their difficulties and of the nature of inter-relationships, and evolution of modern methods and techniques for fixing and ensuring steadily rising norms of performance constitute the key to effective co-ordination at the level of policy and planning. Admittedly, there is much room for improving on current practices. In any event, such co-ordination constitutes only a beginning.

At the operational levels, as we move further away from overall policy and planning, the need for consultation and co-ordination must arise at various stages,

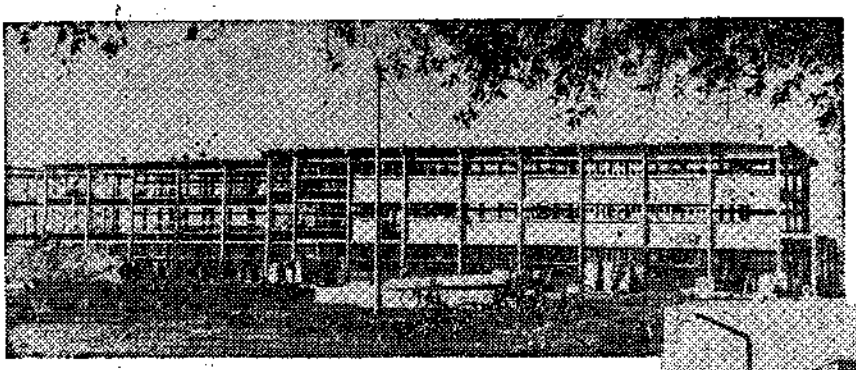
but it is more marginal in character. It would therefore be an advantage in each field to enable a specified agency to undertake final responsibility for execution and operational decisions, leaving to it the option, according to its capacity and understanding, to seek such further advice or consultations as may be necessary. This implies also the responsibility, within large limits, for varying and adapting according to the requirements of the situation. Too great a rigidity at the higher levels of co-ordination, whatever its source, tends to reduce the element of initiative right through the structure.

In each sector, the principal unit of operation or control is the project or the enterprise. At bottom, therefore, problems of co-ordination are largely broken down in terms of planning and implementation of individual projects. These may involve both construction and maintenance in varying proportions. A considerable part of the difficulty in carrying through our plans has come from lack of adequate technical, administrative and financial planning in individual projects. This has tended to magnify the effect of some inevitable uncertainties, to raise the cost per unit of output and to delay the flow of benefits. In the rush of events a variety of factors combine to reduce the influence of cold and objective analysis on the decisions which have to be taken from time to time. However, we have reached a stage in our planning when we know that to accept a proposition which goes beyond the established facts of the case eventually costs more rather than less time and money.

In the scheme of democratic development, extension and welfare services and the participation of groups and communities in various constructive activities have deep and far-reaching significance. The social, educational and administrative processes involved are, however, complex and changing, and our understanding of them is often incomplete and subjective. Social research evaluation and studies of different types of situations can go a long way in helping us to discover and develop new ways of advance and to stimulate the agents of change at the grass-roots. In the whole area of extension and welfare, while we pursue our goals with the utmost determination and sense of direction and priority, we should be ready at all times to adapt and modify, and should be careful not to go beyond the best estimates possible of what, under favourable conditions, we might hope to achieve.

To sum up, in setting goals and targets there is need now for much stricter appraisal of technical and administrative detail. At the same time once the broad goals are accepted, it is essential that the administrative steps and the responsibilities to be assigned at each point are laid out with meticulous care and followed up with precision. With a two-pronged approach of this character, there is reason to hope that the gaps between planning and implementation can be substantially reduced. In truth, this is now the central issue in development administration in India.

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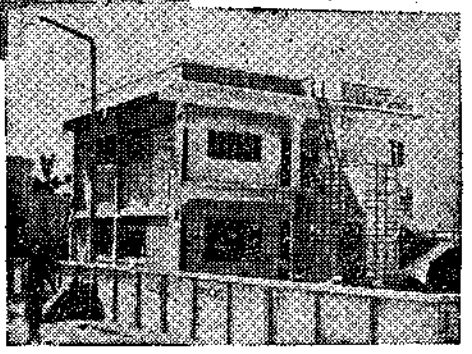
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U. N. DHEBAR

RESOURCES for DEFENCE

NATION'S



STRENGTH

New Approach to Taxation Necessary

We Must Come out with a Pledge on Minimum Standards

EMERGENCY finance is not my subject of study. Moreover, for a person of my temperament and background, it is an effort to adjust the thinking to the numerous changes that have become inevitable, and I cannot keep in step with the Government and even with the public. I write, therefore, under limitations. What I am going to say here is more in the nature of loud thinking than decisive opinion.

The topmost priority today naturally goes to defence. It is obvious that Plan programmes dealing with the direct needs of defence will have to get the first priority. Other needs of defence also will have to be met. The Prime Minister has stated that this will be done as far as possible without cutting down other expenditure in the Plan, though some cuts may be necessary in things which may not affect the Plan targets. A substantial effort will be needed to cope with the problem of resources for both. Cuts in consumption will be inevitable at all levels of national life. The production has to be stepped up to a level that would cover the entire additional demand.

At the present rate of national income and spending, a day's saving in consumption can yield Rs 30 to Rs 35 crore. It will not be easy to bear, but the nation will certainly be prepared to sacrifice one day's income in a month for its own defence and development. It will not be a tall order or an unreasonable expectation.

THE RIGHT TEST

While it will be necessary for the Government to distribute the burdens in a manner that will not cut into the minimum necessities of human life, we have reached a stage where some revision in the approach to taxation is called for. Taxation of essential commodities can be a regressive step; but not necessarily so always. It can as well be a progressive step. It is true that all indirect taxation or commodity taxation falls on the consumer. But this is where the selection of items comes in. There are some items which are used by everyone but not always in the same proportion.

The incidence of taxation has to be judged not from the commodity point of view alone but from the point of view of the burden it involves on different economic groups in the country, its proportion and the ultimate use to which the money is put. In the final analysis, it is the actual burden on the various layers that should be the test and this test should prevail over any argument that a particular commodity is also used by the lower income group. Let me give an example. A certain commodity, say X, is taxed. It is likely to save Y crores of rupees. The commodity X is in use by all the layers of society including the lowest layer. If, however, the bulk of this Y, say three-fourths, is to come from the higher income groups and only one-fourth from the lower income groups and the burden does not cut into the minimum needs of either, there should be no objection to levying a tax on commodity X. It will be no disservice to the lowest layer simply because X is an essential commodity and is used by that layer. Non-levy would indeed result in depriving that layer in actual practice of the advantage it would get from the three-fourths of Y that would be available from the higher strata of society.

Taxation is a device for transfer of resource-surpluses from one layer of society to another. If in the process of such transfer, any layer of society objects on the ground that it will have to pay a portion of it, it will be a net loss to itself and not to the people in the higher strata. Sometimes the people in the higher strata raise objections in the name of the poorer sections not so much to oblige the lower layers of society but to oblige themselves. It is the function of socialist planning to continue to transfer, through the device of taxation, all surpluses wherever found. It is necessary that this distinction is brought home to the legislatures which have to sanction budgets. It would be useful if, from this point of view, the budget proposals include the break-up of the burden of commodity taxation on the various layers and the possible increase in the incidence proposed.

There is a second consideration. In an emergency, as the public expenditure increases, it is generally the

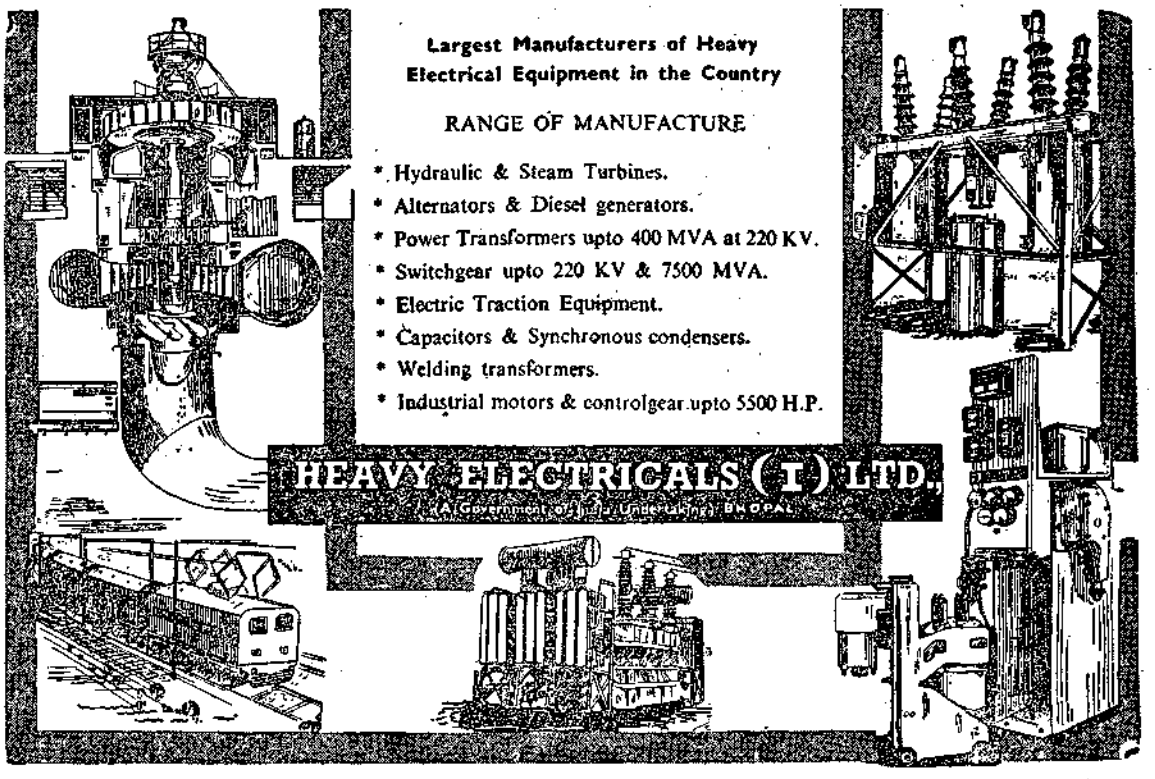
essential commodities that become scarce. Restraint in consumption through the device of taxation, some may assume, would operate as an inflationary measure. This is not necessarily so. It can as well operate as an anti-inflationary measure. When the Government is certain that, because of larger public expenditure, the prices are going to rise, then it becomes its duty to hold the price line. It can do this in two ways—either by enforcing controls or by levying a duty which would cut into consumption. The whole object is to keep the demand within the bounds of supply. If Government does not take such steps, with demands going up, prices invariably rise. This would surely lead to inflation. It would be in the interest of the people not to allow the reins of the economy to go into the hands of profiteers. Even the mercantile country does not want it.

EQUITABLE SHARING

The third point I would like to make is the relative burden of taxation on the various layers. Even before the Emergency the country was looking forward to the findings of the Mahalanobis Committee on distribution of incomes. While the report was yet in the drafting stage some of its details appeared to have leaked out in the Press. It is very necessary that in planning the burden of taxation the Government takes into account the enormous concentration of incomes that is reported to have taken place in certain groups. It is the responsibility of the Government that when it expects the people to cut into their essential consumption, it satisfies the people that all those who are capable to pay have been made to pay enough. This is essential in order to assure public opinion that the burdens of the Emergency are equitably shared.

Finally I come to the most important point. It is that the social implications of the defence effort must be defined. This is all the more necessary as the country is being committed to a long period of effort. I am clear that the planning in India has proved inadequate in at least this respect. We have not been able to induce an effort that would wipe out unemployment and under-employment in a given period; similarly we have not been able to induce an effort that would ensure to the lowest economic strata of society a minimum standard of living in a given period; and finally, we have not been able to make enough headway in the direction of building up minimum social amenities in all the parts of our country. At the rate at which we are moving it will take the remaining part of the century to cope with these problems. That will be straining the patience of the people too much.

Of course it will not be possible—and it would indeed be inopportune—to take on this task as well as the task of defence at the present moment. But it should be possible to declare that the Government and society consider it their main obligation to see that such minimum standards are achieved within a stated period after the cessation of the crisis. Such a statement of policy will have two implications. The first is that the Government will have to revise some of its Plan perspectives when it comes to the consideration of the Fourth Plan, and the second is that the Government will have to miantain the present level of economic effort even after the Emergency ceases.



ARE WE EXERTING OURSELVES ENOUGH?

Compete with Chinese, Says Noted Economist

How does our national effort, especially in the economic field, in the face of the Emergency, appear to a visitor? *Yojana* put a few questions to Mrs Joan Robinson, the distinguished British economist, who is in Delhi as a visiting professor. The questions and her answers follow:

Yojana: Defence and development—these according to Prime Minister are our present tasks. What, in your opinion, are the directions in which the Indian economy has to be strengthened?

Mrs Robinson: I agree with the broad outlines of the Indian plan of development—increasing agricultural output and developing industry—at the same time. The Emergency is an added reason for doing things that should be done anyhow. I attach the greatest importance to increasing food production. In a war economy, the most vital thing is to keep down food prices. If food prices go up, the demand for money incomes will also go up and a Latin American type of inflation develops. Higher production is the best way of keeping down prices. This is important even from the long-term point of view.

Yojana: What should be done to increase our agricultural output?

Mrs Robinson: Efficient farming, of course. Comparison with Japan is quite shaming to Indian agriculture. There is enormous scope for increase in yields here through use of fertilisers and through taking better advantage of irrigation. Not enough is being done in this direction, and the habit of relying on P.L. 480, I think, has weakened the incentive to do better on your fields.

Yojana: What do you place next to agricultural production? Basic industry?

Mrs Robinson: I do not at all hold that basic industry comes *next* to agriculture. They go together; one supports the other. And I would add that from the point of view of the Indian economy, foreign exchange earning is the equivalent of investment in industrial development. You must do much more by way of finding substitutes for what are now being imported.

Yojana: Could we come to that point later? I was thinking of asking a separate question on it. Meanwhile, how do you view the suggestions for pruning the Plan and diverting funds to defence?

Mrs Robinson: That would be ruin. Chinese pressure on India is going to be there for years to come. The best safety against this continued pressure is in building up your economy. As for direct defence expenditure, as we see in Europe, there is no limit to what the military people will ask for. They can, in fact, absorb the entire resources that India can muster. Therefore I would say—although that may not be the way of saying it—"under cover of the Emergency, speed up your development."



Yojana: Having seen at first hand how Britain was mobilised during the War, how do you rate our effort?

Mrs Robinson: The emotional response of the Indian people is there for all to see, but I am not impressed by what has been done governmentally. I don't think it is concrete enough. I agree with the economists who urged that a supplementary budget should have been introduced.

Yojana: But the regular budget itself is only six weeks away...

Mrs Robinson: Yes, but the moment of the greatest emotional response has gone.

Yojana: We were talking of British experience during the War. What lesson could India learn from that experience?

Mrs Robinson: British economy went a long way towards socialism under the impact of war. Paradoxically the Emergency here, it seems to me, has not strengthened those who are in favour of equality, development and social justice. On the contrary, it is the Right-wing elements with intimate links with the private sector who seem to be profiting from the Emergency.

Yojana: Any administrative lessons we could draw from the British book?

Mrs Robinson: That you cannot prevent inflation without rationing. The best way to curb expenditure is not to make things available at all.

Yojana: I wish this could be as easy in India as in Britain!

Mrs Robinson: I admit that the British economy in war-time was much easier to control. That was so for a number of reasons; the bulk of food was imported and our people have a far greater sense of discipline. The patriotic feeling was specially high at times of military reverses.

Yojana: A reorientation of the Plan is going on. Ways of enlarging our real resources are being considered. What new instruments of resource mobilisation would you suggest?

Mrs Robinson: What do you mean by real resources?

Yojana: The means, the work and the actual things needed for defence. All in much larger quantities.

Mrs Robinson: First of all, labour has to be mobilised. Work has to be organised. You have to ensure that the essential commodities are put only to essential uses. I have a feeling that a good bit of steel is leaking into consumer industries. That must be plugged. Then you have to take care that the loose purchasing power that goes knocking about is taken away through taxation. As I said, the best way of preventing any rise in consumption levels is not to allow goods to go into the consumer market. It is better to do it at that stage than to tax consumption afterwards. This can be done without curtailing such levels of consumption as are already very low. Progressive taxation of income and wealth is, of course, desirable from the point of view of social justice. But if it is not enforceable, cruder methods have to be used. Keep down the price of basic necessities and tax other commodities. That will not only give you larger resources; it will also promote social justice in a rough way.

Yojana: Wouldn't there be a limit to taxation?

Mrs Robinson: It is true that even in such a well-disciplined country as Britain there is evasion when taxes are high. But you have to convince the mass of people that the upper layers are doing enough. Everything cannot be left to the patriotic urge.

Positive View of Public Sector

Yojana: Besides increased taxation would you suggest any other measure of resource mobilisation?

Mrs Robinson: Let the Government monopolies make larger profits. You ought to be able to finance a part of your defence bill that way. There is a lot of confusion about public sector undertakings. People tend to think of them as a mere service which should just pay its way. This is not right at all. Profits should be regarded as a way of collecting the surplus for national purposes. A more positive view ought to be taken of the public sector. It is not enough if the private sector is merely controlled. The public sector should compete actively with it. Take this war risk insurance recently introduced. Why could not it have been done in the public sector? Why was a private company allowed to handle it?

Yojana: And any other hints?

Mrs Robinson: By changing some policies and administrative procedures you can get more money into the Government's till. For instance Prohibition. Liquor is a convenient form of taxation, but you are losing revenue. Government can in fact earn large profits by selling liquor.

Yojana: Isn't it too much to expect of a government committed to Prohibition to go to the other extreme of selling liquor! And are you sure that scrapping of Prohibition will make a great difference to the resource position?

Mrs Robinson: Even if you have it your way, there will be a big saving on administrative costs by giving up Prohibition. Also, so much of corruption would go, and crooks won't find it so easy to flourish. That will be a gain.

Yojana: Shall we return to the question about foreign exchange? What, in your opinion, can we do?

Mrs Robinson: You have no doubt cut down a lot of the exchange that was going into consumer goods but I think there is still a lot left. Foreign exchange is precious and as a rule it should go into basic industries and into nothing else. Then there is the question of exports. The limiting factor in most cases is the market. But I think much more could be done to explore the world market.

Yojana: You have made a close study of Chinese economy. How would you compare the economic strength of our two countries?

Mrs Robinson: The first difference is that the Chinese have succeeded in bringing about full employment. They have organised their labour force efficiently. This is a tremendous advantage, even if it is only the other side of the totalitarian medal. Starting at a lower level of industrialisation, with a smaller capital-labour ratio, they have gone very far. Their basic industry has grown up very much faster than yours. Their steel production, I think, is somewhere around 18 million tons against your 4 million tons. That is a very big gap.

Yojana: We can't, we don't want to and we must not do things as the Chinese have done. We have chosen a different system. That being so, how do we close the gap?

Mrs Robinson: Your objective is to prove to your people and to the world that democracy does not have to mean poverty and glaring disparities—and convince them that through hard work they can prove that the Indian way is better than the Chinese way which involves so much of hardship and oppression. Have an all-out economic struggle with the Chinese. Tell the people it is a competition. I don't think that the Chinese invasion has fundamentally altered this competiton between India and China.

Yojana: When there is no fighting going on, what are the prospects of persuading people to shoulder greater burdens? As Ezra Pound said: "Can't move 'em with a cold thing like economics."

Mrs Robinson: Exactly. It is much more than economics. Get up a head of steam, with patriotism behind it. This shake-up should make people do things they ought to have done long ago.

H. K. PARANJAPE

OUR ADMINISTRATION NEEDS CREATIVE THINKING

INFLOW OF FRESH IDEAS IS INDICATED BY EMERGENCY

NATION'S



STRENGTH

THE tasks faced by the governmental and admnistrative machinery in India were gigantic enough up to now. Transforming a traditional, backward and poor society into a modern, vigorous and economically developing society—while maintaining and further strengthening democratic institutions and values—was and is an unprecedented historical operation. The situation on our northern borders has added to the magnitude and complexity of this task because now we realise that we have to do all this and also side by side maintain and increase our preparedness for defence. No one questions the basic approach that the principal and immediate responsibility for carrying out these tasks will have to be borne by the State. We do not want to and cannot afford to wait for an autonomous evolution to see us through this crucial phase of our history.

This raises the question whether the present machinery of Government and administration in India, largely inherited from our former rulers and modelled on their tradition, is adequate to meet the new tasks that it has to cope with. Right since Independence, this question has been agitating the minds of thinking people. The shift in emphasis from a 'law and order' and largely authoritarian administration to a developmental and democratic administration has been noted by many. But few have questioned its basic features, especially at the higher levels of its functioning. The recent move to establish decentralised democracy through 'Panachayati Raj' makes a significant departure from the previous pattern as far as district-level administration is concerned. But when we come to the functioning of the administrative system at the State and Central levels, we find that the basic features of the system have hardly changed. By and large, most persons in authority seem to have assumed that no major changes are called for and that the system is inherently capable, with some minor modifications, of meeting the challenge of the new tasks. It is the purpose of this article to question this assumption and put forward a few hypotheses for discussion.

While a number of bold policies and programmes have been undertaken in the last ten years, and the top political leadership has come out broadly in support of a revolutionary programme, there is a widespread feeling that the new policies and programmes do not get effectively implemented. Revolutionary policies like land reforms have not been sufficiently effective in implementation. Public sector enterprises, set up in high hopes, do not deliver the goods expected of them. In spite of bold measures like the Industries Development and Regulation Act, the Companies Act and various regulatory and taxation measures, the private sector cannot be effectively controlled and inequalities are increasing. In spite of the proliferation of research organisations in different fields, the actual advance made in various fields of knowledge is meagre. The recent reverses suffered by us and the shock that these developments gave to our leadership—governmental, administrative as well as intellectual—indicate the lack of realism in thinking and efficiency in administration.

Why is this so? The problem is too complex to admit of a simple solution. But a few points may be brought up for discussion. The single most important factor about our administrative machinery is that it is a 'closed' system from various points of view. It is not easily 'open' to new ideas, new personnel and new procedures and methods.

Innovations for helping Government to face the new tasks can enter administrative and governmental thinking in various ways. One would be that of special organisations set up within the governmental system or in close relation to it whose functions are to conduct evaluations of different policies and programmes, study various problems and suggest new ways of tackling them. We have set up a number of such bodies. The Planning Commission is the most important example of this. The Special Reorganisation Unit, the O & M Division, the research units in various ministries and special research establishments are other examples. But to the extent that such organisations are headed by persons who have no special functional expertise in these fields and also when their staffing pattern and working methods are modelled on those in the traditional government departments, they cannot be effective in carrying out their functions of creative thinking.

Experts operating in non-governmental learned bodies could be expected to provide another source of new thinking for governmental policies and programmes. But this does not much happen in India. One reason for this is that such experts are not sufficiently in touch with governmental and administrative personnel. 'Expertise' and 'experts' are looked upon with scepticism if not suspicion by many political and administrative officials. Lack of a close *liaison* between them also has the effect that the ideas, if any, put forward by them are many times not sufficiently rooted in a realistic understanding of the problems and policies of Government. The fault obviously lies with both sides; but the Government suffers in this effectiveness as a result of an insufficient flow of new thinking from this source. The Government's failure in this respect lies in this that non-governmental bodies and experts are not generally trusted enough to be taken into confidence and asked to conduct studies on behalf of Government. In as security-conscious a country as the U.S.A., vital research assignments even in fields like defence and foreign policy are given to universities and such-like institutions. But in India, except for rare examples like the Indian Statistical Institute, little use is made of such bodies for studies on behalf of Government. The suspicion of persons and institutions outside of Government still seems to linger on and the tendency is to create new organisations directly under the control of Government for any studies that are to be conducted rather than making use of already established but non-official agencies. As mentioned above, it is not unusual for such new official bodies to take on all the characteristics of a traditional government organisation and this hinders their creative work. No doubt non-official experts are increasingly made use of through their membership of various advisory bodies, etc., but even these bodies are not really effectively used. A comparison between the Council of Economic Advisers in the U.S.A. and the Panel of Economists in India would illustrate this point.

WHAT U.K. & U.S.A. DID

Winds of fresh ideas and new thinking can also blow in if the personnel system in Government administration permits the lateral entry of persons with proved competence in outside work and committed to the new policies and programmes that are being introduced. But, by and large, such entry is not encouraged and facilitated in our administrative system.

History in the U.S.A. as well as the U.K. suggests that when vastly new situations are being faced or new programmes being implemented, new blood has to be infused into the administrative hierarchy instead of relying on the established permanent services. In the U.K. 'innovative' schemes like decasualisation of labour and unemployment insurance were put through by people like Beveridge, brought in from outside the Civil Service for such work. As regards the immense tasks faced by the British Government during the two wars, when vastly complicated and new administrative functions had to be carried out, reliance had to be placed largely on outside lateral recruits[1]. As Thomas Balogh puts it, "in conditions where the nation's will to live awakens and demands positive action the mandarins must be displaced. They are a hindrance to survival in policy making, though, when properly supervised, they often are superb in its excution"[2].

In the U.S.A., the experience during the two wars was similar. Even more interesting for our purpose was the experience in the New Deal period when the Government assumed vastly increased new functions and innovation became the order of the day. "An entirely new type of public servant came storming into washington—young, enthusiastic, idealistic, able and hard-working...It was a psychic "blood-transfusion", which invigorated political administration beyond belief"[3]. The most important innovation was the use of politically oriented intellectuals and experts as distinguished from professional politicians for the purpose of policy-making. "The old-line politicians simply could not supply the ideas. Neither could the permanent Civil Service, for it had only rarely been encouraged to do the type of thinking needed"[4]. The experience of the present "New Frontier" administration seems to be similar.

DOMINANCE OF GENERALISTS

This brings us to some of the peculiar features of our public personnel system. The rigidity in our structure of public services with its gradations and differentiations, the inequality of treatment to different services and the lack of vertical mobility have been extensively commented upon. One of the most peculiar features of our personnel system is the dominance in practically all fields of policy-making and top-level execution of 'generalists' who may have no knowledge of or experience in problems relating to those particular fields. Administrative thinking certainly supports the approach that a person with 'generalist' ability alone should occupy top administrative positions. But a 'generalist' in this context usually means not a person who has little or no knowledge or experience of the particular field but someone who has that and *in addition* has "a capacity for general virtuosity", "breadth of interest, flexibility and general good judgement"[5].

In India, because of a number of reasons, the tradition has come to be that a person belonging to the general civil service is by and large considered to be fit to occupy

(*Continued on page 58*)

1. cf. (i) "The permanent Civil Service naturally and inevitably formed the backbone of the expanding Government departments in existence at the outbreak of the Second World War and the *cadres* of the new Ministries formed in its course, but the characteristic feature of the time was the outstanding contribution made to the success of the huge machinery of war-time administration by temporary Civil Servants from other walks of life...The general impression left by the performance of the Civil Service in war-time is that war administration was not only too big but also too important to be left to professional Civil Servants". E. Strauss—*The Ruling Servants* (London 1961), p. 273

(ii) Whenever any effort had to be organised, indeed palpably threatening disaster averted, outsiders had to be recruited to take charge...By the end of the war there was no department concerned with the war which was not in fact, if not even formally, headed by people recruited from outside". T. Balogh, The Apotheosis of the Dilettante" in H. Thomas (ed.)—*The Establishment* (London) 1959), pp. 120-21.

2. *ibid.*

3. F. Carter, 1940, pp. 31-32, quoted in Van Riper, *History of the United States Civil Service* (N.Y. 1958), p. 325.

4. *ibid.*, p.326

5. Paul H. Appleby: "Meeting Future Personnel Needs", *Indian Journal of Public Administration*, Vol. II, p. 8.

NATION'S



STRENGTH

S. HUSAIN ZAHEER

SCIENTIFIC RESEARCH —ITS PART IN DEFENCE AND DEVELOPMENT

ONE of the favourite themes of classical economic theory was 'the international division of labour' whereby the predominantly agricultural countries of Asia, Africa and Latin America concentrated on the production of food and raw materials which they could exchange for manufactured goods and some simple kinds of machinery from the industrialised countries of Europe and North America. It was apparent, however, that this so-called exchange tended to favour the industrialised nations at the expense of the less developed ones. In recent decades and particularly since the Second World War, this trend has become intensified and the terms of international trade are operating more and more against the interests of the primary producing countries.

Many of these countries have achieved independence in the post-war years and their emancipation has brought along with it demands for higher standards of living for their peoples. The political revolution has been accompanied by what has been termed a 'revolution of rising expectations'. If these expectations are to be realised, it is essential that the emergent countries of the less developed parts of the world should build up mordern industrial economies as rapidly as possible. Industrialisation seems to be the only hope of the poor.

During the last fifteen years, we in India have initiated planned programmes for industrialisation of the country with a view to promoting rapid economic growth and thereby raising the living standards of our people. In order to achieve the objective of transforming India into a modern industrial nation, we must make full use of the latest advances in engineering and technology.

But, it may be asked, why not import the technical know-how from abroad? Why should we engage in scientific research? Of course, we can and should obtain technical knowledge and skills from the more advanced nations as far as possible and utilise them for our own purposes, but this, by itself, is not enough. In the first place, technological advance can be fostered and maintained only if it is firmly based on a high level of scientific research in the country. The results of scientific investigation find practical application in industry and industry, in turn, brings new problems for scientific research to solve. No industrial society can prosper for long without the continuous interaction of science and technology—of learning and practice. Furthermore, the nature and extent of our natural resources as well as the special conditions obtaining in each country pose a multitude of problems to which only indigenous scientific research can provide satisfactory solutions.

Investment in Science

Our Prime Minister is firmly convinced of the basic role of science in building up our economic strength and, under his leadership, the Government has extended generous support and encouragement for scientific research in the country. In a little more than a decade, a number of new universities, national laboratories and institutes of higher technology have been established and the facilities at the older institutions have been greatly expanded. An Atomic Energy Establishment has been created and a chain of laboratories has been set up for research on problems relating to defence.

All this investment in science is a valuable national asset which has already brought considerable dividends and holds great promise for the future in promoting our economic growth. However, it is impossible to do justice to the work of all these institutions within the compass of a short article and I shall, therefore, confine myself to some of the investigations carried out in the various national laboratories established under the Council of Scientific and Industrial Research.

A primary task of the national laboratories is to investigate and devise means for the fullest and most efficient utilisation of our natural resources towards the industrial development of the country. What have the laboratories accomplished in this regard?

Upgrading Coal and Ores

Energy in the form of fuel and power is a key factor in industrialisation. Not only is energy needed in adequate quantity but it should also be available at desired locations in conveniently usable forms. India has abundant reserves of coal but only a small fraction of it is suitable for metallurgical purposes, and the demand for coal of metallurgical quality will continually grow with the rise in our steel production. A solution to this problem has been found by developing techniques of washing and blending of inferior varieties to produce coal of metallurgical grade.

The major part of the domestic fuel in this country is at present provided by wood, dung and agricultural wastes. The serious consequences of the depletion of forests by cutting down trees for firewood are well known. Dung and other farm wastes should properly be returned to the soil as manure to increase food production. Techniques of low temperature carbonisation of coal have been worked out in our national laboratories to provide coke and fuel gas for domestic consumption as well as other valuable by-products, among which the tar can be converted into liquid fuels which are in short supply in the country.

Technological development on sound lines implies the manufacture of various kinds of machinery within the country and, for this purpose, an adequate production of metals—particularly steel—is an essential prerequisite. Our steel industry has made rapid strides in recent years but difficulties are being encountered on account of the peculiar nature of some of our iron ores. Methods of beneficiation have been developed to render them suitable for satisfactory smelting operations. Beneficiation techniques have also been evolved for manganese ores of which we export a considerable amount.

Though iron ores are well distributed all over the country, our steel industry is restricted to a few areas on account of the sub-standard quality of the ores in other regions and the lack of suitable fuel nearby. Trials with the low shaft furnace have demonstrated the possibility of smelting low grade ores with unconventional fuels and may lead to the establishment of a steel plant in the south using lignite coke from Neyveli and Salem magnetite.

Substitutes for Imports

One of the important tasks of scientific research in relation to economic growth is to devise ways of lessening our dependence on imports by the utilisation of indigenous resources wherever possible. For instance, our rapidly growing rayon industry has hitherto been importing its pulp but processes are being developed in our laboratories for the production of rayon-grade pulp from bamboo and other cellulosic materials available in the country. To give another example, our Third Plan provides for a large increase in the production of aluminium but, while there are abundant deposits of aluminium ore, we have no cryolite, a mineral essential for the production of aluminium. However, our scientists have worked out a method of making artificial cryolite from indigenous raw materials.

Infant foods were being imported in large amounts hitherto but are now being manufactured in the country by a process worked out by our scientists. Malnutrition due to lack of adequate protein in the diet is common among the poorer sections of our people. Methods have been developed for the production of protein-rich foods by utilising groundnut which is cheaply and abundantly available in the country.

Hides and skins are among our most important exports and researches on pre-processing, quality control and preservation during transit have considerably enhanced their value for export. Improvements have been effected in several traditional processes in the leather industry and indigenous tanning materials are being investigated with a view to reduce our dependence on imports.

Our mineral wealth is a continuously diminishing asset and must be efficiently exploited by the elimination of avoidable losses. Here again, methods have been devised for the utilisation of material which would ordinarily be regarded as waste. Thus, in the case of iron ores, it has been found possible to use the ore fines —the powder which accumulates at the mines—by washing and sintering. To give another instance, we export a considerable amount of high grade mica but nearly 90 per cent of the material mined is being wasted. Research has shown that the waste mica could be utilised for the manufacture of refractory bricks which we are importing in large numbers.

While I have made no attempt to refer to all the researches of economic importance which are being carried out in our national laboratories, I hope that enough has been said to indicate the manner in which the work of the laboratories is geared towards the industrial advancement of the country.

Adding to Fighting Capacity

In common with all sections of our people, the scientists in the national laboratories have pledged themselves to work to their utmost capacity towards the defence of the country. In a recent meeting of the Directors of the National Laboratories with representatives of Defence departments, steps have been taken to ensure proper co-ordination so that the facilities available in the laboratories may be utilised in the most efficient manner possible to meet the requirements of the defence services. Our scientists should be able to make a valuable contribution to national defence in the field of operational research which was one of the important factors in improving Britain's fighting capacity during the last war. In view of the special conditions of the terrain along our Himalayan frontier and the unconventional nature of the struggle with the Chinese, operational research will have to be undertaken to optimise the effectiveness in the field of the weapons, equipment, food and other supplies provided to our defence services.

A LETTER TO EDITOR

DEFENCE FUND WILL HELP TO MAINTAIN PRICES

In order to avoid chaos and confusion in the collection of funds from the rural folk please ask the Government to follow a principle of collecting money through post offices only. Cash collections will go a long way in combating inflation and the purchasing power of money will increase and the price level may be maintained.

Gandhiji collected money only through auctioning the articles he received as gifts. Similarly gold and ornaments collected may be resold in the country itself and the surplus paper money skimmed. Stabilisation of currency is of vital interest to a nation's progress.

Tanjore R. V. IYER

[To avoid chaos and confusion or any exploitation of the opportunity by anti-social elements, the Government has made arrangements to receive contributions only at the authorised offices such as post offices, the Reserve Bank and the State Bank and their branch offices and subsidiaries. The contributors should send their contributions to these authorised offices only. See Yojana, November 11 & 25, 1962—Editor].

KALI PRASAD

NATION'S



STRENGTH

CIVILIAN MORALE

Ideals, Identity, Leadership, Symbols and Propaganda

MORALE usually refers to a condition of psycho-physical and emotional well-being in the individual or in the group that makes it possible for him or the group to function with energy, confidence and enthusiasm. It implies that the individual or the group has a clear conception of a goal and a purpose that is *felt* to be important and with which the individual is identified. It also assumes confidence in the attainment of the goal as well as confidence in the means of its attainment, i.e. in the leaders, associates and finally in oneself. Again, morale is a function of the integration and co-operation among the members of a group. Here, aggression and hostility, if they occur at all, are expressed against forces frustrating the group rather than towards the individual within the group. Group belongingness affords security and reduces anxiety on the part of the individual and this leads to the development of high morale.

In industry, high morale is often expressed as a function of (a) job satisfaction, (b) pride in working groups i.e. *esprit de corps*, a pride in belongingness to a particular group as a regiment in the army or a club or even a 'gang' with all their traditions of achievement which inspire the individual member or the group as a whole and (c) cohesiveness, which depends upon feelings of approval among members of the group. It is not merely co-operativeness but a distinct attitude of likeness and sympathy towards one another. Studies of morale in industry concentrate on the above-mentioned criteria and more specially on measuring efficiency and productivity of output and enjoyment of work by the group as indicators of high morale.

In general, high morale would seem to be a function of (i) socio-economic conditions, (ii) cultural factors and habits, (iii) goals and values, (iv) adequate leadership and (v) propaganda. It is not possible to go into a detailed discussion here of these dimensions of high morale. But a word may be said about the part that they play in building morale. It is obvious that the socio-economic structure of a group plays an important part in the building of morale. In a group where status is determined by *prescribed* hierarchies, morale of members is linked with their positions in the hierarchy. Those at the top rungs of the ladder would inevitably influence the attitude and morale of those below by virtue of their traditional authority or their own achievement. If for any reason members at the top are depressed or demoralised those below them are bound to be overwhelmed by feelings of frustration and depression. The incentives that would raise morale in this case would be largely dependent upon the attitude and beliefs of the members at the top. These beliefs and attitudes would stem from the culture and the value-systems in which they have been groomed. For instance, in a culture where there is heavy dependence on predetermination or destiny, high morale will be difficult to maintain if there is any catastrophe. But, in cultures where high achievement is a personal goal and a *personal responsibility*, high morale would be easier to attain; for here the example of the leader would be contagious. In this sense, adequate leadership is the most important condition of high morale. The adequacy of the leader refers not merely to technical competence in his special field, but, more than that, to the confidence that he is able to inspire in his followers. Here the role of propaganda is obvious. Quite often bad propaganda lowers morale and spreads defeatism. Good propaganda relies on facts and truths, not on false statements and half truths which are more dangerous than lies. It is inspired primarily by confidence in the justness of one's cause. Propaganda is successful when it is able to instil a belief or conviction in this cause. For once individuals or groups actually believe and are convinced about the rightness of their cause, their attitudes toward action crystallise quickly and behaviour leads to appropriate action.

STRESS SITUATION AND MORALE

Morale is tested in crisis. The patterns of adjustment, of individuals or groups, in response to the situation of stress would determine the level of morale. Basically, a critical situation (crisis) implies a threat to the ego or self-esteem of the individual or the group and his morale would be determined by the manner in which he meets his frustrations and difficulties. For instance, when there is overwhelming threat to security as in a surprise attack by an armed enemy, the group may be scattered and there may be a wild scramble for safety on the part of individuals. Here there might be considerable sagging of the morale of the group unless there is a strong leadership and there is confidence in the inherent strength of the group and in its cause. Quite often groups which suffered initial set-backs are able to sustain their morale and are aroused to fresh action leading to success.

It is well-known that armies, like any other large group, include persons who are particularly unfitted to endure the stress and strain of fighting. Mental disorders and neuroses often occur. It would seem that the less literate and intelligent soldiers develop bodily symptoms like hysteria but the more literate and intelligent develop obsessional and other neuroses in which the "symbolising functions" play a prominent part. Modern psychopathology and psychiatry seek to provide preventive measures for these. Psychiatrists have come to occupy a very important place today in the army. If there is a large number of such breakdowns in the army its morale is bound to be low. For this reason a great deal of care has to be taken in army selections. The techniques of selection today stress the importance of tests for personality adjustment, including tests for endurance, emotional maturity and capacity to face dangerous situations with patience and fortitude. For this purpose, apart from intelligence tests, clinical interviews, personality inventories, situation-tests are also used.

PSYCHOLOGICAL SUPPORT

High morale among the non-fighting population is equally important. The army has to be supported by the civilian population not merely by providing for their efficient maintenance, but also by giving them the necessary psychological and moral support. The front is vitally dependent upon the factory worker as well as the farmer for its supplies (the sinews of war); but this would be possible only when the civilian worker himself has a high morale. For maintaining this morale at a high level the techniques of appropriate propaganda and censorship are important. Rumours have to be countered by correct information. The use of mass media is specially important in this behalf. The radio, the film, the press and other communication systems such as the *panchayatghar*, clubs etc. should make a concentrated effort on dissemination of correct information of relevant facts. The distortions by enemy propaganda would be remedied in this way.

The civilian population must receive *authentic news* and facts so that it can project an appropriate image of the enemy. For instance, in the case of persent Chinese invasion, the image of the Chinese has inevitably suffered a change. The earlier image of the Chinese as peace-loving, tradition-bound and philosophically detached has now changed into the image of a ruthless, sly, perfidiously suave and unprincipled individual. This indeed is the reality today. And it is important that this reality is continually perceived in order that complacency does not occur and that morale is kept at a high level. The importance of image-making in the development of morale cannot be over-estimated and in planning propaganda or counter-propaganda it has to be constantly kept in mind. We must *plan the image* that we wish to project, filling in details according to the needs of the situation. The media of communication must then be used to see that this image is widely incorporated in the framework of our thinking and in our perceptions. The image will activate ideas and arouse appropriate emotions in the interest of integrated action. The mechanism of its operation includes conscious and unconscious processes which have their anchorage in the cultural milieu in which the individual has been brought up. The operation of these processes helps crystallise many forms of behaviour including the strengthening of confidence in oneself and in one's cause, which goes with high morale.

LEADERSHIP AND MORALE

We have mentioned above that morale is a function of leadership. Leadership may be authoritatrian or democratic. In the former there is a one-way process from top to bottom and morale depends on the character and personality of the individual (or oligrachic group) at the top. Here propaganda consists in brain-washing 'captive audiences' and people are kept completely insulated from the contact of outside reality. If there is a breakdown at the top (e.g. order, counter order, leading to disorder), morale cannot be boosted by any means. It is true that the successes of such leadership may be very spectacular, but it is also true that its failures are equally striking. On the other hand, democratic leadership implies a many-sided process in its group dynamics. Here all the members of the group have a sense of *participation* and a feeling of indentity with the purposes and goals of the group. This makes the individual feel important and gives him a sense of pride and prestige, which develops high morale. Also, morale thus developed is likely to remain firm and stable and would withstand stress and difficulties for a long time. It can overcome the perpetual crisis of confidence inevitably associated with authoritarian leadership. For instance, when fear develops from a diffuse state of uneasiness where individuals feel 'rattled' to the extremes of terror characterised by complete loss of self-control, precipitating into helplessness and panic, a democratic group-organisation would meet the situation much better and restore confidence much more easily. One of the ways by which fear may be controlled is to prepare man beforehand by a full exposition of possible dangers rather than by suppressing the fact. It is known that when the whole situation is made clear it equips the individual with necessary courage and resourcefulness to meet the danger. The propaganda technique in this context would be different from the authoritarian situation in so far as it would lay bare the dangerous aspects of the situation so that knowledge helps to conquer fear.

MORALE AND OUR OBJECTIVES

The maintenance of high morale is dependent on the character of the objectives or ideals that one has adopted. It is important that these objectives be kept as clear in the mind of the common man as possible. For this purpose they are to be sharply *defined in concrete terms*. While emotional appeals have their place, the main anchorage must rest on rational and objective grounds, which can be perceived and *understood* by all. Mere emotional or sentimental appeals are known to be short-lived in their effectiveness; the common man must *understand* the objectives of the country, for which he is expected to make sacrifices. Both the short-term and the long-term objectives have to be integrated into a comprehensive pattern and they must be *percieved as such*. Enthusiasm, born of understanding, is effective and has an enduring quality and this is of the most vital importance in any struggle.

L. M. SINGHVI, M. P.

CRISIS DEMANDS MORE ATTENTION TO TRANSPORT

NATION'S



STRENGTH

THE urgency of revising and restating our transport targets and of reshaping our transport policy naturally and necessarily looms large on our economic horizon in the context of the national emergency brought about by the Chinese invasion. Transport is rightly considered the "arteries and veins" of a modern industrial economy. It is an essential ingredient as well as an index of an economy such as that of India which seeks a steady, diversified growth along a wide front. But transport is not only a barometer of a country's general economic health and progress, it is also the basic foundation and the main assurance of national security.

Of the decisive role of transport in a war, Sir Winston Churchill has given us a vivid portrayal in his classic *The River War*, written in 1899. What he wrote some sixty-four years ago has striking relevance for us even today, in spite of the most radical revolution which the twentieth century has witnessed both in the methods of warfare and in the means and techniques of transport. Says Sir Winston:

"In a tale of war, the reader's mind is filled with the fighting. The battle—with the vivid scenes, its moving incidents, its plain and tremendous results—excites imagination and commands attention. The eye is fixed on the fighting brigades as they move amid the smoke; on the swarming figures of the enemy; on the general, serene and determined, mounted in the middle of his staff. The long trailing line of communications is unnoticed. The fierce glory that plays on red, triumphant bayonets dazzles the observer; nor does he care to look behind to where, along a thousand miles of rail, road and river, the convoys are crawling to the front in uninterrupted succession. Victory is the beautiful, bright-coloured flower. Transport is the stem without which it could never have blossomed."

Transport in India is a vast, labyrinthine system. Nevertheless it is highly inadequate and requires to be strengthened at various points in terms of volume, organisation and orientation. An integrated transport policy geared to our growing economy and at the same time based on the calculations and assumptions of a war situation is an imperative necessity.

The most striking feature of the existing inland transport in India is the overwhelming preponderance of the Railways which have flourished almost at the cost of other means of transport, having supplanted the once prosperous river, canal and coastal navigation and having persistently prevented and stalled the growth of road transport.

A century or so ago there was a steamship service between Calcutta and Agra; today steamers cannot ply on the Ganges upstream off Patna. Writing in 1780, Major Rennel reckoned that more than 30,000 boatmen found their livelihood from river navigation on the Ganges and its tributary streams, which amply demon-

HIGH ROAD in Ladakh. Both defence and development demand we strengthen our road system while enlarging railways and waterways



strates the magnitude of the prevalence of river navigation in the pre-Railway era. Railways had certain natural and circumstantial advantages over inland water transport, to which the Railway, soon after their inception, dealt a death-blow, a blow from which it may indeed never quite recover. The total mileage of navigable inland waterways in India at present is roughly 5,760 miles, out of which there are only 1,537 miles of rivers navigagable by steamers. Perhaps the idea to join major rivers and canals to provide a trunk system of waterways should be examined once again. Less than 4 per cent of our total traffic today is carried by water in India. In U.S.A. the share of water transport is about 17 per cent and in West Germany it is as high as 27 per cent.

Coastal shipping is a field in which we have yet to achieve our Second Plan target of 4.1 lakh tons of G.R.T. the present gross registered tonnage of steamers engaged in coastal traffic being only 3 lakh tons or so. In addition country-craft numbering about 2,000 carry about 1½ lakh tons. In a realistic appraisal it should be conceded that we cannot build up our water transport to such a substantial extent so as to give us far-reaching relief. But there are areas where water transport would be the most advantageous strategically and economically, and there we must give it the requisite boost. At the same time an efficient alternative transport system must be built up without much delay, wherever there is the slightest chance of interruption or dislocation of water transport channels either because of vulnerability or because of intervening foreign territories through which such channels have to run, such as in the West Bengal-Assam sector.

Building up of Road Transport

There is no gainsaying the fact that the real answer to the transport problems of India will have to be found in the emergence of an adequate and full-fledged road transport system as a complement to, and sometimes even as a competitor of, the Railways. The rate of growth of road transport in India has been far from satisfactory, the premises and the promises of the Plan notwithstanding.

According to an available analysis, during the ten years from April 1951 to March 1961, there was an increase of 42 per cent in national income which was accompanied by 94 per cent increase in industrial production and an increase of 115 per cent in surface transport. Thus during the decade 1951-61, the total volume of rail and motor transport increased from 30.3 billion ton miles to 65.3 billion ton miles. And yet there were chronic transport bottlenecks. In the perspective of our planning we contemplate that in the period of fifteen years beginnig from April 1961 (that is, at the end of March 1976) our national income would increase from Rs 14,500 crore to Rs 33,000 crore which is an increase of roughly 130 per cent. According to the foregoing ratio, an increase of 130 per cent in the natioanl income should, at the present level of transport availability, be accompanied roughly by a 350 per cent increase in the surface transport in terms of broad figures. Moreover, we must make further provision for emergency requirements which, if unattended, would throw the entire system out of gear. In my opinion we should set ourselves the target of raising our present long-distance traffic capacity of about 192 million tons to about 750 to 800 million tons in the 15 years ending March 1976. A proportionate augmentation of short-distance ,feeder and local transportation has also to be planned.

It is undoubtedly true that the Railways have been expanding steadily in carrying capacity during the last quarter of a century or so. The growth of operational efficiency is however not commensurate with the rise in the tonnage. In 1960-61, the total freight carried by the Railways was of the order of 154 million tons (though the Plan target was 162 million tons). In 1961-62, the Railways carried 160.5 million tons of goods traffic. The estimated total freight to be carried by the Railways during the year 1962-63 is of the order of 175 million tons. The production of wagons also increased from 11,984 in 1960-61 to 19,115 in 1961-62. The target for the current year is about 27,000 wagons. These are by no means insignificant strides. Nevertheless the time has come for us to realise that the Railways cannot wholly cope with the gigantic requirements of transport both for our national security and for ministering to the needs of an economy gaining progressive momentum. It is not my intention to belittle or undermine the role of the Railways, either in the context of today or in the perspective of tomorrow. But I do feel that the imbalance in our transport system resulting from an overemphasis and a disproportionate dependence on the Railways has to be rectified with all possible expedition. A radical reorientation of our transport targets and policies in this regard is warranted not only by incontrovertible economic considerations but also by the need to force and provide an alternative life-line of security and supplies in the eventuality of dislocation of Railway transport by air-raids or acts of sabotage.

In recent years in all the advanced countries of the world, Railways have suffered a decline and road transport has come to occupy the first place of importance. Thus motor transport in Italy carries 222 per cent of the rail traffic, in Australia 108 per cent, in New Zealand 124 per cent. In the United States of America in 1939, the Railways accounted for 64 per cent of the total goods traffic; in 1958 it went down to 46 per cent. In India, the story is very different. According to the Neogy Committee, motor transport in India accounts for merely 20 per cent of the Railway goods traffic. The bullock cart and other indigenous rural traffic carry another 20 per cent of the Railway goods transport. We have in India today an estimated total of about 7,20,000 motor vehicles. On the other hand, America (starting with only four in 1895) had in 1960 over 72 million vehicles on its roads and is expected, according to reliable forecasts, to reach a motor vehicle registration of over 113 million by 1976.

Condition of Roads

A comprehensive, comparative picture would not, however, emerge until we also take into consideration the relative mileage, conditions of roads and movement of traffic. India has less than 145,000 miles of metalled roads and about 250,000 miles of unmetalled and unmotorable tracks and bridle paths. Our road density is alarmingly low, being as low as 6 per cent of that in the U.K., 7 per cent of that in West Germany and 10 per cent of that in the U.S.A. The condition of many of our roads is abominable and, therefore, their carrying

capacity is indescribably inferior. Of the 15,000 miles of roads described as national highways, less than 15 per cent have two traffic lanes, the rest of them having only single lane surfacing. Besides, the road crust of the highways is generally rather thin, falling prey frequently to disrepair and causing damage to the vehicles and their transport efficiency.

The road transport development programmes have been rather tame and tardy in the past. Even at present they lack imagination, initiative and orientation. A background note circulated by the Planning Commission a few months ago says that during 1961-62, seventy miles of missing links and five major bridges were constructed and about 300 miles of existing highways were improved. The note further informs us that it is planned to provide for the construction of 70 miles of missing links, ten major bridges and improvement of 400 miles of existing highways during 1962-63. This is good as far as it goes, but it appears somewhat leisurely in the context of external aggression on our borders.

A brief reference may be made here to certain neglected and undeveloped areas of Indian transport system, such as merchant shipping, air transportation and pipeline transportation. The specific economic and strategic utility of these transportation media is beyond doubt or dispute. To make effective and sizeable use of them, the Government will have to muster energetic leadership, sober exploration and an uninhibited approach to foreign investments, participation and sponsorship from friendly countries as well as from international organisations.

Tasks for the Railways

A bird's-eye view of transport in India leaves no doubt that the Railways must continue to fulfill the bulk of transport obligations. The sore and supervening need is that there should be a maximum utilisation of available resources. The operational efficiency of the Railways must improve substantially. Bureaucratic tendencies must be finally curbed. Greater speed, safety and economy combined with increased Railway load must be achieved.

An unsatisfactory wagon-user position has, for example, persisted in the Railway administration all these years, without the desired level of improvement. As the Kunzru Committee rightly observed: "Wagon shortage is a symptom of a disease; it is not a disease in itself. When a trader asks for five wagons to load his traffic and the Railway provides only one, it does not mean that the other four wagons are non-existent; it indicates that there is a hold-up somewhere or that wagons are not moving smoothly and swiftly to their loading points".

Moreover, seasonal fluctuations in wagon supply and sporadic placement of empties account for waste of constderable transport capacity. Wagon turn-round time has also tended to increase and needs to be reduced progressively. Loading time should be increased and sidings be improved. Better engine and track usage along with far-reaching economies have also to be achieved. Safety in operation is an aspect which needs the utmost attention, for the position has deteriorated during the last few years. In 1959-60 there were ten serious accidents with a death toll of five and damage to Railway property amounting to about 4.17 lakh. In 1960-61, in 15 serious accidents 54 persons lost their lives and the damage to Railway property was Rs 5.46 lakh. In 1961-62, there were 14 serious accidents killing 120 persons and resulting in damage to Railway property of the order of Rs 14.99 lakh. For the year 1962-63 the figures would assuredly surpass those of the preceding years.

Coal Movement

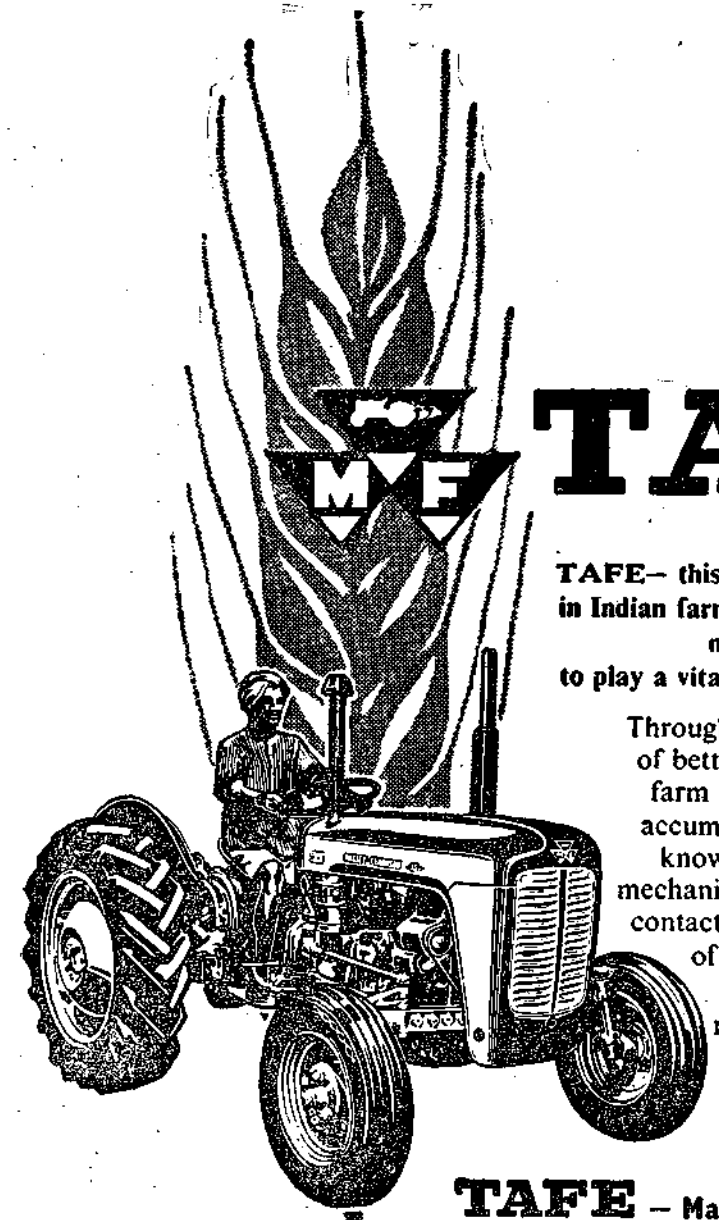
One of the main preoccupations of the Railways has been to ensure movement of coal which constitutes approximately 33 per cent of the total goods traffic moved in India. To expand facilities for the movement of coal, the administration proposes to allocate an additional outlay of Rs 120 crore. But far more important than this additional outlay for expanding existing facilities is the need to secure a more intensive and efficient utilisation of available capacity. There is an actual physical shortage of about 2,078 wagons, the daily total supply of wagons at present being 6,049 and the requirements of the coal industry as estimated by the Coal Controller being 8,127 wagons daily. We are currently producing roughly about 62 million tons of coal out of which 57 million tons, that is, about 92 per cent are supposed to be carried by rail. By 1965-66, the end of Third Plan period, we plan to produce 104 million tons of coal and at the present ratio of Railways' obligation for the movement of coal, the Railways have to be prepared to move some 95.6 million tons of coal. This is a stupendous task and one which would require not only voluminous resources, the availability of which is bound to be acutely scarce and strenuous, but also a high degree of operational efficiency and co-ordination. At any rate, we have to think of beginning to allocate to road transport an increasing and appreciable share of coal traffic.

Implications of Emergency

In the context of the Emergency, rail transport should be prepared to handle considerably larger goods traffic both as a result of diversion from other media of transport and for meeting special war-time demands, such as strategic and essential supplies, evacuation, military traffic and so on. We have to be prepared to cut down passenger train mileage to the barest minimum as also to a deceleration of fast trains. We must altogether abolish empty wagon mileage and underloading of wagons and coaches. We must also be prepared to face enemy air attacks in a trained and disciplined manner and to carry on in spite of interruption, risk and damage.

In the field of road transport, a far-reaching revision of policies and targets is the first prerequisite. Road transport has virtually limitless potentialities. Allocations in India for road transport should be augmented very considerably. The State must enter the field as an investor and an entreprenuer in a big way. Inter-State traffic must be emancipated from all obstacles. The present permit system should be overhauled and a nation-wide uniformity of procedures and regulations should be forged afresh. Taxation of motor vehicles in India is not only one of the heaviest in the world, its procedures are also the most irksome. Permissible outer limits of loading should be upgraded. Credit

(Continued on page 58)



TAFE

TAFE– this is the new name in Indian farming—the name of a new organisation destined to play a vital part in India's future

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JEHANGIR J. GHANDY

NATION'S



STRENGTH

Technology Holds the Key

Greater Efficiency through Research

CLOSE liaison between industry and the academic world over a broad front is a need made more urgent by the military challenge that we as a nation must learn to live with. The essential point to remember is that we can now never go back to the halcyon days of the pre-invasion era. We will have to spend substantially more on defence, as anyone can see, but that, by itself, will not take us far. Even after allocating such resources as defence requires, we still have to accomplish the basic economic objectives of our Plans because military strength depends, in the final analysis, upon the nation's material progress. Essentially, there is no conflict between defence and economic progress; both can and must contribute to each other.

The simultaneous pursuit of the two objectives is bound to throw upon us an immense strain, a strain that may well become intolerable unless we can create additional wealth through the greater endeavours of all of us. These efforts, called forth by the national will to maintain our Independence, can provide the country with the extra wealth that will make it possible to combine military preparedness with orderly progress towards a stronger and more viable economy. In other words, our answer to the Chinese challenge must be higher efficiency and greater productivity in every field of activity, old or new.

This is, of course, a broad generalisation which, although perhaps worth reiterating, is something that we all instinctively understand. Starting from this, I wish to discuss the role of scientific research in the larger national endeavour. I am not thinking only of the tasks of research *vis-a-vis* pressing defence requirements but of the part it should play in accelerating the modernisation of Indian society to augment its innate strength over a longer term. Admittedly, there are immediate operational problems like the one of reducing the weight of the soldier's kit from the present 78 lb to something more manageable. While work on these must take priority over things in which the scientists are in a position to help, others must continue along present lines of activity with greater purposefulness and urgency than in the past.

At this point, it may be pertinent to define the aims that scientific research in India should pursue. Unlike in some other countries, these aims are embodied in an official statement of policy adopted in March 1958, which declared that the nation would rely upon science and technology to close the wide gap separating India from the more advanced countries of the world. National prosperity, the scientific policy resolution said, depended upon the effective combination of three factors—capital, natural resources and technology. But technology was the most important of the three because appropriate scientific techniques could overcome the handicap of poor physical resources, as evidenced by the examples of Britain and Japan. Similarly, the requirements of capital could be cut down by scientific and technological ingenuity.

It is true that countries like India, late-comers to industrialisation, have the experience of the whole developed world to draw upon. India, for instance, is relying upon five different countries for steel technology —the U.S.A., Germany, Austria, U.S.S.R. and Britain. Some may argue, therefore, that it is unnecessary for us in India to undertake independent research, either basic or applied.

Any such assumption would, in my judgement, be a great mistake. Even in an industry like steel where technology all over the world tends to become more and more uniform, each country has its special problems to overcome. In our case, our fabulous wealth of iron ore is marred by certain characteristics of the ore which introduce great complexities in the production of pig iron. The solution lies in intensive efforts at the plant level to evolve operating practices which help to maximise production. This, by itself, will not suffice. It will have to be supplemented by applied research in laboratories directed towards finding a suitable technological remedy to the problem. This is, indeed, what is being done by the National Metallurgical Laboratory at Jamshedpur, and the efforts have resulted in some benefits to the iron and steel industry. Work in the same direction is being done at the laboratories of the Jamshedpur steel works. Workers in this field may possibly find themselves in need of some guidance from basic research on the fundamental nature of the metallurgical problem posed by the peculiar characteristics of our ore. If so, that too will need to be undertaken right here in India, since no one else will do it for us for the simple reason that they do not face the same problem as we do.

ANOTHER reason for independent research by newly-developing countries may now be cited. The advanced nations have a resource endowment very different from ours. They have, relatively speaking, an abundance of capital, combined with a shortage of labour. Their preoccupation is, therefore, with technological improvements which have the eventual aim of replacing labour with capital. In our circumstances, we should be seeking improvements in efficiency and productivity at the minimum capital cost and with the least displacement of labour. Again, many of the advanced nations have already very large domestic markets and their technology is geared, therefore, to large-scale production. In countries like ours where the relatively small market of today is spread over a vast area, these large production units may be uneconomic in some industries not only now but for many years to come. Our technology should, therefore, be deliberately seeking ways of improving the economics and efficiency of smaller-scale production. There must undoubtedly be a via media between antiquated cottage industry and mass production units, and it is up to us to discover it. It is these considerations that have prompted many leading thinkers to urge the stepping up of research in developing countries as an essential part of their campaign for an economic breakthrough. Independent research is, therefore, neither a luxury nor a meaningless attempt to bolster national prestige, but an indispensable activity in the quest for modernisation.

ORGANISATION OF RESEARCH

EVEN when it is accepted that independent research is necessary, its character will remain to be decided. Should we devote ourselves exclusively to applied research because our limited resources do not permit any diversion to basic research which yields little immediate benefit? Or should we take the view that applied research is unnecessary, since we are relying anyhow upon imported technology?

The two approaches need not be mutually exclusive. Every scheme of applied research calls for a certain fundamental understanding of the nature of the problem which may or may not necessitate basic research depending upon the circumstances of the case. The search for specifics to control fertility is being combined with basic studies on the nature of the reproduction process. Work on the epidemiology of cholera requires the scientists engaged on this in Calcutta to range over a wide field in both basic and applied research. In any event, there are in every laboratory some scientific workers whose interests and aptitude take them towards basic research. They cannot be pushed in a direction contrary to their inclinations except at a loss of effectiveness. Traditionally, the universities have been the sanctuaries of basic research, and this should, of course, continue. Apart from the intrinsic value of such work, it initiates young scientists into the methodology of research, a not inconsiderable gain. The two facets of scientific endeavour should, therefore, co-exist and grow together, although I am quite prepared to agree that our emphasis as a nation should be on quick-yielding, applied research.

The vast research apparatus that exists in the country today, employing some 6,000 to 8,000 professional scientific workers in 27 national laboratories, universities and other private institutions—let us face it—is not the result of slow, natural growth. It has been brought into being by national policy which ordains progress at a rate faster than that achieved by other countries in comparable circumstances. There is, of course, something of the hot-house atmosphere in all this, but we cannot wholly avoid this if we are to compress into a few years the progress made by others over decades in the more leisurely atmosphere of the nineteenth century.

NATIONAL LABORATORIES

I do not share the view of those who look askance at Government's massive and growing involvement in scientific research. Before Independence, the scope for research of any kind was exceedingly limited as there were a very few institutions devoted wholly to scientific activities. The research activity of Government departments, such as agriculture, had a narrow utilitarian aspect. This lack did not pass without comment; as far back as 1918, the Industrial Research Commission had remarked that "the position of research was quite unsatisfactory". In 1935, an Industrial Research and Intelligence Bureau was established with the utterly inadequate annual budget of Rs. 2 lakh. It was the Second World War that quickened the pace, and the Board of Industrial and Scientific Research was formed to advise the Government in organising Indian industry in the best interests of the war effort, and to undertake industrial research with limited objectives. In 1942, an industrial research fund was established and the Council of Scientific and Industrial Research set up.

In 1944, the Council set up an Industrial Research and Planning Committee, headed by Sir Shanmukham Chetty, of which I happened to be a Member, to survey the research facilities, existing in Government and semi-Government institutions, universities and industry in India. It recommended a scheme for the planning and co-ordination of industrial research, which included, among other things, the setting up of national laboratories. The report, a landmark in the development of research, forms largely the basis on which the present research apparatus has grown.

But the Council did not fully come into its own until after Independence. The importance the national government attached to science was made amply evident when a separate Department of Scientific Affairs was constituted at the Centre in 1948, with the Prime Minister himself taking charge of the portfolio. Later, the Department grew into an independent Ministry, while another autonomous Department of Atomic Energy continues to be a part of the Prime Minister's Secretariat. At this point, it is only fair to add that the rapid development of the country's scientific establishment owes a good deal to the personal convictions and interest of Jawaharlal Nehru, 73-year old but much more youthful in spirit and outlook than many younger men.

Today, there are, as I said, 27 laboratories with a staff of well over 2,000 professional scientists. Of these 50 are of the rank of Directors and Deputy Directors, 150 Assistant Directors, 500 Senior Scientific Officers, 1,000 Junior Scientists, and some 600 Research Fellows. These laboratories offer openings for 200-300 entrants every

year which make it entirely possible for qualified persons wishing to engage in research to find the opportunity to do so—something which was certainly not available 15 years ago. Expenditure on national laboratories is steadily rising and there are few research schemes which have to be abandoned for want of funds.

Admittedly, Government's involvement on the present scale raises the problem of reconciling the freedom of the scientist with financial support from the State which must of necessity entail some direction or control. The fact must be faced that if the national exchequer is to pay for a laboratory or research scheme, it can only be persuaded to do so on the basis of an objective assessment of the work done or proposed to be done. This implies a value judgement and it is possible that some may violently disagree with the final verdict. The now famous dispute between Lord Cherwell, Mr Churchill's principal scientific adviser in Britain during the last War, and Sir Henry Tizard illustrates how an error of judgement in making such an assessment can lead to a serious national loss. Nevertheless, we have no practical alternative to the planning of research based upon the judgement of those whose responsibility it is to apportion Government funds. I need hardly add that such judgement should be exercised on the Government's behalf by people who have themselves a scientific and technological background. By and large, this is what is happening today. CSIR is headed by a Director-General who was till the other day a practising scientist himself.

TEAM WORK

SOME critics of the nation's scientific endeavours profess to see a lack of team spirit inhibiting our progress. I agree entirely that a scientific break-through in any field demands, more and more, the united endeavours of many drawn, perhaps, from several disciplines. A high degree of mutual understanding and co-operation among those engaged on a project is as essential to success as the provision of proper equipment and facilities. To quote an obvious example, engineers, chemists, physicists, mathematicians, metallurgists, pathologists and other specialists have been brought together for space research both in the U.S.A. and the U.S.S.R. In the case of the latter, it is noteworthy that no individual credits have been publicly given, and it is the group as'a whole that has earned the nation's and the world's plaudits. I am not suggesting that we need to emulate the Soviet example and submerge the identity of the individual in the group. There is, nevertheless, a pointer here to the importance of team work in any major scientific endeavour. Our laboratories cannot isolate themselves from the paternalistic social milieu in which they function, but I like to think that leaders of Indian science can overcome any difficulties of this nature which impede team work or initiative from below. In cases, I know, they have made personal endeavour to give junior scientists ample scope for initiative and the fullest credit for their achievements.

I do not wish to dwell on these intra-mural problems of science at any length but there is one aspect which may be legitimately discussed from the outside. I am referring to the current salary levels in scientific research over which there has been much valid concern. A person entering a laboratory as a senior scientific assistant—in most cases he has a research degree—starts on a basic salary of Rs 350 which goes up to Rs 600. Above the senior assistant, there is the junior scientific officer with a starting salary of Rs 350 going up to Rs 850. While it is true that industry may offer better emoluments, it has to be remembered that the work of a scientist brings him job satisfaction and recognition which is not always the portion of his counterpart in industry. While I am all in favour of improving the professional scientist's lot, it is necessary, however, to preserve a sense of proportion. The average annual salary of the scientist in Japan, I learn, is only $ 1,200 (about Rs 475 per month) and even a full professor in the Tokyo University earns no more than $ 1,800 (about Rs 720 per month). Despite this, Japan has developed a vigorous scientific tradition.

I should acknowledge here the efforts made by CSIR to improve matters for the scientist. Merit promotions have been introduced cutting across the strict time-honoured principle of seniority, advance increments up to a maximum of three granted to research workers who have shown exceptional originality. Younger men are, as a matter of principle, being included in scientific delegations sent abroad, while opportunities for advanced training have multiplied under various international aid programmes. Pension benefits have been extended to CSIR employees and the age of retirement for research scientists raised to 60.

UTILISATION OF RESULTS

I HAVE been talking so far about creating the necessary pre-conditions for purposeful scientific research. I should now like to take a few minutes to discuss problems connected with utilisation of research results. Indian industry, it is alleged, has been slow to profit from the scientific and technological work being done in our laboratories and other institutions. As a broad generalisation there is an element of truth in this charge although there are exceptional cases. In many industries, research and utilisation have been married together with success. The modernisation of Indian industry undoubtedly depends upon larger inputs of science, a task which will be facilitated by establishing closer relationship between laboratories and factories. I suspect that the initiative for this will have to be taken by research men themselves. In the case of one national laboratory with which I am connected, such initiative has yielded very good results, so much so that the laboratory today has its working facilities fully booked for the next three years on important problems brought up by the industries concerned.

I should also like to caution against impatience. Scientific endeavours do not yield overnight results, particularly in our circumstances where research in many fields has been started from scratch in the past few years. From the time a laboratory gets going it takes several years for it to settle down to really fruitful work. This time factor must be kept in view before we begin to appraise the performance of our young institutions too critically.

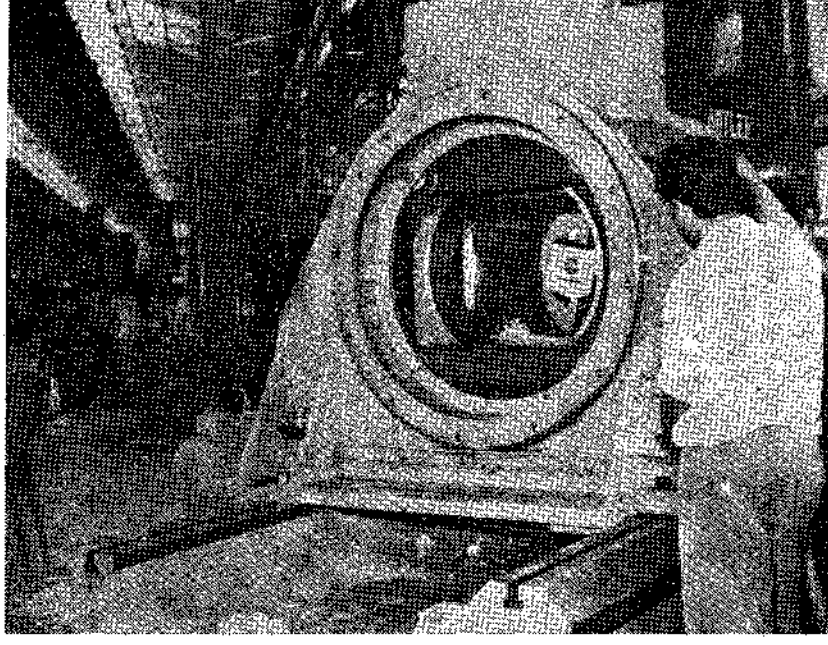
IF we wish to see research more fruitfully utilised, it will be necessary to establish in course of time, specialist laboratories to translate the results of basic or applied research for facilitating their practical implemen-

(*Continued on page 44*)

K. B. MATHUR

From Heavy Electricals

MACHINES THAT YIELD POWER



TRACTION MOTOR SECTION : an inside view

THE chronic shortage of power in the country turns our minds towards the HEAVY ELECTRICALS, a public sector industry. Expectantly we watch its developments, while the workers pursue their assigned tasks with a sense of urgency. It would indeed be a great achievement when this industry contributes its mite in an ample measure towards the liquidation of power deficiency.

The earliest accretion in this series is the Bhopal project. Owing to exigencies of finance it has been implemented in two phases. The first, which was started in April, 1958, has since been completed; and the second, sanctioned in March, 1960, is under execution. Some setback in this has been due to delay in supply of steel. Recently, to make up this deficiency, arrangement has been made to import 1,500 tons from Austria. Three bays in the Turbine Block are ready, foundation work in the remaining area is complete and flooring work is proceeding. The laying of services in this Block has commenced and the manufacture of hydro-turbines is likely to start in April next. The Generator Block is also being pushed through with a view to shifting the Traction and Industrial Motor Department to its permanent location, which, as a stop-gap, has been located in the Switchgear and Transformer Blocks.

NATION'S



STRENGTH

The factory area comprises of five production blocks, a separate repair block, a technical services laboratory, canteens, first-aid posts and necessary ancillary services, including blue water gas, oxygen, acetylene, boiler house, air compressors and a number of electric power service stations. An underground tunnel, which covers the factory blocks, carries cables and pipes which service these blocks. To an onlooker the most impressive of all is the gas-holder which affords from a distance the first glimpse of this massive industry extending over an area of one and a half square miles.

At the periphery of the Factory is located the Technical School—unique in its kind. It has about 3,000 trainees on roll. Besides the requirement of Bhopal, about 160 engineers for other projects under the HEAVY ELECTRICALS snd 500 technicians for the HEAVY ENGINEERING project at Ranchi are under training. Recently some assistance to meet the emergent Defence needs has also been promised. Visitors invariably express their admiration of the extensive training arrangements.

A five-storeyed building, outside the main Factory gate, houses the administrative offices, with the ancillary Personnel Department in an annexe.

The township, which provides all the modern amenities, has about 7,200 houses ready, and 1,000 more are under construction, to complete the present sanction.

Switchgear, transformers and capacitors and the Foundry Blocks (included in the first phase) are in full commission. Each of them has an office annexe which is the hub of all technical activity. Engineers and draughtsmen are engaged on development of designs of tailor-made equipment, production engineers carry on their own avocations and our consultants sit side by side with them to guide and tender advice. It is perhaps not known fairly well that it is here that the designs of massive transformers up to 75 mVA are drawn and the day-to-day problems of production are sorted out.

In the Switchgear Shop, units up to 132 kV are under production. The tempo of activity is fast developing and it is anticipated that, by the end of the year 1962-63, 550=11 kV indoor metal-clad breakers, and 100=11kV.

50=33 kV and 16=66kV outdoor oil circuit breakers and also 2=132kV air blast breakers will be turned out, and equipment worth Rs 3 crore will be on the shop floor in various stages of production. Equipment already turned out consists of 11kV metal-clad switchgear, 33kV and 66kV outdoor circuit breakers, motor control gear, transformers of up to 10.6 mVA, 132 kV capacitors and thermac welders. Testing equipment, where 11kV-220 kV units can be tested, has been installed. Besides checking the closing and opening operations, each breaker is subjected to a high-voltage-withstand test. For this purpose, three sets are available—0 50kV and 0-190kV sets are mobile units; and 0-650 kV rating set is stationary in a cordoned area. In this area there are two oil tanks for testing condenser bushings. There is also a Schering bridge to measure their power factor and di-electric strength.

The Transformer Section has turned out 52 transformers and it is hoped that, by the end of the year, a number of high-range units up to 40 mVA with on-load tap changers totalling to about 400 mVA will be turned out, leaving a dozen or so up to 75mVA in an advanced stage of production on the shop floor. Also 60 Thermac welders are expected to be completed. Expensive test equipment has been installed, which constitutes an important feature of output in this area. It mainly consists of three test points capable of supplying voltages up to 132 kV and power of 7,000 kVA for various combinations of voltages, between 50 and 200 cycles per second. In addition, there are test points for supplying voltages up to 650 kV to test insulation levels of equipment manufactured in the factory. The control equipment is all mounted on a gallery two floors above the Test Bay which is cordoned off by electrically-interlocked screens, so that the equipment can be safely watched during the tests. A notable equipment is the impulse generator which can supply voltage up to 2,500 kV and simulate lightning flashes of this magnitude, according to the IS, BS, IEC and ASA. This generator is suitable for testing all H.V. equipment requiring impulse test which would be manufactured by HEAVY ELECTRICALS and has sufficient margin for conducting proof test on insulation and prototype design.

The Capacitor Section has turned out capacitors totalling over 16,000 kVAR and, by the end of the year, the output is likely to be 27,000 kVAR. The equipment is designed to handle approximately 12,000 basic units and 1,500 capacitor banks per year.



TRANSFORMERS of 5 000 kVA, 66 kV being assembled

The manufacture of traction equipment has also been started and it is hoped to turn out 20 sets of traction motors for 1,500V D.C. Suburban units in Bombay Area.

Hydro-turbines and generators manufactured in this Factory are likely to come out in 1964-65. By the end of the Third Plan, it is anticipated that seven such units and four or five thermal units may be available for power generation.

In the production units, most of the lines of manufacture have been fairly well established. But, in some cases, the usual teething troubles still persist. Unlike some other industries, HEAVY ELECTRICALS has a large variety of technique, each requiring a degree of precision work. Tolerances allowed are extremely limited. Considerable hand work is involved, which, for a novice, takes time to acquire the requisite speed and proficiency. In the initial stages, while the workmen gain confidence, we have to reconcile to slower output, as we cannot run risks with electrical equipment. In fact, this was specifically indicated by our consultants in the project report and they had assessed that it would take seven to eight years to reach full production.

Another peculiarity of this industry is that the units take months to manufacture. There is, therefore, invariably a substantial element of work in progress on the shop floor, which, owing to the slow speed of output of the operatives in the initial stages, will be even greater than normal in proportion to the finished output.

The sanctioned project estimate is about Rs 50 crore, including the township, for a full production of about Rs 30 crore worth of equipment *per annum*.

Three other projects, which have been entrusted to us, include the hydro and thermal plant at Hardwar, the thermal plant at Hyderabad and the high pressure boiler plant at Tiruchirapalli. Preliminary action has been taken at each of these sites to set up a technical school with necessary residential accommodation, which will function from July next.

The project report for the boiler plant at Tiruchi has been examined by technical experts and Government approval is awaited. Meanwhile, negotiations for purchase of imported equipment are proceeding with the representatives of TECHNOEXPORT. The civil engineering project has been prepared by Indian engineers. Tenders for execution of foundation works and fabrication of structural steel have been issued and, on receipt of Government's sanction, work will begin. This project is likely to reach a stage of production in early 1965. It is estimated to cost about Rs 18 crore, excluding the training centre and township. When in full production its output will be valued at over Rs 22 crore.

The Hyderabad project report is under consideration of the Government. The Hardwar project report is expected in May next.

HEAVY ELECTRICALS is, therefore, getting geared to fill a vital gap in our industrial economy and make a substantial contribution to the power requirements during the Fourth Plan, although the contribution in the Third Plan is somewhat limited.

M. N. SRINIVAS

CAN WE TAKE NATIONAL INTEGRATION FOR GRANTED?

A SOCIOLOGIST THINKS ALOUD

Has China solved our national integration problem for us? Was the Asoka Mehta Committee right in feeling so? Have regional, communal and caste loyalties disappeared—for the moment at least—or will they raise their head again? How can we strengthen the emotional basis of our national life?—These are questions troubling a number of people. The Editor of *Yojana* put them to the well-known sociologist, Dr M. N. Srinivas, and invited him to think aloud.

In reporting what Dr Srinivas said the Editor takes on himself responsibility for the faithfulness (or other). He also wants to confess that he has not reported his own interruptions !

WE are supposed to be a solemn people, but I think we aren't serious enough. Instead of giving careful thought to things, we tend to think that they will somehow sort themselves out. Take the Emergency. It looks as though one of the things the Chinese aimed at by their cease-fire was to make us relapse into our easy-going ways. It is therefore necessary that we should endeavour to prove to the people that the Emergency is real. We have to do it without creating hysteria. Partriotic songs over the radio alone can't sustain such a feeling. People in positions —politicians, administrators and leaders of academic life—have all to set an example in this respect.

You have asked me about the Asoka Mehta Committee's statement. There is no doubt about the impressive demonstration of unity that our people have given. But it would be wrong to think that regional, casteist and communal loyalties have overnight disappeared. I read a report in the newspapers that Mysore continues to feel that it is being neglected in the matter of Central grants or the location of an atomic power plant. This sort of regional feeling is bound to be there, Emergency or no Emergency. To my mind it is not enough if we merely say that it is bad. We must realise that we are a multi-state, multi-religious, multi-racial society. The meaning of it is that certain smaller loyalties will persist within the larger one. We must learn to accept regionalism as a part of our national make-up. I view it somewhat differently from others. A certain amount of regionalism, I think, is even healthy, since it connotes a consciousness on the part of people that a particular area is backward and a desire to improve it. I feel that the planners should study how far such grievances are real, and try to remove them where they are genuine. Apart from defence needs and the core of the plan that represents the thrust-forward, they must set apart a certain sum of money which will be allotted on political considerations.

WHEN I say political considerations I mean it. I think all those people who sneer at politics—which is the fashion among the civil servants, economists or other academic men—are wrong. In a democracy every important activity is tied up with politics. And this applies to planning. It is the duty of planners to prepare the best design for the development of the natural and human resources of each region. Obviously you cannot have a port at Banaras or a steel mill in Andhra. But you should be able to convince 90 per cent of the people that the Plan has brought them definite benefits. The planners therefore have to accept the fact of regional loyalty and learn to tap it, rather than regard it as a bar to progress. There is regionalism even in such a closely patterned country as England. I am not referring to the regionalism of the Scotsman or the Welshman. I am referring to the growing feeling that the north of England is declining and the south is flourishing. If that is true of a compact country like England, it is utterly unrealistic to think we, with 440 million people, sixteen States and 14 languages should be a monolithic nation. It just can't be.

To return to national integration. Perhaps we did take a somewhat panicky view, but now we are being lulled into a false sense of security. This is much worse. The major recommendations of the National Integration Committee must be pushed through. We can't afford to be complacent or leisurely. Wherever there is a sense of grievance we should meet the need and remove the grievance. The surest solution lies in creating a generation of people, especially the elite, who think in terms of India as a whole.

THIS is where the universities come in. The plans for compulsory military training will no doubt help, but only to a certain extent. It appeals to people as a short cut. The real benefit of putting our students in khaki is that it cures them to an extent of their upper-class distaste for manual labour and teaches them to look after themselves.

A big drawback in our universities is that the relatively few people who are qualified to teach and do research have to bother about committees and administrative work. The result is that they live at a lower level of intensity. Meetings and seminars are the bane of our academic life—as indeed they are in government where top officials are saddled with so much committee work that they can only turn to their real work at the fag end of the day. The harm that committees do is this—that no one will take an unpopular decision even where it is necessary. Given the Indian situation we want people who will take responsibility and face the risks that go with it.

(*Continued on page 38*)

B. KUPPUSWAMY

NATION'S



STRENGTH

Sense of Belongingness

Outlets for Energy of Youth Essential for Morale

ONE of the features of the Sino-Indian dispute is the fact that the Chinese Government gradually occupied thousands of square miles, while, side by side, negotiating with the Government of India to settle the problem of demarcating the boundary. China was also, at the same time, preparing for a massive attack on the border.

This is the reason why, when the Chinese attacked NEFA suddenly, the Government as well as the people of India experienced a sense of shock. This appears to have been a part of the Chinese tactics.

Sudden shock of attack, either by an individual or by a group, often leads to fear and collapse on the part of the individual or group so attacked. However, the outstanding feature of the Indian reaction to this situation is the *rise in morale*. The country as a whole is determined to throw the aggressor out of the soil.

Any group, as small as a family or as large as a nation or a confederation of nations, can continue to be a group only so long as there is cohesion among the members forming it. This cohesion is based on the love of each individual for the other individuals in the group and on the admiration of each member of the group for the ideals for which the group stands. This is one of the reasons why traditions form a very important aspect of group continuity.

Any group, small or large, involves differences of opinion and outlook. If these become strong, then the cohesion of the group is at peril. Some members or some sub-groups may then feel that continuation of membership costs mental pain and so an attempt may be made to destroy the group cohesion (and thus the group itself), so that a part of the group feels free to continue to cherish and work for what it thinks is worthwhile. Thus the forces of group cohesion have to be very strong if the group has to continue and survive.

THIS is particularly so when a group is threatened by external danger. In the present context the Chinese aggression on the Himalayan border is a great threat to the freedom of the Indian nation. Probably, for the first time in the long history of this land, foreign aggression has led to a quickening of the realisation of the unity and integrity of the country as a whole. The way in which the citizens in all parts of the country, and all the political parties including the Communist Party of India, have given whole-hearted support to the Government not only to halt the aggression but also to throw the aggressor out is a great demonstration of national morale.

Essentially group morale consists in a high regard for the group as a whole. It is only when there is such a high regard that the individuals as well as the sub-groups forming a large group will abandon their narrow interests for the larger interests of the nation as a whole. This can happen only when great importance is attached to the membership of the group. Every Indian today feels that he is Indian first and Indian last and that his one duty is to help the Government to take steps to vacate the aggression. This is particularly in contrast to the divisive tendencies which had become accentuated in the last two or three years until the fact of Chinese aggression was known. When this happened, various sub-groups announced, on platform and through the press, that they were abandoning their narrow interests. There is today an identification with the people living in NEFA and Assam in the east and those living in Ladakh and Kashmir in the north. Thus the citizens as well as the sub-groups of India are today striving to satisfy the demands of the country's freedom and putting aside their narrow interests.

WHEN group morale is at its height we find that the members of the group have self-control and self-confidence. Today, except for a few frustrated politicians, the masses are confident. Heartened by the moral as well as the material support of many of the nations of the world and convinced in the righteousness of their cause, they feel confident that the country can liberate the areas invaded by the Chinese.

Another sign of the high morale in the country today is the willingness of individuals to offer their possessions for the defence of their land. It is true that there has been a slackening in this in the recent weeks, but even so the immediate response of the poor as well as the rich to give their mite for the defence of the land is something noteworthy. There is also great readiness on the part of the citizens to donate their blood. Authorities have found that their ability to make use of the blood donated is far short of the readiness of the people to donate. There is also a readiness on the part of women to donate gold and silver. Here again we find that the response, though dramatic, is not adequate; but when one looks at it from the standpoint of the

traditions of thousands of years, one has to admire the great change that has come upon the women. Of what use is gold or wealth when the freedom of the land is at peril? We can also refer to the readiness of the youth to join the National Cadet Corps, Auxiliary Force and the Army. This is a demonstration not only of readiness to serve the country but of the absence of fear of pain or death.

ONE of the important ingredients of group morale is trust in the ability of the leaders and faith in the programmes for group action. Here again we find that the masses, excepting for a handful of disgruntled, frustrated individuals, have expressed their faith in the present leadership.

There is heartening awareness among the people also in respect of the price situation. Citizen groups are helping the governmental agencies in seeing to it that there is no rise in prices. It must also be recognised that the trading community as a whole has responded very well to the situation. Leaders of the Chambers of Commerce in all parts of the country have passed resolutions condemning any exploitation of the present situation. Thus we find that because of the efforts of the citizens and the co-operation of tradesmen the prices have largely been kept under control.

WHEN two countries are at war with each other, propaganda assumes special importance. Each country attempts in innumerable ways to boost the morale of its own people and to demoralise the enemy group. It is not necessary here to describe the various techniques adopted by the Chinese to lower the morale in this country. But the Government as well as the citizen groups should be alerted to study these techniques and counteract them. Complacency will inevitably lead to the acceptance of the ideas propagated by the enemy country and a decline of faith and of the resolve to fight. It is also absolutely necessary to keep the citizens within the country, as also the Government and the citizens of the other countries of the world, well informed about the facts of the case. This must be done through the use of various media at frequent intervals, so that the understanding and conviction of the people are reinforced.

Modern warfare is *total.* War is no more a preoccupation of the fighting forces. The requirements of mechanised warfare are so complicated that there has to be a continuous flow of arms and equipment to the people fighting on the front. This involves that the country as a whole should bend its efforts to maintain the supply lines. The morale of the fighting group today depends upon its faith in the efficacy of its equipment. If the enemy's equipment is technologically superior there would be demoralisation. The situation, therefore, demands that research be undertaken for making improvements in the equipment supplied.

As far as the civilians are concerned, if the citizens as well as the students in schools and colleges are doing something to promote the war effort, they will have a sense of security and satisfaction. War situation is essentially an emotional situation. Emotion leads to action. If the channel for action is frozen, there will be defeatism. There is no choice here. The only way of maintaining the morale of the group is to give opportunity for every citizen, the young as well as the old, to work for the freedom of the land and for the preservation of the values cherished by the country as a whole.

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THE PUBLICATIONS DIVISION, DELHI-6

V. SITARAMIAH

Challenging View of

OUR NATIONAL CHARACTER

Passive? Careless of History? Or Ready to Defend Values?

Now and then comes a book which makes us sit up and think about ourselves. Amaury de Riencourt's *The Soul of India* (Jonathan Cape) is one such. *Yojana* asked a distinguished student of our culture to evaluate the views expressed in the book.

THE Soul of India is a disturbing book. Its author engages in an interpretation of India's history and culture after having made a similar study of China's. He has a view of the historical process in East and West into which sociology, philosophy, religion, politics etc. are all sucked. His study reveals to him that if the accent and orientation of the two attitudes—Indian and Chinese—are different, the phases and parallelism are comparable, and sufficient as explanation of their different *Weltanschauungs* and impulses to conduct and organisation. Between the two the understanding of life in India is the more profound, he says; its attitude more inclusive, its performance more fruitful—though static. If ethics and a more urbane humanism distinguish the Chinese, the inclusiveness and the philosophical monism of the Indian preference make it a more instructive type of development. Its constant endeavour to reconcile contradictions —to achieve a *nirdvandva* synthesis—appears to him to be the basis of the Hegelian dialectic itself. Whether western scholars accept all that he says about the revolutionary impact of Indian thought on the West during the last 150 years we shall leave to them.

When the West came in contact with India it misjudged Indian life and history as it misunderstood its institutions and codes of behaviour. India had completed a cycle of civilisation and culture 2,000 years before its advent. De Riencourt's phrase is that India's is a *terminated* rather than an *arrested* growth. "Such a termination the West might well experience if the lessons of the past are not heeded." From after the Asokan times, which he says is the culmination of a process, India's life was exposed to foreign invasions and is now awakening to a new demand.

De Riencourt belongs to the cyclical school of historians. He is not a pessimist or fatalist like some others of the species for he believes in an upward spiral movement. Yet the best such hypothesis is but one theory asking millennial processes in one single light, summed up in a single thought.

History is a process; not a value. It yields different meanings to different approaches and insights: selection and bias affect the views of all these seekers of truth; and each generalisation can be truer but in its way. And so the presentation of a "drive of that grand cycle of history which takes into account the whole of a particular society's life" can be too large an enterprise. After all the full personality of a great people is an iceberg reality with more of its substance stretching in the deeper darknesses than visible on the surface. Any single theory, however penetrating, is one claim, or guess, at the truth. Brilliance illumines, and perhaps distorts as much as it hides.

Yet to be fair to De Riencourt, his is a very revealing account of the Indian process for it awakes subconscious assents and gives tongue to some real fears. The foot-note references do not give us confidence in his scholarship for they seem to build from accounts of other propounders of history and value like himself. Among them are different levels of quality and authority; some are adventures in judgement; and some are mere wish projections. Yet he seems to have sensed essential realities. It is exhilarating to watch him as he picks up a quotation and moves from statement to characterisation, from one provoking generalisation to another. The grip of one theory, i.e. the historical inertias of India preferring eternity to time and Being to Becoming—which is *leitmotif*—is throughout on. To follow his insights through all phases and fields is a rewarding experience. His book is not regular history—for nearly 2,000 years between the advent of 'the Aryan-Barbarians' as they came destroying the Harappan Civilisation right up to the Gupta times it is built up on poetry and on texts like the *Mahabharata*, the *Bhagavad-Gita*, the *Arthasastra* etc. And of the Harappan times themselves what incontrovertible proofs exist to designate their true character and history? Later historical periods are dragooned to fit into his pattern: the cultural unfoldment, the passing into civilisation, the twilight and moonlight periods, the Caeserism and the decline and fall.

Place of Striving

His basic criticism is that India has neglected Time and History, so denying itself the dynamics and the pursuit of long-term shaping. Indeed, things have rather happened to India than have been shaped by it. Much of the weaknesses and failures of India are due to this bias in its bone. It is a two-dimensional preference for Space and Extension

as against Time and Movement. Words like fissiparous, atavistic, cynical, ruthless about means, more particular about a universal society than about a universal State—riddle the narration.

Today India has struck against a new demand and is called upon to render an account of itself in a world context which uses ideologies, techniques and instrumentalities alien to its genius. Nothing less than a radical reconsideration of all its ancient values and behaviour is indicated. His quotation from Whitehead, that 'Life is an offensive against the repetitive mechanism of the universe', while itself a theory, is bright as direction. But a thought occurs: the Purusha, for example, of the Sankhya system and the Atman of the Vedantic systems may be liberated from bondage. But will Prakriti itself ever be redeemed? Must it not? A new vision and striving need to possess it utterly, educate and discipline it so as to make it change gear and character and build differently, scoring higher performance. The fear is expressed that forces operating today might lead to the same jungle of interests and relationships as in the past, that they may monkey with its destiny again pulling it back to old grooves, making *ad hoc* adjustments as opportunistically and cynically as ever—and, lose the race.

He redefines the concepts of Culture and Civilisation: the first is youthful, vital, adventurous and creative; the other is a maturity-trait and function, a crystallisation, a standardisation, eventually making it sterile: the difference, for example, between Greece and Rome in Europe. But whether the whole period of the Upanishads and the Buddhistic and Jaina periods should be viewed, as he does, admits of doubt. This, however, is true: great ideas germinate in creative minds and periods, but when they pass into movements and institutions their virtue and vigour are extinguished. The Churches, built to celebrate, to protect and propagate, harden into machinery, stereotype modes of behaviour, insist on conformity and gradually become engines of tyranny and persecution and then deserve only to be scrapped.

De Riencourt possibly exaggerates the hold of Tantra on Indian life, though how it insinuated itself into the vitals of Indian life is a fascinating study. Buddhism lost its influence on the Indian mind because society desired to preserve itself not merely against its atheism, nihilism and its destructive logic but because it became anarchic and immoral, threatening to destroy the foundations of society. Jainism survived as a member of the community in spite of its fiercer demands for austerity and its exaggerations of Ahimsa; because it promoted social morality and accepted the caste system; and also because Jinatva was a positive ideal.

The Social Structure

The forces that saved India through the ages were, of course, the caste system, the joint family system and the self-sufficiency of the village community. They helped India to hold together and defy the onslaughts of aggressive religions and trying political vicissitudes. All the three have suffered damage today. Not even Ramakrishna and Vivekananda, not Gandhiji and Bhave and no, not J. P. Narayan, can resurrect them into original strength. They have become sophisticated and exposed to world blasts which cannot be wished away. The caste system may act for some more time through powerful political and economic interest-groups exploiting religion and language for selfish, non-national ends. And this also: how can a caste-ridden society overnight become a 100 per cent democracy without such intermediate regrouping of forces? Democracy needs more than a mere fifteen years to build up the graces, the decencies, the compromises, the Rule of Law, the conventions of give-and-take of a larger constitutional living. Possibly, for a time, they will make a last stand with conservative elements which will harness them in the traditional pattern. But that might, in the long run, disrupt the country antagonising non-Hindu elements, the organised industrial labour class and a discontented, demoralised peasantry which will insist on economic equality along with political liberty. In de Riencourt's analysis of the Communist Party—alien in inspiration and divided in allegiances—may not, for a good time yet, be able to face up to the combined strength of all the conservative forces. If Mr Nehru was given a full chance by his own followers through active implementing of his policies, greater spaciousness and strength can be bulit; and the socialist leavening be fruitful. That has been from the beginning his passion and is embodied in the section on the 'Directive Principles' of the Constitution. It will be an unfinished and crumbling city otherwise. Right-wing cynicism is as dangerous as Left-wing extremism. Only Mr Nehru, who combines in his personal make-up the education of the West, patriotism and knowledge of history, respect for constitutional proprieties and the trust of the people, can make it dynamic in the new way.

But will the barbarians let him? Others would exploit the situation for sectional benefit and set up rigidities of behaviour. Meanwhile de Riencourt's assessment of what he calls 'Nehruvian Caesarism' is the harshest piece of writing in the book. No blueprint of an opposition party could list the lacks, limitations and failures of performance harder. But does it not take more than one individual to fulfil such a vast purpose in a country which even de Riencourt says is more a world than a nation, more even a universe than a world?

His analysis of our 'spiritual' history shows remarkable understanding. Only statements like, 'history teaches', 'necessity', 'preordained', 'secure heights of complete objectivity and detachment' sound ponderous. Generalisation can be too general and when metaphor and imagination ride them truth suffers.

India's supreme need today is to understand the historical challenge and build the three-dimensional personality and move more creatively forward. Its personality was appetitive and assimilative in the earlier periods and succeeded as long as the outsiders could be digested; it set up resistance against the Semitic groups and decided to settle down to live with them. And then both were overwhelmed by the British. The Muslim, Sikh, Christian and Parsi elements are a live part of our larger Indian citizenship today and have to be wooed and won with grace and generosity. It is a pity that the British undid all that they built up and left us with no time even to lick our wounds, let alone to build up a more viable edifice of existence.

(Continued on page 56)

EVERY VILLAGE PLEDGES TO WORK FOR DEFENCE

Vital Role for Youth Clubs and Mahila Mandals



IN every village in the country this year's Republic Day celebrations will have a special feature. In addition to the customary salute to the flag, the people of the village will be asked to take a pledge. The pledge, after referring to the betrayal of India by China, reads:

> "With hope and faith, this village affirms the firm resolve of the people to drive out the aggressor from the sacred soil of India, however long and hard the struggle may be. To this end, this village pledges the mobilisation of all its resources, both human and material, as its contribution to the national effort."

The countrywide pledge is to be translated into reality through the Village Volunteer Force, units of which will come into existence everywhere on January 26. It will consist of all the able-bodied adults, and will be formed with the Gram Sahayaks and the Youth Clubs as nucleus. The Force will also have a women's wing, with the Mahila Mandal of the village in charge.

In those villages where there are no youth clubs and Mahila Mandals yet, they will be first organised. The Mahila Mandal will have the tasks of promoting savings, holding handicrafts classes and assisting service co-operatives and fair price shops. It will also help the Panchayat in looking after the welfare of the families of such Jawans as have left their families behind while going forth to meet the foe.

Three Tasks

The Force will generate in the villages a sense of discipline and of participation in the defence effort. It will perform specifically a three-fold function: production, mass education and village defence.

It is the duty of each village to so manage its affairs that with comparatively little investment it can increase its production. The Village Volunteer Force can help to do this by taking up activities such as development of Panchayat lands, making of compost, growing vegetables and fruits, planting fuel trees, rearing fish in the village ponds, deepening of village tanks and other such rural works. Every village will have a production plan for this purpose. The plan will be based on the resources and needs of the village. A programme of works to be completed within six months will be entrusted to the task force. Another programme will be formed for the next six months, and so on.

The village co-operative will be strengthened by enrolling more members and increasing its resources for implementing the production plan.

The second task of the Force is public education. Through right information and right interpretation of events, the Force will see that rumours are scotched and morale kept high.

The third task will be even more exciting and exacting. And this task is to receive training in civil defence, in watch and ward duties, in prevention of fires, in first aid and in protecting vital communication lines. Physical education and mass-drill will be organised. The "Dalpati", captain of the village force, as also the village officials will be given training in the use of rifles.

Defence Labour Bank

Allied to the Village Volunteer Force will be the Defence Labour Bank, which will pool the local labour and help the Force to draw upon it in the carrying out of its duties, especially in regard to rural works. Every able adult is expected to donate free labour for at least one day every month. Those who contribute labour for more than 12 days in a year will be paid for the excess work, if they so desire. An account of the labour of every donor will be maintained. The bank is a refinement of the *shramadan* movement in the context of the Emergency. Properly organised, the bank system can yield work worth Rs 300 crore every year throughout the country.

As stated earlier, the labour will be used for works under the village production plan and other works of community benefit. Two or more Panchayats may collaborate for a joint programme.

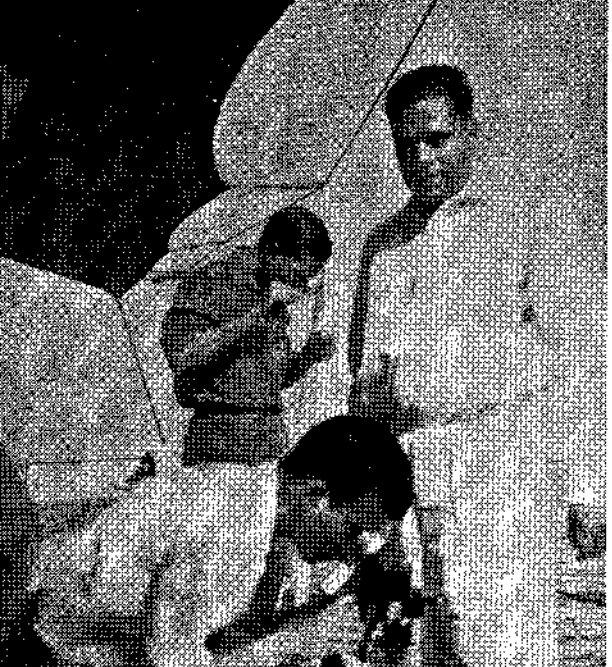
The Panchayat will try to obtain labour contributions from groups of people for continuous periods of ten days or more. Such groups will be specially directed to the completion of selected programmes.

During the Emergency, the Gram Sabha will meet every three months.

The village Panchayat will be in charge of the Village Volunteer Force and the Labour Bank. It will function as an emergency committee of the village. It will select the "Dalpati", captain of the Village Force, who will act as secretary of the emergency committee. The Sarpanch of the Panchayat will be the chairman of the committee.

The Panchayat Samiti will set up a special committee to guide, supervise and co-ordinate the activities of the village force units in Panchayats under its jurisdiction.

At the district level, the Zila Parishad will ensure effective co-ordination of the village force units and review progress of their work.



LIFE WITHIN SEA: Scientistsp eer into microscope to study the forms of plankton (floating organic life)

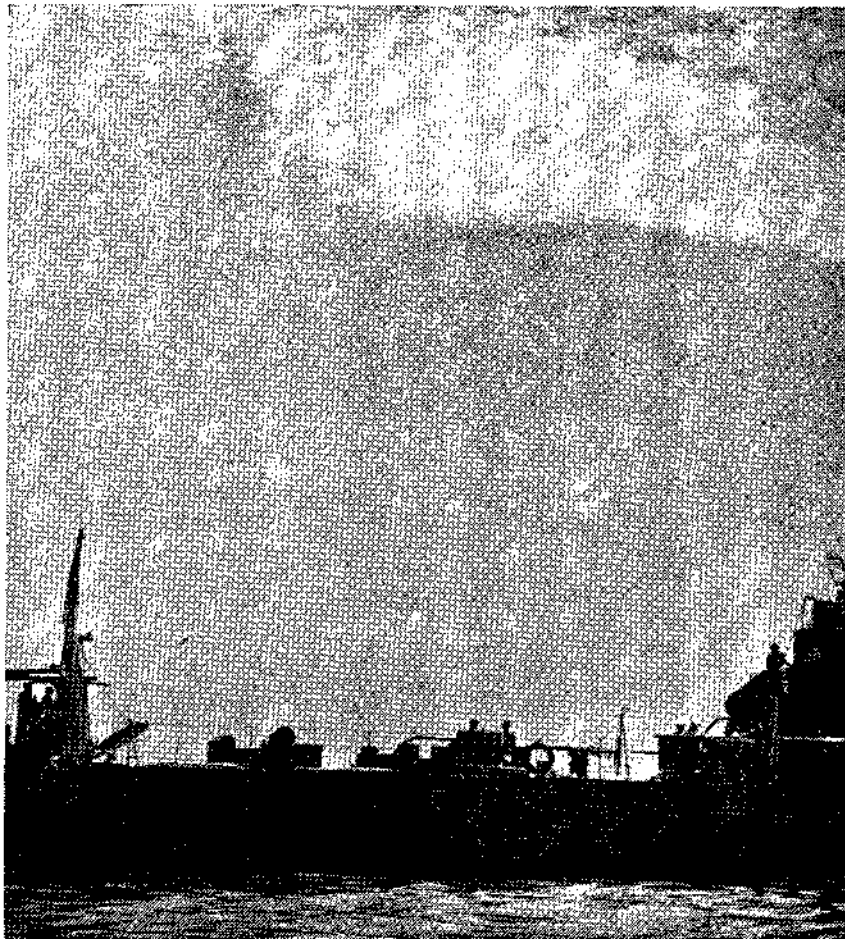
Our Scientists Pr

Expedition Collects V

FOR centuries past the oceanic passage a the Arabian Sea, the fabulous sea-wa the Orient, has cast a spell of mystery and venture. Now once again it shows signs of involvement.

DURING the last two years UNESCO and International Council of Scientific U have sponsored the International Indian C Expedition. The scientific programme is no its most exciting phase. Since its start, ex tionary voyages have been undertaken in a cli of peace by American, Australian, British, Fr Israeli, Japanese, Pakistani, South African Soviet ships to explore the secrets of this last unexplored oceans. Valuable data have gathered and new discoveries made.

INS KISTNA: The ship of science, w



The cruise of the KISTNA was ably commanded by Comma nder M. B. Ballal. Aboard the ship was D r N. K. Panikkar, Chief Scientific Director and Secretary of INCOR, who led an assorted all-India team of 25 physical and chemical oceanographers, radiation physicists, atmospheric scientists, fishery biologists and planktonologists

The ship left Bombay harbour on Saturday, November 3, 1962, steaming at first southward, then westbound towards the Gulf of Aden, far out from the normal shipping lanes. It was the only ship of the Indian Fleet travelling in the Indian Ocean without a security code—a compliment to the freedom of international science. There was a new thrill and keen interest among the young Indian scientists, whose ages ranged between 25 and 35. (The leader himself was 48, and the ship's commander 40). Except for two participants who had received training experience in physical oceanography aboard the Soviet Union research vessel VITYAZ and some who had been initiated in oceanic research on the preliminary proving cruises of the KISTNA in the northern part of the Arabian Sea, none of the scientists had gone further asea than the coastal zone of India.

With KISTNA cruising at an average speed of ten knots with steadfast efficiency, the oceanic programme went into synoptic

ɔe the Sea Around Us

l Statistics of Indian Ocean

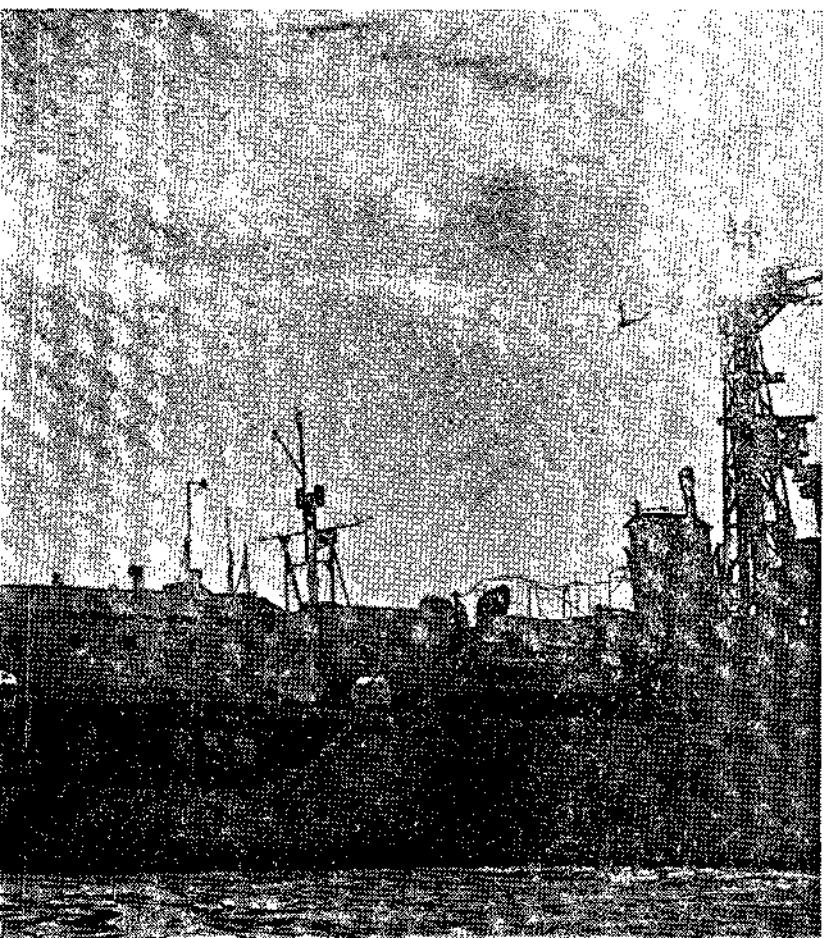
By John P. Correa

Who accompanied the Expedition as a UNESCO Representative

INDIA'S naval frigate, *INS Kistna*, converted for oceanographic research, was just about to start its scientific cruise in November, when reverberations from the Himalayan top of the world made political and economic impact with the declaration of a state of national Emergency.

THE scientific programme had been developed by the Indian National Committee on Oceanic Research (INCOR) which was set up on the advice of the Scientific Advisory Committee to the Union Cabinet. Since India is vitally concerned with the Indian Ocean, a top-level decision was taken at Naval Headquarters. The expeditionary voyage of the *Kistna* planned to track the Arabian Sea was now readjusted to return to Bombay without touching Aden in order to conserve expense.

hydrogen-filled radiosonde balloon poised above it.





GREAT STORE OF FOOD: That is what the sea is to many. Problems of deep-sea fishing were also studied

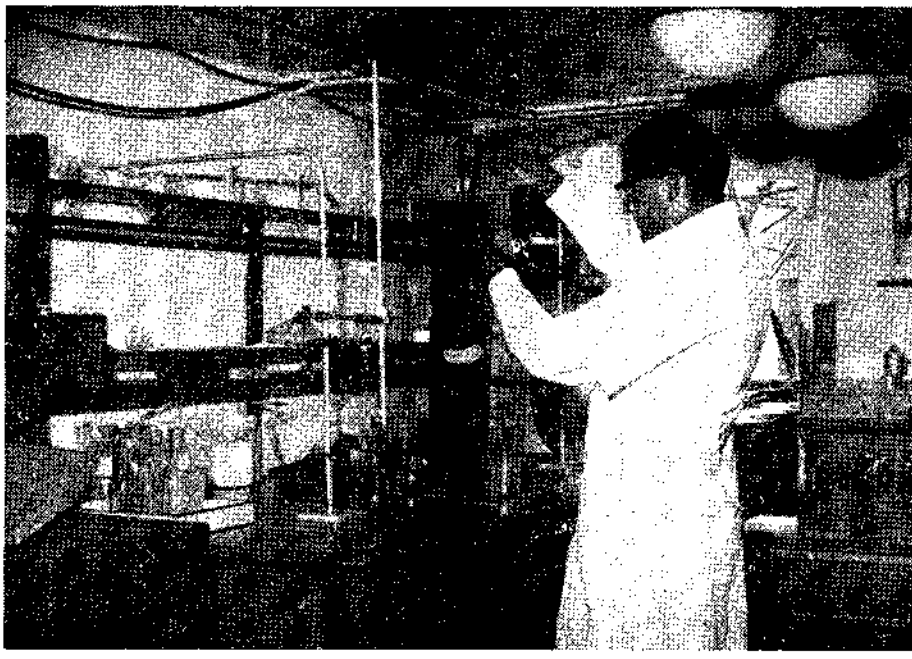
action on Sunday afternoon, November 4. When well within the sea-area where the slope of the Continental Shelf ends, atmospheric scientists from the Instruments Section of the Poona Meteorological Office began their watch of the weather processes.

From the poop, they released, twice daily, their Indian-made balloons equipped with radiosondes. Temperature, humidity and wind velocity were measured. Signals were picked up by receiving equipment inside the oceanographic laboratory aboard as the balloon ascended and these were continuously recorded on a paper tape. Minute-to-minute observations of the position of the airborne balloon in the course of its rise were tracked by an optical marine theodolite until the balloon burst in rarefied air or observation seemed impossible. Wind speed and direction at all levels of the upper air were computed. Soundings of the atmosphere were made successfully up to an operational altitude of 24 km.

On Saturday, November 10, an atmospheric sounding revealed the occurrence of a layer of "absolute instability" extending to a height of 4 km. Mr C. P. Sreedharan, assistant meteorologist, and his colleagues predicted that it was quite likely that the weather would have deteriorated in this region in the late evening or at night. Broadcasts from the offshore Meteorological Office at Karachi, Pakistan, had indicated the possibility of bad weather in this region and this was strikingly confirmed by the observational data of the prevailing wind collected by the KISTNA atmospheric scientists.

Of demonstrable significance during the cruise was that despite prevailing high surface winds, the radiosonde balloons could be filled out and successfully operated from a moving ship. Another 'first' for the Indian scientists was that upper wind patterns could be determined precisely up to an altitude of 25 km.

Besides the upper air measurements, standard observations of pressure by means of a marine barometer and microbarograph were continuously recorded and a whirling psychrometer was used to measure the temperature. A wind panel inside the sea-going laboratory recorded the wind and speed. Of much interest were the wind data but their importance could be assessed only after comparing the information collected from other coastal stations. Visual observations of the cumulus cloud development, weather and visibility were also made and all the availabledata were immediately radioed to the Meteorological Office at Poona. The entire weather and climatological instrumentation, including the radiosonde equipment, was developed and manufactured at the workshops at Poona.



SALTS OF THE SEA: Scientist engaged in analysis of sea water in the Oceanographic Laboratory aboard the KISTNA



PLANKTON NET is lowered

There is at present a dearth of basic knowledge about weather processes in the Indian Ocean. More is known about the climate of Antarctica than this Ocean. The KISTNA contribution to weather data will be most useful for air traffic and forecasting. It will finally be transmitted to the International Meteorological Centre at Colaba Observatory which serves as the data collection agency. From this focal point, current weather analysis forecasts and storm warnings will be provided and correlated with the behaviour of the ocean.

When KISTNA entered the zone of deep oceanic waters, the first of the Oceanographic Stations was set up along the transect. Now engines were stopped. The position was 14°.32'N, 69°.45'E. Daily oceanographic studies were conducted at sixteen closely spaced shallow water observation stations and three deep ones, set up every sixty miles across the straight ocean track.

It was a carefully planned round-the-clock operation. During the day and before sea-dawn, the physical and chemical oceanographers would assemble at the portside to collect vital statistics and sea-water samples.

On the maindeck a team of physical oceanographers studied the temperature profile of the sea. White-painted Nansen bottles were lowered vertically into the sea at varying depths down to 1,000 metres in the shallow water and 4,000 metres in the abyssal deep, by means of a winch which carried a long steel hydrowire and was operated at 3-4 metres per second. A small weight messenger would be sent sliding down the hydrowire causing all the bottles to close up. After a dozen or so of these reversing bottles, plummeted with regulated speed, collected the water samples, these were stacked on the deck rack where oceanographers studied the temperature distribution pattern from the protected and unprotected thermometers which were attached to each bottle.

The highest surface temperature recorded was 28.4° C, at 500 metres it was 11.5° C; while in descending from the level to about 3,000 metres the temperature fell to nearly 2.08°C.

Bathythermographs—bronzed instruments looking like miniature rockets—were also lowered at desired vertical depths at these stations and hourly readings made of the sea temperature which were recorded on smoked glass slides inserted in the scaffold tubing of the device. Vertical profiles of the sea-water temperature from the surface to the bottom are valuable information in explaining many of the physical, chemical and biological phenomena.

On sunshiny days, other scientists would measure the absorption of the radiation of the sea. Light is an essential basis of marine life and only radiation which actually enters the sea-water can help to increase marine productivity. A white disc—the Seechi disk—would be lowered into the water and the scientists would observe the depth at which the device would disappear from sight. Light falling on the sea surface and penetrating it is soon absorbed, some wave-lengths more quickly than others. From transparency measurements taken, it was estimated that the light penetrated below the surface down to 20 fathoms on this sector. The maximum depth of visibility was located at Deep Station Three at 35 metres. There is enough light at these depths for photosynthesis of marine flora and other basic organic production.

While the physical oceanographers felt the pulse of the ocean and examined the temperature profile, there was a regular queue for samples of the oceanic waters.

Hydrochemists from the Naval Laboratories would collect them to estimate the dissolved oxygen, chlorinity and nutrient salts. According to A. A. Karande and A. V. Avadi, salinity was highest at depths of 40-50 metres and lowest at the deeper layers at 3,000 metres.

S. P. Anand and J. N. Garg of the Naval Research and Development Directorate, Delhi, found that there is a more or less oxygen minimum layer, there being 4.5 cc of oxygen in a litre of water at depths varying from 10 to 40 metres. At Shallow-Water Station One, the oxygen content was about 1.4 cc while the lowest value was observed at Deep Station Three when the oxygen content became as small as 0.3 cc in a litre of water. A rising trend was



NANSEN BOTTLES being sent down

evident at depths of 1000-3500 metres.

Both salinity data, which are useful to compute the density of sea-water, and the low oxygen values obtained enable the oceanographer to determine the character of the water mass. From the available information it was deduced that there were no unusually strong counter currents, but rather only a sluggish circulation prevailed in the deeper layers during this post-monsoon period.

While the hydrochemists worked in the Oceanographic Laboratory, another line of inquiry was going forward on the quarter-deck. Here the marine scientists and fishery biologists went to work with their plankton nets to scoop vertically from the sea their crop of tiny, microscopic pastures—a yellowish soupy ooze of the flowerings of the plant and animal life—the phytoplankton and zooplankton. The plankton hunters, using Indian-made phytoplankton nets of finely meshed Bolten silk, lowered them to depths of 250 metres by means of a hydrowire attached to a winch. Conspicuous among the phytoplankton they collected were dinoflagellate swarmers and a substantially large quantity of diatom algal flora with shells of silicon crystals.

The zooplankton dominated the catch. The harvest included shrimp-like crustaceans, such as copepods, chaetognaths, then the hydromedusae and a variety of pelagic mollusc larvae and fish eggs. An unusually large specimen of an eel larva, measuring 15 centimetres, drew considerable interest.

With deeper the descent of the plankton nets in the sea, a noticeable decrease in the density of life was observed, possibly conditioned by the paucity of phytoplankton population in the oxygen minimum layer. The largest collections were made in the vicinity of the Continental Shelf and on the Indian coast and close to the seamount of Socotra Islands not too distant from the submarine mountains range called the Carlsberg Ridge.

Detailed observations and classification of the plankton by experts on biological oceanology will be made at the various shore laboratories and identified specimens will be catalogued, exchanged and sorted at the International Biological Centre established at Cochin.

Another facet of the oceanic programme were tests carried out by J. S. Sastry, G. R. Doshi and K. Malhotra, radiation scientists of the Indian Atomic Energy Establishment, Trombay, to find precisely how great is the dosage of nuclear fall-out and airborne contamination in the Ocean and of the radioactive elements in seawater. These scientists examined about 30 air samples with the aid of an Alpha and Beta Counter, both Indian-designed electronic apparatus developed at the workshops at Trombay. The data would be supplemented by the data of the characteristics of the air masses compiled by the Indian Meteorological Department. Surface samples were analysed to study the fall-out of fission products Strontium-90 and Caesium-137.

The natural fall-out in the sea-water was measured with the aid of a Gama Scintillation Counter with a single channel analyser. Atomic studies revealed that the airborne and sea-water radioactivity surveyed on this track was well within the limits of tolerance.

The scientists also collected 200 litres of surface sea-water samples in black polythene carboys to make

(*Continued on page 56*)

PRABHAKAR MACHWE

From the Vedas to the present day, love of the country and of valour is a running theme in our poetry

OUR POETRY

OF COURAGE

IN the remarkable awakening of the national spirit following the Chinese aggression the poets have not lagged behind. There have been many special gatherings of poets, *kavi sammelans* and *mushairas*. The heroic spirit is everywhere—and meetings, processions and the radio hum with the songs of composers and verse-makers. Time alone will decide how many poems out of these innumerable ones composed or printed daily, weekly and monthly in the various Indian languages will survive the test of literary permanence. But this is certainly an occasion when one can take a look back and reaffirm that Indian poetry has an excellent tradition of nationalist content.

The earliest examples are the *Rashtra-sukta* in the Vedas and cantos devoted to war in the *Ramayana*. One comes across glorious passages in the *Mahabharata*, especially in the *Bhagavad Gita*. After the *Virata-swarupa-darshana*, there is a resounding assurance that victory belongs to one who fights for truth. There are very interesting passages in the Tamil *Kural*, almost similar to ones in Kautiliya's *Arthashastra* on the art of battle and counsel to kings on strategy and so on. The early and medieval literatures of the Indian languages are full of ballads and long narrative poems on battles and heroism—such as Chanda Bardai's *Rasau* in Dingal (dialect of Hindi), *Alha* in Bundelkhandi, *Attam Thullal* in Malayalam, *powadas* in Marathi, *duhas* of Saurashtra, *Asan di Var* in Punjabi and similar poems sung to the accompaniment of flashing swords and spears, sounding drums and trumpets.

In modern Indian poetry I have culled a few passages from well-known Indian poets—written originally in English or translated from the mother-tongues into English. I present a bunch of these poems on this occasion to prove that though in the tradition of Sanskrit aestheticians, the heroic sentiment is given a secondary place to the erotic, the tragic being the third in importance, in modern times, during our historic struggle for Independence and after, though we have not been warmongers our poets have not always sung of 'the soft moon-beams and the rose-buds' only. They have risen to the occasion and at least two or three poets in each Indian language are respected and well-known as poet-patriots. To name a few, Ambikagiri Raichoudhary in Assamese; Navinchandra Sen, Satyen Dutta and Kazi Nazrul Islam in Bengali; Narmad and Meghani in Gujarati; Maithilisharan Gupta, Makhanlal Chaturvedi, 'Navin', Subhadra and 'Dinkar' in Hindi; Bendre in Kannada; 'Kusumagraja' and Vasant Bapat in Marathi; Vallathol in Malayalam; C. Narayana Reddi and 'Arudra' in Telugu; Bharati and Bharatidasan in Tamil; Hali and Iqbal in Urdu are the finest examples of poets of courage and fortitude.

I shall begin my cullings with Sri Aurobindo and Rabindranath Tagore. In 'Ilion' in *The Book of the Chieftains* I find some lines which can be inspiring in such trying times:

> We have not bowed our neck to Pelops' line or at Argos'
> Iron heel have not crouched nor clasped like thy time-wearied nations,
> Python-befriended, gripped in the coils of an iron protection,
> Bondage soothed by a name and destruction masked as a helper
> We are the young and lofty and free-souled sons of the Motherland. (p. 90-91)

Tagore's poem 'Ahwan, 1939', broadcast from Ottawa Radio and translated by the Poet himself, appears as poem No. 111 in *Poems* (published in 1942):

> Through the troubled history of man
> Comes sweeping a blind fury of destruction and the towers of civilisation topple down to dust.
> In the chaos of moral nihilism are trampled underfoot by marauders the best treasures of man heroically won by the martyrs for ages.
> Come, young nations, proclaim the fight for freedom, raise up the banner of invincible faith.
> Build bridges with your life across the gaping earth blasted by hatred
> And march forward.

The National Anthem given by Tagore has victory as the burden of the song:

> Amidst all tribulations and terror
> Thy trumpet sounds to hearten those that despair and droop,
> and guide all people in their path of peril and pilgrimage
> Thou Dispenser of India's destiny,
> Victory, Victory, Victory to thee.

I would like to give some lines from Toru Dutt, Sarojini Naidu and Harindranath Chattopadhyaya, which, though written in different context, are very appropriate to the present situation. Toru Dutt in her

Ancient Ballads and Legends of Hindustan writes in her long poem 'Prahlad':

"Thanks", said the prince,—"I have resolved the question in my mind with care,
Do what you will,—I am resolved
To do the right, all deaths I dare."

Sarojini Naidu has hailed India in her poem 'To India':

O young through all thy immemorial years!
Rise, Mother, rise, regenerate from thy gloom

And again the refrain of her poem titled 'Awake', recited at the Indian National Congress in 1915, is so true even today:

Hindus: Mother! the flames of our worship have crowned thee!
Parsees: Mother! the flame of our hope shall surround thee!
Musalmans: Mother! the sword of our love shall defend thee!
Christians: Mother ! the song of our faith shall attend thee!
All creeds: Shall not our dauntless devotion avail thee?

Harindranath Chattopadhyaya wrote a powerful poem in the last War in his book *Blood of Stones*. Some lines from the poem 'They Shall Not Pass' beginning with—

'Have you ever seen a machine gun's expression,
Iron grim and blank,
And heard its hollow crank on crank?
Have you ever seen the mechanised procession,
Of ruthless tank on tank?

run as follows:

. . . She knows that you are coming like a beast from the ensanguined East . . .
. . . We know there are a few
Among us who are slyly helping you,
The nation's hireling traitors, people-breakers,
The country's grave-diggers and undertakers,
Who are out to barter their own brothers' lives,
The honour of their mothers and their wives,
Pull their own houses down, pluck out the bricks
Hoping they will be crowned in after-years,— washing their conscience in a people's tears,
Targets, at last, of their own politics!

(Comrade Harin, how your context has changed!)

The poem ends on this note:

Remember, we shall fight you everywhere,
Yea, we shall fight you to the bitter end.
We know you are foe, disguised as friend.
. . . Invade our country? that you shall not dare
We are four hundred million—on our brow
The seal of a new history—we are conscious now!

In the anti-Fascist strain Bishnu Dey had a dignified poem, which is not merely a poster as painted by Harin's broad brush, but a real portrayal of the mass-upsurge in 1942-43; so true even today:

How many brigands have raided our country, how many times?
Ravaging village on village, piling up cruelties, crimes!
How many *bulbuls* have ravished our grains,
Mothers have crooned of tyrannical reigns,
In spite of it all the proud spirit remains
Of the people forever!

The peasant, the potter, the fisher, the blacksmith, the boatman, the weaver!
The soul is immortal in this immortal country of mine
And hence out of Death's deep mouth comes music adamantine.
Here on the margin of wandering streams
Gold-coloured harvest eternally gleams,—
Ripe through what myriad ages of dreams,—
While a fire of lust,
The red Earth burns, reducing all *Tanakasan* into dust!
Remember, O Comrade! when Freedom's shut door is opened apart,
A handful of cowardly ashes will seem the small strife in your heart!
For lo, our dear land through the long centuries
What marvellous cultures hath drained to the lees,
What sword-sharp ways it has trod, with what ease,
What dangerous tracks!
Today it is wielding in conscious resistance a fiery axe !
(From 'Us' published by Anti-Fascist Writers' and Artists' Association, Calcutta, 1943.)

It is not only Bengal which is stirred. Poets in Kashmir, in Pakistan, in distant London are all moved when they see a catastrophe like this and react variously. I am quoting again from poets who have written under a different stress, but I find their lines still inspiring and vibrating within my depths of feeling:

Master Zinda Kaul (*Kashmiri*): *The New Snow*

The snow, the snow, the purifying snow
As though a shroud were woven from the moon
To bury inequalities and drown
The hills and valleys, high and low
. . . The snow has fallen, beautiful and fresh
My candle in the dawn will now more glow.

Faiz Ahmad Faiz (*Urdu*) : "*Africa, Come Back*" (war-song).

The shattered manacle is my mace,
From the broken fetter I forge my shield
Spears burn like gazelles' eyes through the reeds,
With enemy blood nighty's shades turn red

Dom Moraes: *The Frontier* (*Sikkim-Tibet, 1959*)

History and winter re-enact a rite
Time will not ever speak to us, but flies
As message to our eyes, the first snow falls
The invaders walk under the eaves of night

(*Continued on page 44*)

VANASPATI

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G. D. BOAZ

Ways in Which Morale Can Be Raised

HIGHLIGHT OUR WAY OF LIFE



MORALE is a term which is so generally used that a pointed definition becomes difficult. It is used as a general, social concept and also as applied to specific areas of life like industry, social catastrophes and war. In industry it mainly refers to workers' satisfaction. In war situation it really means a high level of fighting spirit. As a general concept it is often defined as "individual well-being in social living". In this sense a high degree of morale will be characterised by the life of an individual if lived according to the best standards of wellbeing of a group, a nation or a society of nations. In this general sense morale is something which has to be learned and acquired by each individual. It is almost like a skill that has to be learned by people.

The wellbeing of our life is affected by a very large number of factors—biological, psychological and economic. The real determiners of morale, however, are the psychological aspects of these various factors. In this article we shall consider some aspects of morale during a specific situation like war.

During the Second World War psychology was greatly used on both the sides for the conduct of war. There were separate divisions like the Morale Services Division, the Psychological Warfare Division of Supreme Headquarters of the Allied Expeditionary Force, etc. As a result of the work of these units which contained top-ranking psychologists, sociologists and anthropologists, several factors which can help to maintain good civilian war morale have come to light. But it was also the experience of these units that the cultural environment of a particular society is so significant that these factors will take different forms among different peoples.

Much depends on how the objectives of the war are perceived, understood and accepted by the people. The objectives of the war should be clearly understood not only by the intelligentsia but also by the general mass of people. In this connection our own Indian way of thinking must be given clarity of content. Vague references to the Indian way of life will not be of much use. We must analyse this concept and make a short list of concrete ideals and behaviour patterns. The usual way of referring to our Indian way of life as 'spiritual' may be all right, but not sufficient. More flesh must be put into this idea.

It is perhaps easier in our country to mobilise people's opinion towards the objectives of this war since we are not engaged in a war of aggression and conquest. But mere agreement with the objective will not go a long way. There must be a determination to achieve the objective. This determination depends mainly on the development of a belief that the objective is attainable. Such a belief can be developed only if certain other contributing factors are ensured. Among these factors, faith in the fighting forces and confidence in their equipment will play a leading role.

Confidence in leaders like the Prime Minister, top officers of the defence services and the Government in general is another important factor in the maintenance of morale. The dissemination of correct news has also been found to be very important since this will in turn create faith and belief in the Government machinery. Lastly, it is important that people should have a feeling of participation in the total war effort.

HOW RUMOURS SPREAD

It is a fact that our country has not been engaged in any war for a long time now. Hence we have neither the experience nor the cultural orientations towards fighting and aggression. As a country we never had any secret ambition of fighting a war of conquest nor did we really have a serious suspicion that somebody would attack us in such a silly and idiotic manner. Our national pulse was not (and never has been) beating to the tune of war drums. This was reflected in our Government's so-called unpreparedness. With a vast population as ours and with the real and practical democracy that we have, different opinions of such a state of affairs become at once possible. But there is an implicit danger when the situation is viewed from such an angle and undue importance is given to the fact of not having sufficient guns. Belief in the strength to achieve the object can be greatly undermined in the present situation. In our country it is the greatest danger towards undermining the morale of our people. People should refrain from such unnecessary emphasis and exaggeration of the state of military unpreparedness at the time of the Chinese attack. In fact the extent of our unpreparedness if properly viewed could be turned into a powerful argument in support of our way of life which we want to maintain. Political leaders of different parties will be doing a great service to the country by not twisting the cultural implications of our being unprepared. This problem is also unfortunatley related to the faith in leaders which is absolutely necessary at a crisis like this. The working of demoracy should not be directed towards murdering democracy itself.

In a country like ours with a population which is not homogeneous in literacy or socio-economic standards, it is very easy for rumours to spread. Unhealthy and and undersirable rumours are sometimes spread because of personal and selfish interests. A few days back the writer of this article had a very distressing experience. One highly educated business man was lecturing to a friend sitting by his side on the inefficiency of our military weapons. He almost successfully made the point that all our guns would not even fire since the chemicals were of poor stuff. It slowly turned out that his uncle who has a big chemical factory somewhere in the north was not able to get a heavy Government order since his tender was not accepted. In other words, what he really meant was that our soldiers were defeated and killed because worthless chemicals were used and this happened because his uncle did not get the order. Of course I did what I could to stop his nonsense; but I was not sure how much damage he would have done by that time. This incident illustrates one possible source of rumours. Since it is a fact that our soldiers had to retreat, such rumours will be easily believed by anyone who is not very careful. People are gullible and suggestible. Most of us have not been trained in the art of critical appreciation of what we hear.

SEE THINGS AS THEY ARE

It is an axiom in psychology that we perceive things as we are and not as they are. The Indian population is a very mixed one with all sorts of prejudices and cross prejudices within its society. Hence the various facts connected with this war are bound to be perceived differently even by our own people. In our generation the one historic event which was responsible for the birth of the idea that even through these prejudices we are one people; was the appearance of Mahatma Gandhi. Perhaps the second event in this healthy process is this Chinese aggression. All psychological techniques should be used to harness the powers that have been released all over the country to further the growth of this idea of one people. Incidentally, it will help to build up a high morale even in a war situation. The emerging fact of oneness must be emphasised and emphasised repeatedly and consistently.

Rumours easily spread where the morale is low. When accurate news is not freely available, rumours get a chance. The press will have to be mobilised to give short, clear and definite accounts of the events that happened, and their consequences. Facts should be made different from opinions. Actually it is the element of fear associated with such situations that make people look for and accept rumours of all sorts. It is necessary that people are not allowed to develop vague fears. One of the psychological ways of dispelling a fear is to engage in rational activity directed towards the destruction of the source of the fear. This means that everyone should have an assigned task and they should perceive it as an important role in achieving the objectives of war. A feeling of participation in the nation's war effort must be inculcated in all the people. Fear is also dispelled when a certain amount of anger and indignation is roused in a particular context. It is not difficult to arouse the feeling of anger and indignation in our people. The goals, methods and tactics of the enemy are so unreasonable and so abominable that it is easy with the help of proper psycholoigical machinery to create, maintain and direct such negative emotions against the enemy. This should be consistently done.

Because of various reasons it seems true to say that we are not a disciplined nation for purposes like that of conducting a war. It is of prime importance that people must learn to follow their leaders. Accepting governmental decisions and obedience to their various calls will be necessary during periods of national stress to a degree that may perhaps be uncalled for during normal situations. It is such obedience and discipline that build the people together and indirectly inculcate a sense of security which is likely to be threatened otherwise. Accepting authority during such times of crisis should not be viewed as a negation of democracy.

INTEGRATION

(*Continued from page 24*)

But committees fit in with our growing sloppiness as a nation. It appals me how slipshod our research papers are. In the ancient days the sage who could save a *bindu* in a *sutra* was honoured. But scholars now don't seem to bother even if a few pages in their book are stitched upside down. Any respectable academic man in the West, when giving a public lecture, either reads from text or speaks from carefully prepared notes. But we are a fluent nation. We trust to the inspiration of the moment. We don't give important matters the consideration they deserve. We unthinkingly multiply our commitments.

This is even more true of our politicians. We see nowadays the sign Travel only when you must. How many ministers tell themselves that? The amount of time that politicians and officials spend in in ceremonials receiving and seeing off people, laying foundation stones, inaugurating meetings, is adding greatly to administrative costs When counting these costs we should remember the time spent by officials away from their duty. As the country's top elite the ministers must set a better example.

THE intellectual class in our country is neither big enough in size nor independent enough to handle the big problems that are coming up. We should have had two or three universities specialising in Chinese studies. We require a team of Sinologists who are scholars in their own right who could be called upon by government to interpret events. This sort of thing can't be done in a day. It takes years.

Why China alone? Important changes are taking place in Africa and South-East Asia. We need people with first-ate intellectual equipment and knowledge of the languages.

Some years ago England found it did not have enough people with knowledge of Oriental languages and culture. Through the Scarborough Scheme it began remedying this deficiency. First-rate scholars were chosen and five to six thousand pounds were spent on each of them. Within six or seven years they created a body of young scholars most of whom are today in universities producing new scholars. We should start on a similar plan, so that in ten years' time we shall have experts for each country. For the larger countries, we should need at least half a dozen.

Now, have I talked enough?

CALCUTTA'S GARDEN

You sit on a bench painted white and stare at the Hooghly. A bending branch shades you from the sun. To the left and to the right you see ships of many nations, flying flags of many colours, glide by. The little ripples of the water reflect back portions of the sky. And the strange stillness so near the great city is broken by deep hoots of the sirens of the sailing vessels.

Right, you are in the famous Botanical Garden of Sibpur, home of the great Banyan and of a variety of ferns and of orchids, a lovable place where nostalgia grows as trees do.

The 270-acre garden, established by the East India Company in 1786, is connected intimately with studies in natural history not only in India but the world over. "The great Indian herbarium", wrote Sir J. Hooker in his *Himalayan Journal*, "chiefly formed by the staff of the Botanical Garden under the direction of Dr Wallich and distributed in 1829 to the principal museums of Europe, was the most valuable contribution of the kind in science". In fact, tea, one of our principal foreign exchange earners, was cultivated in India after the research conducted in this garden. "The origin of the tea culture", observes Sir J. Hooker, "was almost entirely the work of the Superintendent of the gardens of Calcutta."

The Botanical Survey of India has taken over the management of the garden from the West Bengal Government. It has prepared an elaborate plan for making the garden a centre of research in various branches of systematic botany. But the garden has another aspect too. It occupies an important position in the life of Calcutta's people. Generations of school children and holidayers have gone there. The Great Banyan Tree, more than 1,200 feet in circumference, is still a big draw, although its central column, which was more than 88 feet high, was damaged by fungus and a cyclone in 1919.

"The splendid twigs take root and daughters grow
Around the mother-tree, pillar'd shade
High over-arched and echoing walks between".

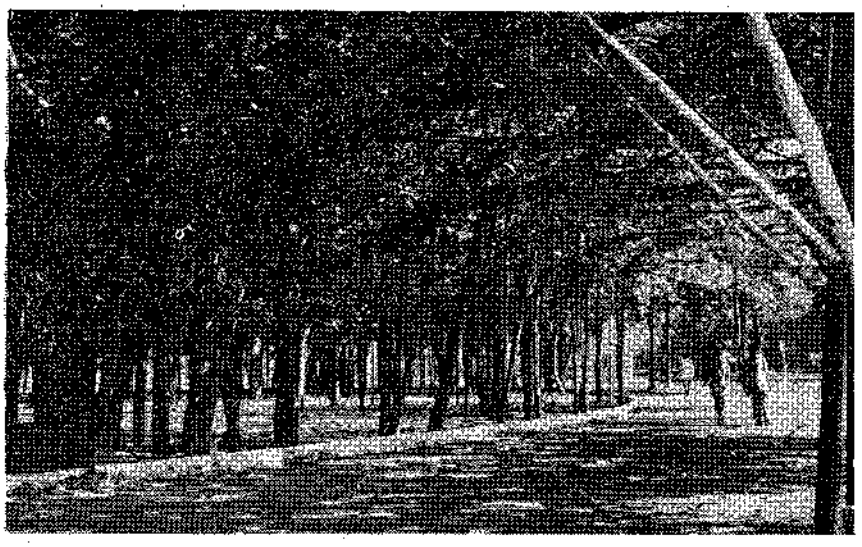
People's Gifts

Now and then the newspapers have a little paragraph from their *mofussil* correspondents on an 'enthusiastic send-off' given to some transferred officials. A district town may have reason 'enthusiastically' to send off a Collector or a Superintendent of Police, but partings are usually occasions of wrench and regret. And in the case of officials who sought to do the right as they—and their colleagues—saw it, such parting is a matter of genuine and mutual sorrow.

Human nature, our old tradition and British formalism have combined to elevate farewells into an elaborate ritual, of which garlands, speeches, group photographs, tea with numerous snacks and a mass movement to the railway station are all a part. A gift is also given, often a silver plate. All this is not only done but expected. A great southern savant was depressed for days that when he retired from his university after 30 years of work, the grim 'Quit India' crisis had deprived him of his due. To be fair to him he wasn't thinking of the silver, but of the lost opportunity of speaking the epilogue to his pupils and younger colleagues.

A few officials, however, seek gain rather than sentiment from such occasions. The Home Ministry has thought it fit recently to issue a circular which says: "While a farewell entertainment of a substantially private and informal character might be held in honour of officers on the eve of their retirement or transfer, and gifts of trifling value presented on such occasions, it is hardly healthy or desirable to allow the practice of accepting gifts from the staff."

The spirit should be: "The gift is small, the love is all."



THE BANYAN of Sibpur—botanical joint family!



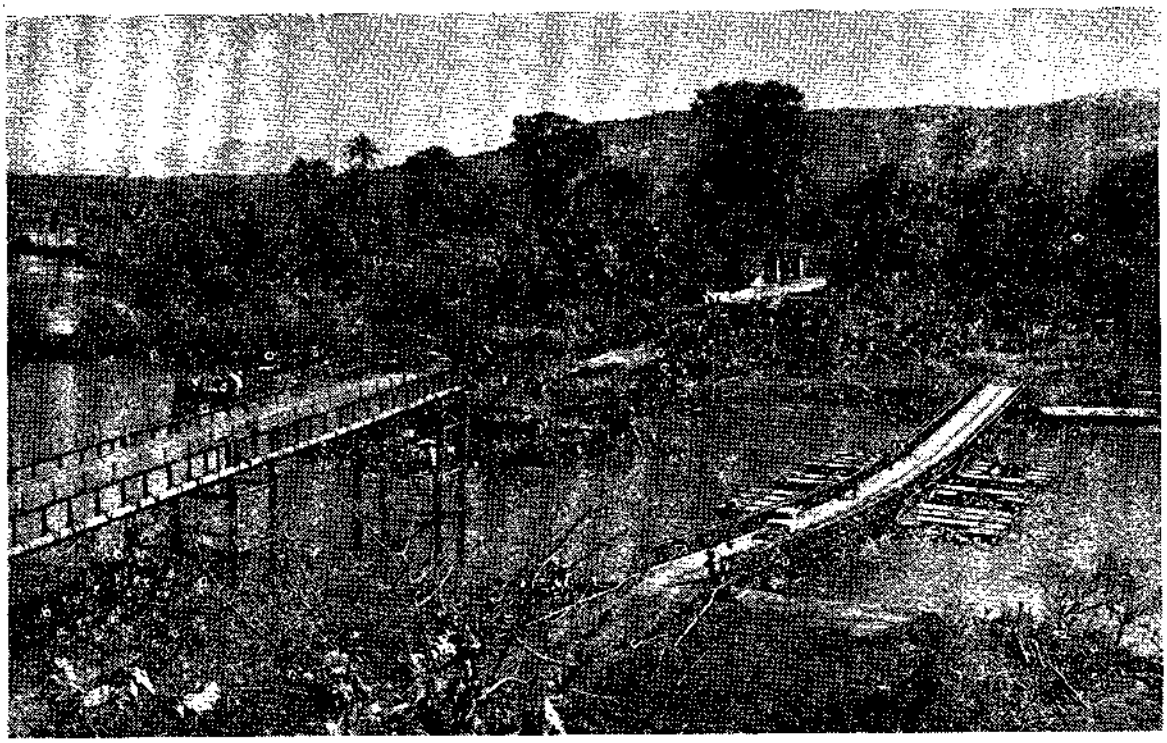
I G N O R A M A N
Wants to Know

If Freedom
isn't a better
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"Had a terrible time at the office, today. The Boss was after my blood."

"He must be wanting it for the Jawans!"

—From an Air-India advertisement



GOA

Brigh
Prospect
In Iro
Ore an
Agricultur

LUSH LAND—is Goa's asset No. 1. But agriculture had all along been neglected. Picture shows (left) bridge blown up by fleeing Portuguese and new temporary bridge built by new administration.

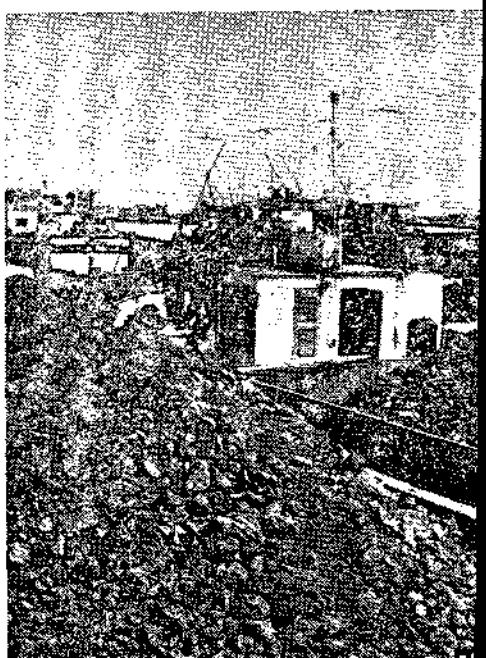
THE new Union Territory of Goa, Daman and Diu consists of three distinct land blocks on the Western coast, separated by a distance of about 300 miles from each other. Of all the three, Goa is the largest in area, most populous and rich in development potentialities. The other two are tiny colonies on the Gujarat coast and served primarily as smuggling bases before 1962. It is worth noting that during 1958-1960, Daman, with a population of 22,000, imported 1,89,732 watches, 10,000 fountain pens and Rs 11 lakh worth of silk goods. Total imports of Daman and Diu amounted to Rs 68.64 lakh in 1960 (combined population of the two colonies is only 36,000). Clearly, most of the imports were smuggled into the neighbouring territories of the Indian Union. The benefits of this lucrative trading activity went to a tiny segment of the business community. The masses remained poor and their conditions were miserable especially since the Indian blockade was imposed in 1955.

Before 1955, the Goan economy was closely linked with the Indian and even though there were differences in prices, the price structure was greatly influenced by the developments in the rest of the country. The embargo distorted price relations and the mining activity, which suddenly grew up thereafter, gave a further twist. All luxury goods were low-priced, while the necessities such as food grains and cloth were in short supply and costly (for which the main source was India). Prices of some traditional exports for which the primary market was India, such as coconuts, arecanuts, fish, salt and mangoes, fell, resulting in misery for the producers. But the boom in mining activity gave the needed helping hand to the agricultural labourers.

The importance of mining in the Goan economy can be gauged by the fact that in 1960 the minerals exports rose to 5.8 million tons (value Rs 16.23 crore) from 1.68 million tons (value Rs 5.25 crore) in 1955. Consequently, income-levels of the majority of the Goans rose. About 20,000 workers were engaged in mining in 1960 compared to 5,000 in 1950. If the labourers employed in transport and other related activities of mining are included, the total swells to about 35,000 workers or one-seventh of the labour force. Because of the multiplier effect, it would not be far from truth to say that the average Goan was economically happy between 1957-61.

Changed Perspective

WITH the reunion of the territory last year, a sense of uncertainty was generated in the minds of a section of the community about future prospects. Owing to restrictions on imports, the prices of luxury goods, which had become necessities in the past few years, have gone up. Mining activity has



nd its economic

FUTURE



slackened and employment has come down. And yet large sections of the population, especially farmers, mine-owners and industrialists, are optimistic about their economic well-being. Wider markets, feasbility of getting cheap power and easier access to technical know-how for improving production methods give hopes for stable development and a sustained rise in standards of living over a long period. It is now realised that the process of development need not come in fits and starts dependent on export markets, but reasonably controlled so that every section of the community benefits from it.

The problems that engage the minds of Goans now are; what would be the rate and pattern of development? What steps is Government taking to arrest a fall in standards of living? What would be the level of taxation? What is the future for the export-import trade?

The strategy for development would, therefore, have to aim at the minimum disturbance of the present standard of living, laying, at the same time, a sound foundation for agro-industrial development. The national emergency has put further constraints on the funds which would otherwise have been available. The plan of development naturally must give priorities to those projects and measures which would yield results quickly and would require low capital investments.

CHEERFUL PEOPLE—are another of Goa's assets. Song and dance are part of their way of life. This group took part in the Republic Day parade last year—first time Goa was participating.



MINERAL RICHES—Goa's gold is iron ore—deposits of which are found almost next door to the port.

Survey by an Economist

Agriculture, Animal Husbandry

THOUGH agriculture provides livelihood to about 60 per cent of the population, it has been the most neglected and hence the weakest link in the economy. Productivity per acre and per person is very low. The territory is deficit in food grains. Improved cultural practices are not known; use of manures and fertilisers is negligible; and the heavy incidence of pests and diseases damages about 50 per cent of the crops. Only about 6.7 per cent of the crop area get irrigation water. Silting of the tanks and rivers has resulted in the contraction of irrigated area. Of late, the heavy barge movements have breached the embankments along the riversides, thus inundating about 30,000 acres of fertile rice lands.

With small investments and a good extension service, it is possible to increase agricultural production tremendously. A crop protection campaign would step up the production by about 50 per cent in a season or two. Popularisation of improved cultural practices and improved implements, such as the iron plough, seed-drill, rotary weeder and padler thresher, would bring grains in the per acre as well as per labourer output to the extent of 30 to 40 per cent. Most of these are indigenously manufactured and do not cost much.

Organisational changes in the technique and methods of production are also needed. There is good scope for joint farming. As is well known, there are 226 communes in Goa which own compact blocks of rice-lands varying from 50 to 1,500 acres. Tenancy rights on these lands are auctioned every six years. Earlier, tenants used to take a block of about 50 to 100 acres and cultivate it jointly. This system, known as 'bouco', was discontinued in 1956 or thereabout by the Portuguese Administration. By appropriate institutional changes, now that the Indian co-operative legislation has

been extended to Goa, joint co-operative farming societies can be formed to cultivate these lands. As about two-fifths of the area under rice is owned by the communes, these societies, if properly developed, would become powerful instruments in changing the agricultural set-up.

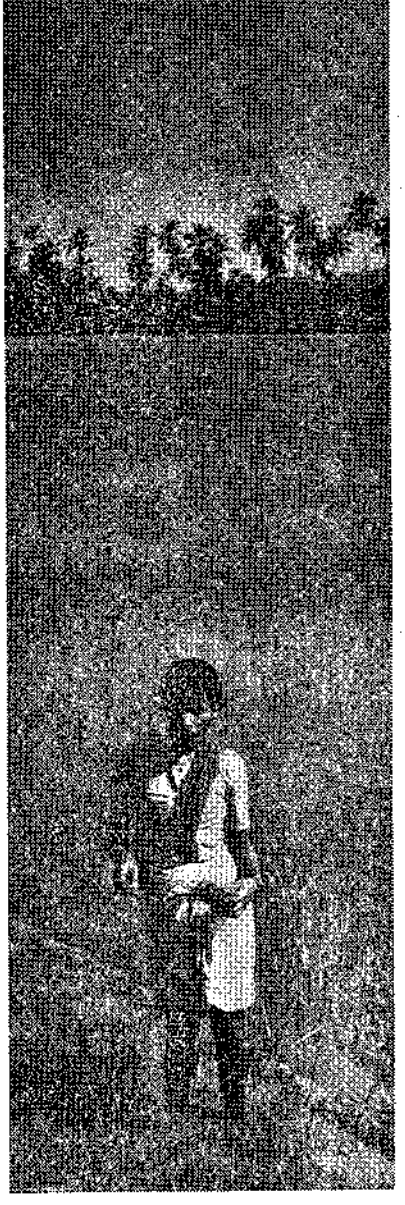
The rest of the agricultural holidngs are privately owned. Barring a few cases in north Goa, individual holdings are of small size, ranging from half an acre to 100 acres. Personal cultivation (cultivation by the landholder himself) is less evident. The data collected by the Portuguese Agricultural Mission which visited Goa in 1955 show that about 80 per cent of the agricultural lands are rented. The Mission noted the unsatisfactory tenancy relations and suggested changes in the tenancy laws. The present administration has appointed a one-man committee for suggesting land reforms in the territory.

The livestock wealth of Goa is in a poor state. Repeated outbreaks of contagious diseases like foot-and-mouth disease, anthrax, black quarter and Ranikhet, have rendered the animals weak and emaciated. Cattle population has also gone down owing to indiscriminate slaughter of animals for providing meat to Portuguese military personnel. Milk production is negligible. It is reported that about 75 per cent of the milk supplies are in the form of imported powdered and condensed milk. Eggs too are in short supply. The average laying capacity of the local hens is only 60 eggs per year compared to 180 to 200 eggs of exotic breeds. The Portuguese Administration had installed two large size electric incubators with an annual hatching capacity of about 120,000 eggs. It is necessary to use these capacities fully for improving the poultry.

Adequate veterinary and marketing facilities are the urgent need for livestock development. Climatic and topographical conditions are quite favourable and a determined effort would raise the farmers' incomes by more than three times the present level.

Fisheries and Forests

GOA, with a coast 62 miles long, indented with creeks and estuaries and innumerable ponds in the interior, has rich fishing grounds.



FARM GIRL in rice field

As the fishing vessels and techniques are primitive, not much catch is realised. Owing to price control imposed by Portuguese Government in the last three years, fisheries got a further setback. The Portuguese Administration introduced mechanised trawlers to improve the catch. But owing to bureaucratic methods of operation and the light-hearted attitude of the Portuguese personnel who manned these trawlers, the catch per vessel was exceedingly low (about 320 tons per vessel per year). A fishmeal plant was also established which was idle for most part of the year.

Though details of the fish resources on the coast and in adjoining deep seas are not available, the experience of the neighbouring States suggests that there are potentialities of getting good catch of mackerels, seer-fish, sardines, prawns and tuna fish. Canned prawns and tuna fish are now exported from Goa. Absence of organised deep-sea fishing has inhibited the growth of exports. Better utilisation of existing equipment and supply of fishery requisites such as nylon nets, hooks and lines would help to improve the catch, thereby raising the standard of living of fishermen.

About 29 per cent of the surface area (406 square miles) in Goa is under forests. The forest cover is wantonly exploited and overcut and, in not a few cases, rocks have been exposed. The ruinous practice of shifting cultivation is widespread and has affected about 100 square miles of forest area.

There are two types of forests in Goa: the wet evergreen and the moist deciduous. The former does not contain high quality timber and due to inaccessibility may not be worth exploiting. The latter has valuable teak and an understory of evergreen species. At present, there are stray teak plantations which have not been properly maintained. An afforestation drive with emphasis on teak, eucalyptus and cashew plantations should bring good returns. These are the species well suited to the soil and climatic conditions of Goa. By following agri-silvicultural methods, shifting cultivation would be brought under control. If forestry resources are properly developed, it is possible to get an annual income of about Rs 1.5 crore as against the current revenue of Rs 3 lakh.

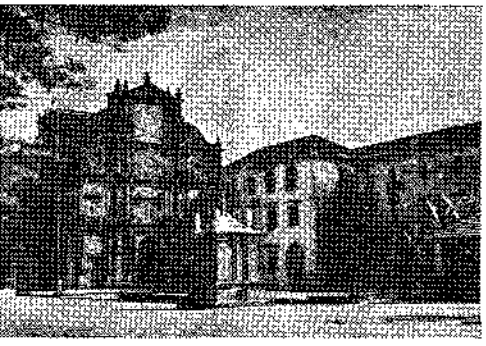
Mines and Industries

THE economy of Goa centres on mining activity. There are about 600 mining concessions, of which 300 are effective. On the basis of investigations made by private parties, the reserves are estimated around 700 million tons of iron ore. These can sustain the economy for 70 to 80 years. Till now the fluctuations in the international market for ore governed the fate of this industry. In 1961, about 6 million tons of iron ore were exported. Through long-term contracts, a reasonable stability can be maintained. However, the Government policy should be clearly defined so as to leave no doubts in the minds of the mine-owners. Looking to the trends in the world iron

and steel industry, Goa can hope to stabilise its exports over the next ten to fifteen years around 7 million tons.

Proposals have been made to the Central Government for establishing a pig iron plant and an integrated steel plant in Goa. Even though Goa has no coal resources, it can be easily imported. The declared policy to import metallurgical coal should favour Goa as a good location. If these schemes materialise, there would be an additional demand for about 3 million tons of iron ore.

THE industrial structure of Goa is very weak. The only industries worth the name are rice milling, oil extraction, cashew processing, tiles, matches and ice manufacture. There are a few handlooms and soap factories. The gross value of industrial production in 1960 was only about Rs 58 lakh. Lack of cheap power, limited market opportunities, absence of banking facilities and technical know-how are responsible for the industrial backwardness. These inhibiting influences would be removed in course of time. But in the short period, the inflow of goods from the rest of the country may



FAMOUS St. Xavier's Church

retard the rate of industrial growth, unless suitable measures are taken.

After liberation, many industrial units, especially printing presses and tiles and soap factories have been suffering from competition from units located elsewhere in the country. It might be necessary to help them to withstand this competition. In the long run, Goa can hope to have a good industrial base centred on its agriculture, forestry and fisheries products. Non-resource based industries would also spring up as the regional income gets jacked up. The excellent port of Marmugoa, the ore export industry and cheap power would make Goa a good location for general engineering workshops.

Power Resources

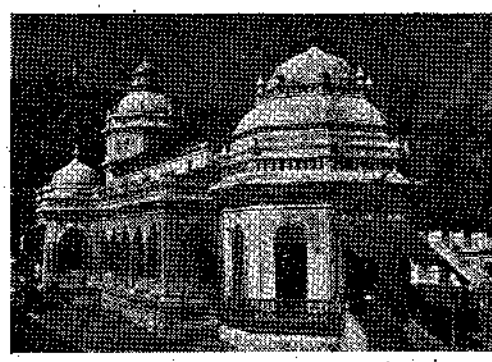
GOA has neither coal nor oil resources. The present electricity installations with a capacity of 8,000 kW. are diesel-based. Consequently, the unit price is very high—about Re. 0.50. The only hydro-electric project that can be developed is at Dudhasagar, but this too has a potential of only 8,000 kW. at 100 per cent load factor.

The power problem of Goa will have to be considered as a part of that of the western region as a whole. Fortunately, the Maharashtra Government's offer of 3,000 kW. by 1963 from the Radhanagari hydro-electric station and Mysore Government's readiness to spare 89,000 kW. from the Sharavati project have solved the problem at least for the next decade. The industrial development in Goa, as envisaged now, would require a total load of about 60,000 to 80,000 kW. The immediate future should be utilised for investigation and preparation of new schemes.

Transport System

TRANSPORT relations in Goa are reasonably good. It has an excellent harbour, a metre-gauge rail line connected with the Southern Railway and a road network connecting important towns and also the district places outside Goa.

However, the existing facilities are badly in need of repair. The port area has to be dredged and efficient loading and unloading facilities provided. The rail line has to be strengthened to cope with the increase in traffic. The road system has to be metalled. In a few cases, roads have to be widened. As the territory is criss-crossed by numerous rivers, bridges are necessary at the river points. The Portuguese Administration has damaged six bridges. They have to be repaired, and new bridges have to be built at Chapora, Betim and Cortalim to enable the West Coast Highway to go through Goa. All these works aimed at improving the transport system are



THE MANGESH Temple

estimated to cost Rs 33 crore, out of which port development alone may cost about Rs 14 crore.

This brief review of resources and potentialities shows that Goa is well situated in relation to its future economic development. The people are industrious and intelligent. If the Government policies are well designed, Goa would be a humming industrial and commercial centre on the West Coast next only to Bombay in a decade or so.

SNIPPETS

The Indian Investment Centre has assisted 25 entrepreneurs to set up industries in collaboration with foreign firms—10 from U.S.A., 4 from Japan, 3 from France, 2 each from Canada, the U.K. and West Germany and one each from Belgium and Switzerland... A supplementary agreement for financial and technical collaboration between Czechoslovakia and India in setting up a Central Machine Tools Institute at Bangalore was signed in New Delhi on December 28..... Licences have been granted for setting up seven spinning mills in Madras State, each with 12,000 spindles and some of them co-operative ones... The Hindustan Insecticides, New Delhi, produced 2,712 metric tons of formulated DDT as against 1,825 tons the previous year. In December, 298 metric tons of formulated DDT were produced, 74 metric tons more than the target for the month and the highest in any month so far. The total production of formulated DDT in 1962 by the factory was 2,712 metric tons as against 1,825 metric tons during 1961.

Technology Holds the Key

(Continued from page 21)

tation. Such specialist laboratories are best established on a co-operative basis by industrial units working in a given field. There are several such institutions already, as for example, the Textile Industry Research Association of Ahmedabad, the Jute Mills Association Laboratory right here in Calcutta or the Tocklai Research Centre of the Indian Tea Association. The contributions of co-operative research may be illustrated by reference to the example of Tocklai whose work has helped to increase the yield of tea from 567 kg per hectare in 1938 to over 957 kg today. The Tocklai Institute has also been responsible for a remarkably successful innovation in tea-manufacturing equipment which has enabled one machine to replace five of the older variety. The Jute Mills Laboratory is working out ways of extending the usefulness of jute goods so that this major Indian industry is assured of an expanding world market even though its role as a packaging material progressively diminishes with the change-over to bulk handling and paper bags. The importance of this research is obvious not only for the many lakhs employed in growing jute or in the mills but also for the country's foreign exchange earnings. Another laboratory concerned with raw jute has successfully pioneered the use of jute sticks, a waste material, for paper manufacture that provides substantial benefits to the paper industry as well as the jute-grower.

BASIC RESEARCH—THE DRIVING FORCE

We shall, as time goes on, undoubtedly need more such research if our industries are to keep pace with the country's growing needs. There are also the special requirements of defence to consider. In countries like Britain and the U.S.A., military research accounts for 90 per cent of all expenditure on scientific research. While I do not think that India's circumstances require diversion of research effort to defence on this scale, I feel that the discipline of working to a set task within a given time-span may do some good by stimulating effort and quickening the tempo of activity in our laboratories. But applied research, whether undertaken in specialist industries or the national laboratories, cannot be sustained without the stimulus and the driving force of basic research. There can never be any question of ruling out the latter because of an excessive preoccupation with the former.

In conclusion, I should like to enter a plea here for the planning of scientific research in longer time-spans than the five-year period into which we have endeavoured to fit it, as scientific activity inevitably takes a long time to bear results. We have before us Japan's example which adopted a ten-year plan for the country's scientific development in 1960. The plan concerns itself with creating a favourable environment for fruitful work and defines also the broad social and economic needs which research should keep in view. It avoids, however, defining too closely the specific objectives of research to allow science the environment of freedom in which it best flourishes. Japan is spending $ 80 million a year today on royalties and other payments for use of foreign technology. This total, the planners concede, may go up as Japan endeavours to keep her industries abreast of the best in the world, but at the same time it will increase her own expenditure on research five fold by 1971 so that some of her industries may gain an edge over world competition. The plan provides a model which we need to keep in view in determining our own long-term strategy.

Research and experimentation cannot flourish in a tradition-ridden society, because willingness to change and accept the risks of innovation runs counter to traditional values. In this sense, therefore, the utilisation of research is bound up with the inculcation of a scientific spirit in the nation as a whole. The Prime Minister called, not so long ago, for creating among the Indian people a temper of science to pull people out of the rut of sluggish habit. In creating this temper of science, the educated strata of society, particularly the youth, have a very important role to play. They have to make themselves responsible for disseminating the scientific spirit by becoming its true votaries themselves. By spreading the word and by setting a personal example, they can create a climate within the country in which purposeful scientific research can flourish. This is the contribution that the present generation of youth has to make for completing the country's modernisation and for giving this ancient land a new face.

—Convocation address at Jadavpur University, December 29, 1962.

POETRY OF COURAGE

(Continued from page 35)

Leading their mules, their slanted foreign eyes
following a star above our waterfalls.....
Would you make mountains tremble? make them fear?
Hunter, go carefully; they will let fall
Rocks on your head, your burial will be deep.

I would like to close this article by quoting two lines from V. K. Gokak's 'Song of Life' and a few lines from Subramanya Bharati's 'To Lokamanya Tilak' and 'Bharat Our Land'.

Gokak:

We will fling open the gates and march and beat the gong
And wake the world from torpor, take what was ours for long
(From 'The Harijan' to his American brother.)

Bharati

May the peal of freedom
Ring on all sides
And hell-like slavery
Decline and die.
May truth-beguiling darkness
Scatter away:
May fear in its endless forms
ever cease to be.....
The mighty Himavant is ours
There is not equal anywhere on earth!

I consider that the great national sin is the neglect of the masses, and that is one of the causes of our downfall. No amount of politics would be of any avail until the masses in India are once more well educated, well fed and well cared for.

SWAMI VIVEKANANDA

He Galvanised Our Thought and Action

G. P. SINGH



SWAMI Vivekananda was born on January 12, 1863, in a Kayastha family of Calcutta. His father was a distinguished Attorney-at-Law and mother an exceptionally intelligent and accomplished lady. The parents of Narendra Nath Datta (that was the Swami's earlier name) left an indelible mark on his life and personality.

Beginning his schooling at the age of six under a private tutor, Narendra Nath passed his B.A. examination from the Scottish Church College, Calcutta, in 1884. He joined the B.L. course but did not complete it. At college, Narendra Nath was distinguished for his brilliant intellect embracing with equal zest the sciences, astronomy, mathematics, philosophy and a number of Indian and Western languages. He was also a great lover of poetry and music.

Contacts with Ramakrishna

Hardly had Narendra Nath left college when his father suddenly died of heart failure in 1884. This placed the entire family of about six or seven in a desperate condition, for he was now its only earning member.

Narendra Nath first came in contact with Shri Ramakrishna Paramahamsa in 1881. At the very first meeting Shri Ramakrishna is said to have recognised that Narendra Nath was the one who was to carry his message to the world. The first five years that Narandra Nath spent with his Master constituted a period of great spiritual turmoil. He went through a series of intellectual crises increasing in intensity until religious certainty finally put an end to them and his personality became fixed. Three or four days before his death (August 15, 1886), the Paramahamsa is said to have transferred all his powers to Narendra Nath and declared him as his heir.

Having thus taken up the spiritual heritage of Shri Ramakrishna, Narendra Nath spent two years at the Baranagore Math and then started on an extensive tour of India in 1888. With his great love for the life of a wandering monk he was able to include in his itinerary almost all the important places of India from Calcutta to Dwaraka and from the Himalayas to Kanyakumari.

The Parliament of Religions held at Chicago in September 1893 provided Swami Vivekananda (this name was assumed just before his departure for America) with his first opportunity to take the message of his Master beyond the borders of India. The difficulties with which he was able to get admission to the Parliament, the applause and appreciation that his opening and concluding addresses received, the grand welcome that he was accorded throughout his lecture tour of America and the tremendous impression he created in that country are well known. "He is undoubtedly the greatest figure in the Parliament of Religions. After hearing him we feel how foolish it is to send missionaries to this learned nation" was one of the many typical comments made after witnessing the performances of the Swami at the Parliament of Religions. On his way to India the Swami also visited England and a number of other European countries.

The Return and After

The news of Swami Vivekananda's success in the West had created an outburst of joy and national pride in his own country. He received unprecedented ovation on landing at Colombo on January 15, 1897. On may 1, 1897 he founded the Ramakrishana Mission, an order dedicated to the service of the masses. Some two years later the Swami paid a second visit to America in order to inspect some of the isntitutions he had founded in that country. While returning to India he again visited England. France, Austria, the Balkans, Greece and Egypt.

The two years that were still left of the Swami's eventful career were mostly spent at the Belur Math among his brother sanyasis. Sixteen years of vigorous campaigning and intermittent tours had shattered his health and the Swami attained his eternal samadhi on July 4, 1902.

Swami Vivekananda occupies a distinguished place among contemporary Indian philosophers. His

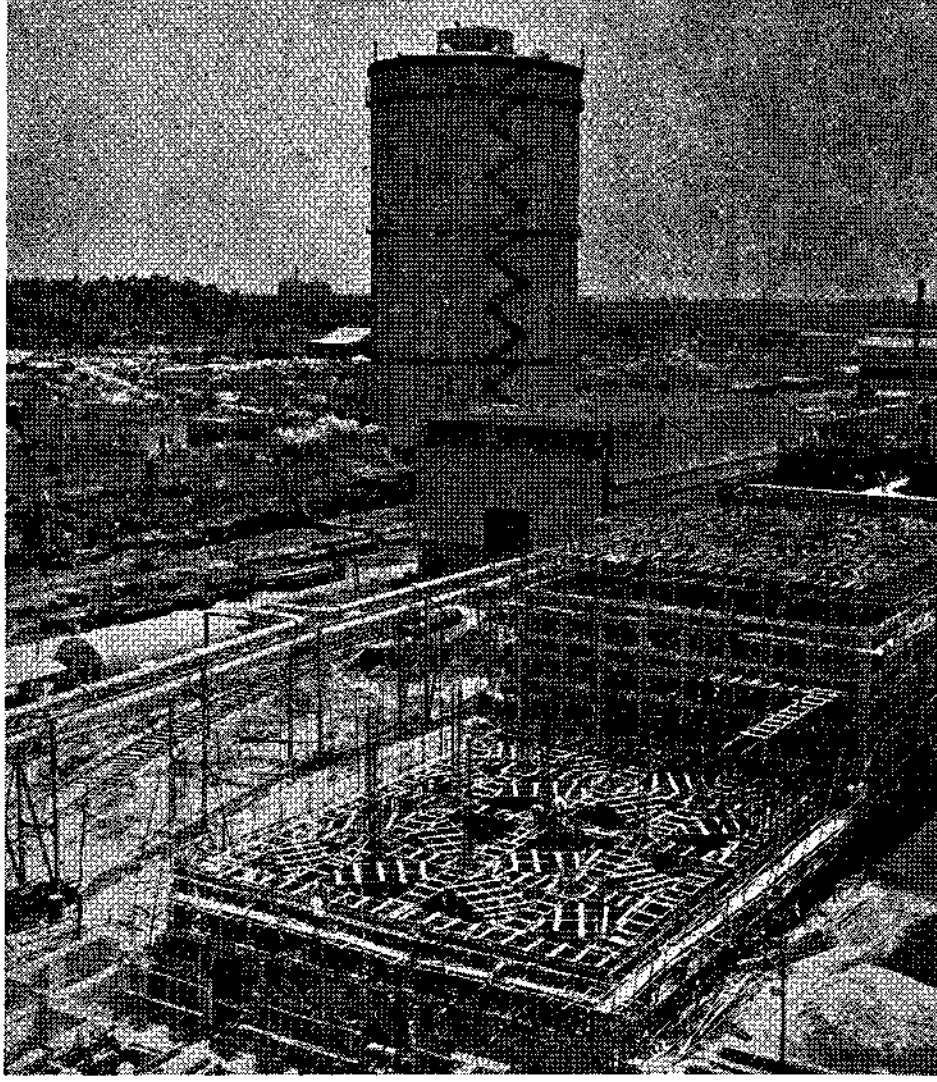
(*Continued on page 51*)

NATION'S



STRENGTH

Projects of Power



THE DURGAPUR COKE OVEN THERMAL STATION is being expanded. Cooling Tower dominates scene

POWER development has priority for defence production. At its recent meeting the National Development Council stressed the need for early completion of such projects as were well advanced. A special implementation cell has since been created to watch the progress of the power projects. The project authorities as well as the States have been asked to give priority to such irrigation and power schemes as are likely to be completed in the near future. The progress made by some importout projects is given here.

Subscribers—Have you renewed your annual subscription of Yojana?

Meeting Durgapur's Energy Hunger

Location — Durgapur, Burdwan District, West Bengal. *Type*—Thermal. *Main Components*—Additional two units (66/67 mW each) at the Durgapur Coke Oven Thermal Power Station together with transmission lines. *Estimated Cost*—Rs 11.27 crore.

Progress—Boiler drums for one unit have been erected and the water wall is being raised. Water treatment equipment, heaters, converters, drain tanks have been placed on their foundations. Installation of machinery in the power-house and the cooling tower is in progress. The first 66/77 mW unit is expected to be commissioned by September this year and the other after two months. As regards the second extension of another unit (66/77 mW) preliminary work has been completed. It is expected to be commissioned by the middle of 1965.

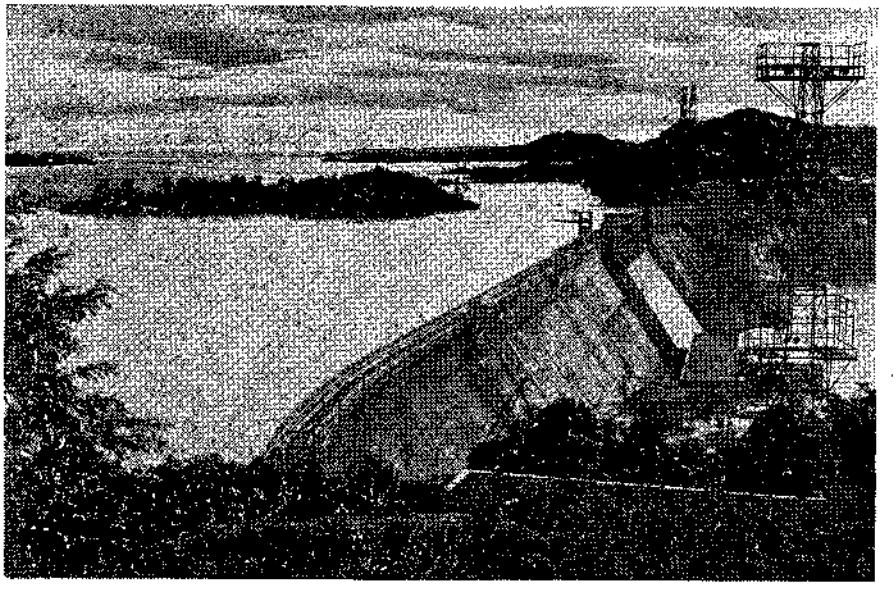
WORK STARTS ON BHAKRA'S RIGHT BANK POWER-HOUSE

Location—Right bank of Bhakra Dam, Hosiarpur District, Punjab, *Type*—Hydro-electric. *Main Components*—Power-house with 5 units of 120 mW each. *Estimated cost* Rs 35.35 crore.

Progress—The work has begun. The power-house will be built with

Soviet collaboration and will have 5 units of 120 mW each. Excavation for the foundation has been completed and the concreting of the substructure has begun. It is expected to be completed by 1965.

With the completion of the Bhakra Dam on October 30, 1962, and the full commissioning of the left bank power-house, the first phase of the project may be said to have been over. The left-bank power-house has 5 units of 90 mW each. The first unit was commissioned in 1960 and the last on December 10, 1962. Its installed capacity including the power generated at Ganguwal and Kotla has now reached 604 mW. Besides generating power the waters of the Bhakra reservoir, till August 1962, irrigated 21.30 lakh acres of land.



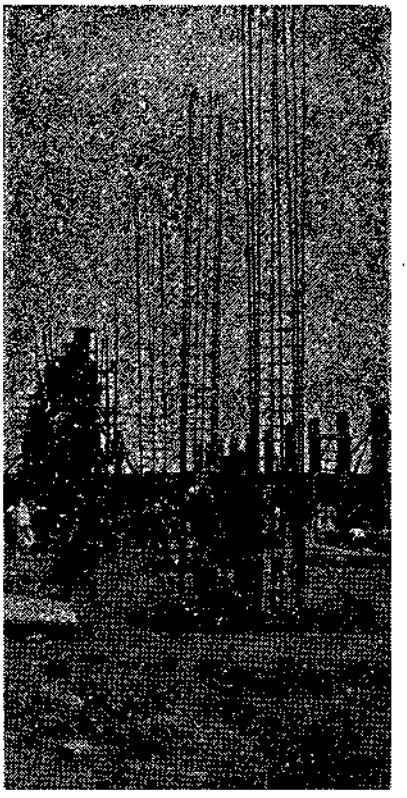
HIGH DAM and huge reservoir. Rihand serves the Aryavarta

Rihand : Benefits Start Flowing

Location: Near Pipri village in Mirzapur District of Uttar Pradesh. *Components:* (1) A concrete gravity dam, 271 feet high above the river bed. Length, 33,254 feet. (2) Reservoir capacity (largest in India) 8.6 million acre feet. Waterspread 180 square miles. *Cost:* Rs 46 crore. *Benefits:* (1) Power—five generating units of 50 mW each, with provision for another to serve Uttar Pradesh and Madhya Pradesh. (2) Irrigation—20 lakh acres in Uttar Pradesh and Bihar.

Progress: The dam was dedicated on January 7, ahead of schedule. The main beneficiaries will be the backward eastern districts of Uttar Pradesh. Electricity generated at the power-house will be consumed by the cement factory of Churk, the aluminium factory at Renukoot, soda ash factory and the integral coach factory at Varanasi. The proposed electric train service between Moghal Sarai and Patna will get power from the Rihand. The industrial belt in Bihar and West Bengal will also enjoy benefits.

The Rihand power-house was commissioned in April 1962. Rihand will also be a tourist spot. A plan has been made to beautify the dam site on the lines of the Brindavan Gardens, Mysore, at a cost of Rs 15 lakh.

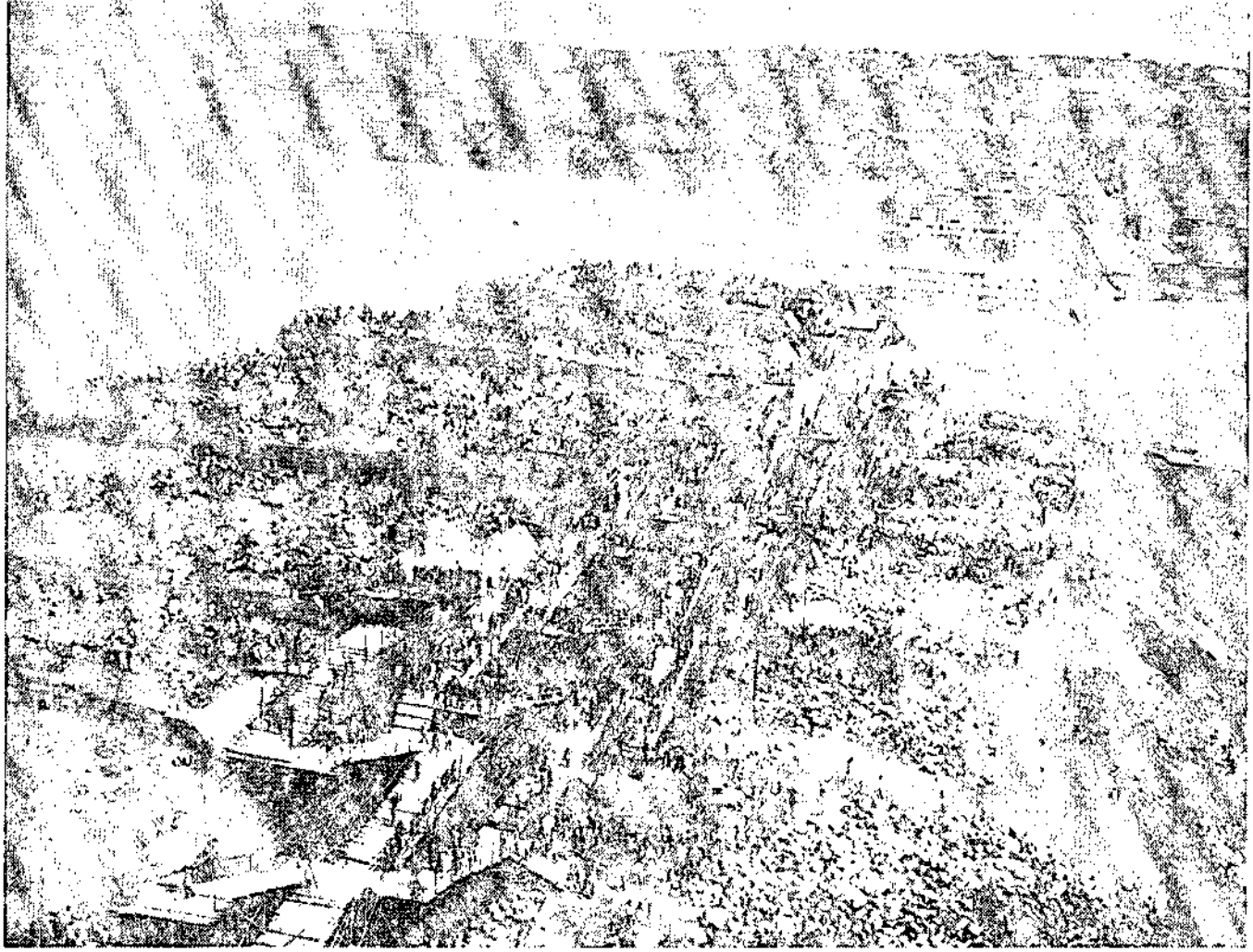


BHILAI STEEL Plant is expanding, and to meet the increase in demand for power, Korba power-house is also being expanded
(note on page 49)

Koyna : Two More Units Ready

Location—Deshmukhwadi in North Satara District of Maharashtra. *Components*: Stage I—(1) Dam at Deshmukhwadi in North Satara district. (2) Reservoir (capacity 36,000 million cubic feet). (3) Underground power-house (4 units of 60 mW each). Stage II—Raising of the dam and four units of 75 mW each and transmission lines. Stage III—Another power-house at the foot of the dam (40 mW). *Benefits*—Power and irrigation for Maharashtra.

Progress—Work on the project began in 1954. In order to meet the growing demand for power the first two stages have been taken up simultaneously. The water from the reservoir is being diverted through the conduit system to the west for generation of power in the underground power-house where four units of 60 mW each (Stage I) and four units of 75 mW each (Stage II) are being installed. The first unit was commissioned on May 16, 1962 and the second after four months. The remaining two units are expected to be commissioned soon. As regards the second stage, contracts have been finalised and the first unit is expected to be commissioned in 1965 and the remaining three by 1966. The expenditure incurred till October 1962—Rs 33.89 crore.

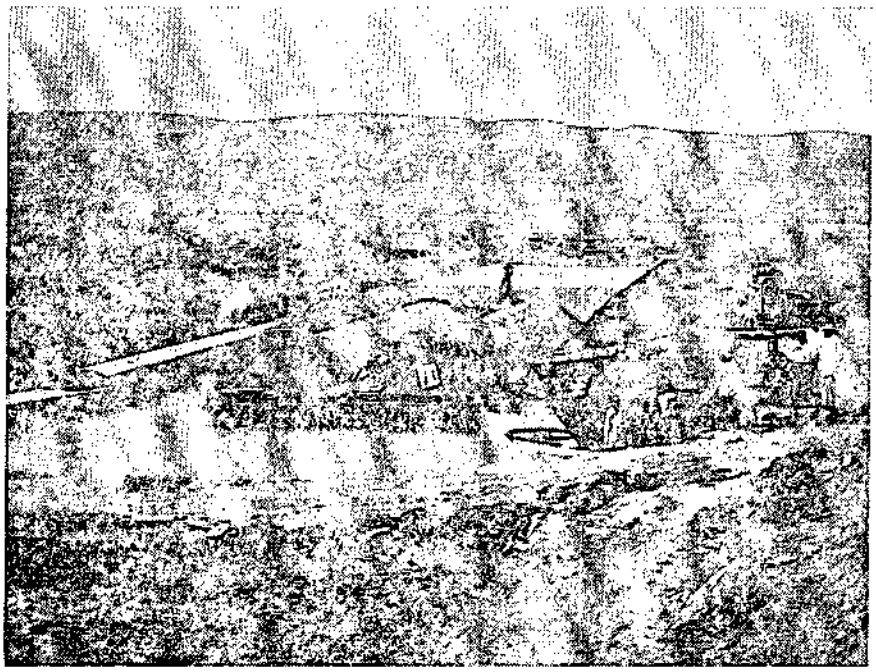


WHERE SCHOLARS once meditated, builders are busy today on a great project. The dam is half risen.

MORE THAN HALF OF NAGARJUNA-SAGAR COMPLETED

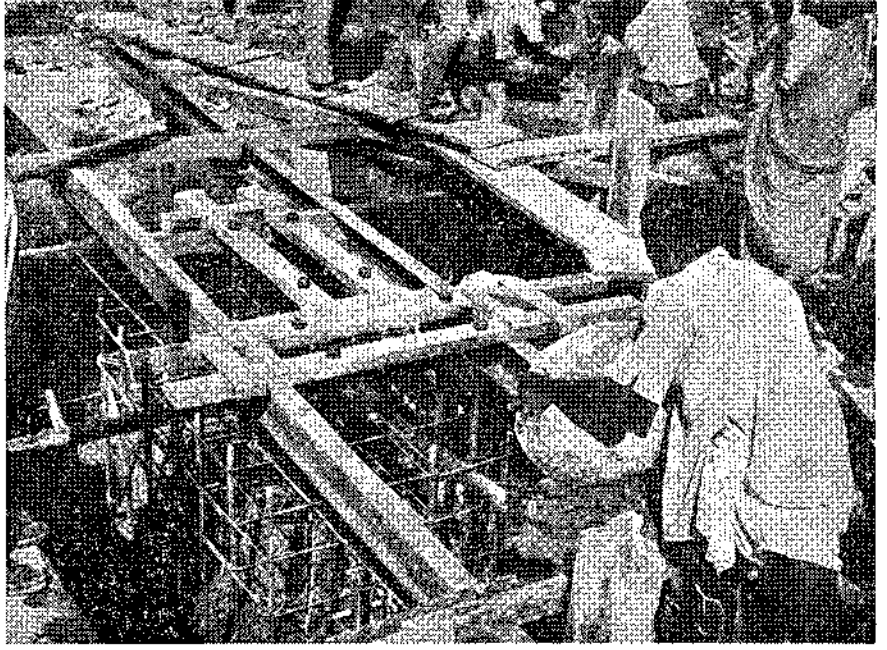
Location: Nandikonda village in Nalgonda District of Andhra Pradesh. *Main Components:* (1) 302-foot high masonry dam. (2) Reservoir (capacity 5.44 million acre feet). (3) Power station on the left bank of the dam with two units of 50 mW each with provision for six more. (4) 135-mile long canal on the right bank. (5) 108-mile long canal on the left bank. (6) Distribution channels. *Benefits:* Power 100 mW and irrigation of 22 lakh acres of land in the districts of Guntur, Kurnool, Nellore, Nalgonda, Khammam and Krishna. Estimated cost Rs. 139.53 crore.

Progress: Work began on December



TUNNEL of the Right Bank Canal: Slab work in progress

10, 1955. The dam has reached a height of more than 150 feet in the blocks in the flank portions and 60 feet in the spillway blocks. As regards the main canals, the excavation is in progress in the first 50 miles of the right bank canal and 72 miles in the left bank canal. A 100-foot high dam on the right canals has been completed. The work of branches and distributories is also going on. The excavation of the tunnel has been completed on the left bank canal. The work for branches has been taken up. In short, by November 1962, 48 per cent of the total masonry work for the dam had been completed. As regards the power-house, orders for the penstocks have been placed with Hindustan Steel. The total expenditure incurred on the project till November 1962 was Rs 55.67 crore.



THE BANDEL SCHEME: Foundation is ready

Delhi's New Thermal Station Ready Soon

Location—Delhi. *Type*—Thermal. *Main Components* — Power-house with two boilers (capacity 180,000 lb per hour each), one turbo-alternator set (36 mW capacity). *Estimated Cost*—Rs 4.04 crore.

Progress—Erection of structural steel is nearly complete and one of the steam generating units is almost ready. Half the work for the second unit has been completed and that relating to various auxiliaries of the boilers, cooling tower is in progress. The station is expected to be completed by the middle of the current year.

New Power-House for Calcutta

Location—Bandel, 25 miles from Calcutta. *Type*—Thermal. *Components*-Powerhouse—installed capacity 300 mW (4 turbo-alternator sets of 75 mW each). *Estimated Cost* — Rs 29.9 crore.

Progress—Part of the machinery for the plant has been received. The foundation mat for the two turbo-generator sets has been laid and the building of roads, offices and the stores is in progress. All the 4 units of the thermal station are expected to be commissioned by the end of 1964.

SATPURA

Location—Pathakeda coalfields in Betul District, Madhya Pradesh. *Type*—Thermal. *Main components* —Power-house with 5 units each of 50/60 mW. It will meet the power requirements of Madhya Pradesh and Rajasthan.

Progress—The road from the railway station to the site has been nearly completed and temporary quarters for the staff have also been built. According to the schedule the first unit is expected to be commissioned by March 1965.

Korba Will Feed Bhilai With More Power

Location — Korba, Birsinghpur District, Madhya Pradesh. *Type*—Thermal. *Main Components*—Power-house with 6 boilers, 3 turbo alternators, 3 power transformers and transmission lines. *Installed capacity*—90 mW (3 units of 30 mW each). *Estimated Cost*—Rs 20.78 crore. It will meet the power requirements of Bhilai Steel plant, the collieries at Jharandalli and other industries.

Progress—Work began in June 1957. The Korba-Bhilai transmission line was commissioned in January 1959 and the first, second and the third turbo-alternators were commissioned in February 1959, July 1959 and March 1960 respectively. All the three generating units have also been functioning since 1960.

The work on the Korba Thermal Station Extension has been taken up. The scheme provides for an installed capacity of 200 mW (4 units of 50 mW each) with Soviet collaboration. Levelling of the site, building of roads and staff quarters is progressing. Equipment for the first unit has been received at the site. It is expected to be commissioned in 1964.

* * *

SABARIGIRI

Location — Central Travancore, about 70 miles from Chenganoor Railway Scheme. *Type* — Hydro-electric. *Main Components*—(1) Two dams, one across the Pampa, the other across the Kakki. (2) Reservoir (capacity 17,000 million cubic feet) interconnected with tunnels. (3) Power-house: 6 units (50 mW each). *Estimated Cost*—Rs 24.91 crore.

Progress—Orders for the supply of power-house equipment have been placed. Masonry work on the Pampa dam is in progress and about 70 per cent of the length of the interconnected tunnels have been driven. The project is expected to be completed by the end of the Third Plan.

Beas—A Brother to Bhakra

A joint venture of the Gonverments of Punjab and Rajasthan.

Main Components: (1) Beas-Sutlej Link at Pandoh, Punjab. (2) Beas Dam at Pong (H.P.). *Benefits*—Power—857 mW including additional 466 mW at Bhakra. Irrigation—8 lakh acres of land in Punjab and 3 million acres land in Rajasthan. *The Beas-Sutlej Link*—It will divert the Beas waters into the Sutlej through a system of tunnels and an open channel. The diverted waters will help in extending power generation at Bhakra and in irrigating arid areas in south-west Punjab. The components are three tunnels, one channel, one dam and one power-house with an installed capacity of 636 mW. *The Beas Dam at Pong*—It will be an earth and gravel dam rising 350 feet above the river-bed. It will have a storage capacity of 6.55 million acre feet. A power plant with an installed capacity of 240 mW will be built at the foot of the dam. Besides, five diversion channels are also to be built for irrigating the desert areas of Rajasthan.

Progress—The project report has been accepted by the Central Water and Power Commission as well as the Planning Commission though not yet formally sanctioned. Meanwhile part of the land required for the Beas-Sutlej Link Project has been acquired and the preliminary work regarding the colonies to be set up at Pandoh, Sundernagar and Telwana is in progress. Two major bridges are also under construction. As regards the Beas Dam, exploratory drilling is going on. About 3,000 acres of land have been acquired for roads and other works and the building of houses in Telwana is in progress. A number of quarters for workmen have been built and the roads for the township are under construction. Four thermal sets have been installed at Sansarpur with a total capacity of 2,500 kW to meet immediate requirement of power. A phased programme for rehabilitating 51,253 persons displaced from 194 villages has also been prepared. The expenditure on the project during 1961-62 was Rs 36.51 lakh (Beas-Sutlej Link) and Rs 3.4 crore (Beas Dam). The outlay proposed in 1962-63 is Rs 2.84 crore for the former and Rs 6.06 crore for latter. The project is expected to be completed in ten years' time.

CHANDRAPURA-DVC's NEW ONE

Location—Chandrapura in Damodar Valley. *Type*—Thermal. *Main Components*—Power-house with three units of 125/140 mW each. *Estimated Cost*—Rs 29.92 crore.

Progress—Nearly 50 per cent work has been completed. Of the three units of 125/140 mW each the first is expected to be commissioned in October 1964 and the remaining two in early 1965 and 1966. The power-house is under construction and part of the structural steel construction for erection of the main boiler is complete. General levelling of the coalyard and switchyard including excavation of drainage channel is going on. Tenders for power transformer are being examined. Some quarters for the staff are also being built.

ANOTHER SOURCE FOR ORISSA

Location—Talcher, Orissa. *Type*—Thermal. *Main Components*—Power-house with 4 units of 50/60 mW each together with boilers and ancillary equipment. *Estimated Cost*—Rs 24.61 crore.

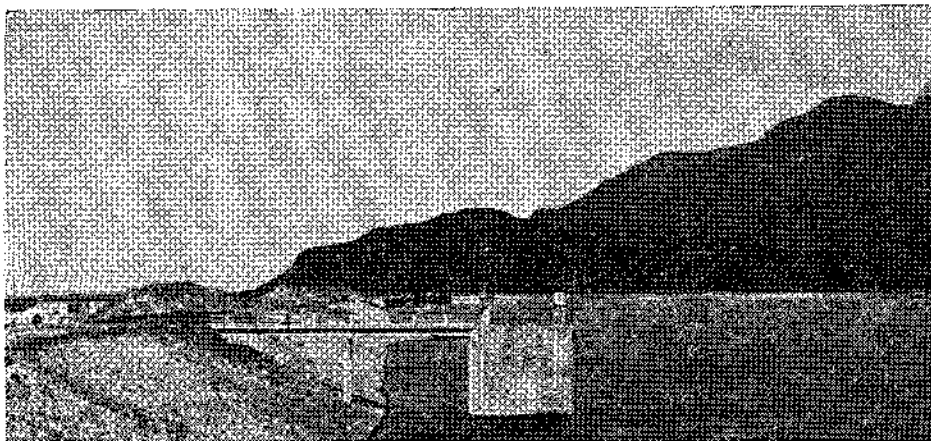
Progress—Land for the power-house and the colony has been acquired. Orders for the turbo-alternators have been placed and the tenders received for the power plant, structural steel and boilers are being examined. As regards the generator transformers, transformers for the Jajpur Road sub-station and circuit breakers, orders have been placed with Heavy Electricals, Bhopal. For transmission lines a survey has been made of about 160 miles. Staff quarters are also being built.

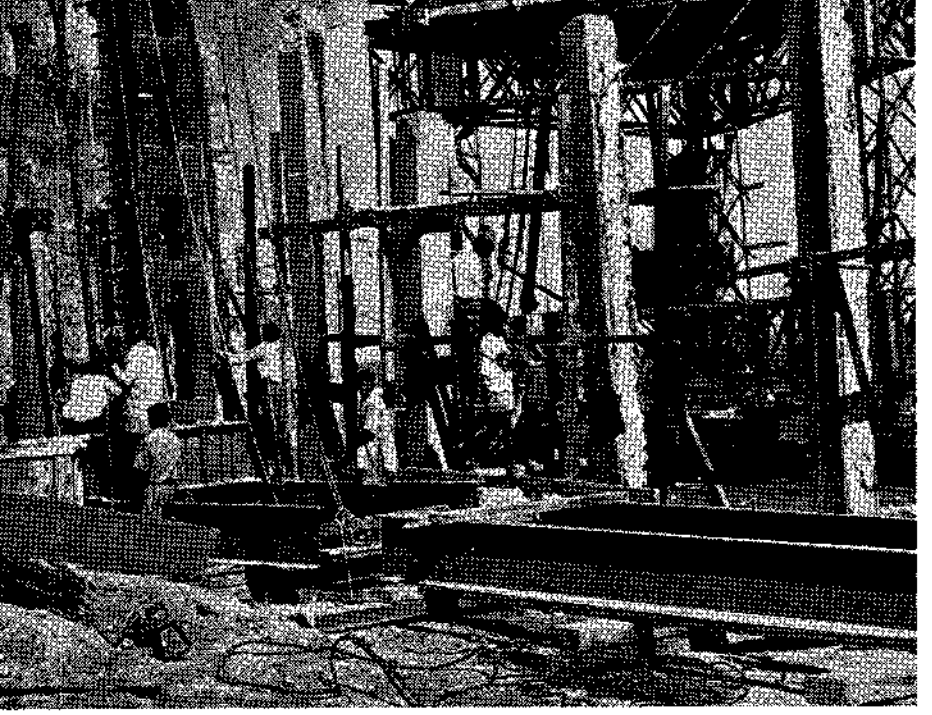
ALIYAR DAM COMPLETED

Location—Coimbatore District, Madras. *Main Components*— (1) Dams, (2) Reservoirs, (3) Canals, (4) Five power-houses. *Benefits*—Power—180 mW. Irrigation of 2.40 acres of land in Coimbatore District. *Estimated Cost*—Rs 9.29 crore.

Progress—As regards Aliyar Dam the work has been completed except erection of the crest gates over the spillways which is in progress. The reservoir, which was thrown open on October 2, 1962, is now irrigating 7,500 acres in Pollachi *taluka*. Masonry work for Parambikulam and Sholiyar dams is in progress and the work in connection with the surplus regulator and river sluice of the Tirumurthy dam is nearing completion. Construction of the tunnels and canals is also in progress.

THE DAM: only crest gates remain to be erected





DHUVARAN POWER-HOUSE under construction

PROJECT FOR GUJARAT

Location—Dhuvaran near the Gulf of Cambay, Gujarat. *Type*—Thermal. *Main Components*—Steam generating station, outdoor sub-station and transmission lines. *Installed Capacity*—240 mW. *Estimated Cost*—Rs 22.24 crore. The project is intended to meet the growing industrial needs of Gujarat.

Progress—Necessary equipment for the transmission lines has been received at the site. Nearly 40 per cent of the towers have been erected and the stringing has begun. The transmission lines are expected to be completed by June this year. As regards the power-house, 500 acres of land have been acquired and roads have been built. Bore-wells have been dug and pipelines laid for bringing water to the site. The building of power-house is in progress and about 850 tons of steel structure erected. So far as equipment is concerned, about 11,000 tons of material has arrived at site according to contract given to a U.S. firm. Except some types of transformers and synchronous condensers other major equipment will be supplied by Heavy Electricals, Bhopal.

IDIKKI

Location—Kottayam and Ernakulam districts of Kerala. *Type*—Hydro-electric. *Main Components*—(1) Two dams, one across the Periyar, the other across the Cheruthoni (2) Reservoir (capacity 60,000 million cubic feet). (3) Power house—5 units (100 mW each). *Estimated cost* — Rs 49.6 crore.

Progress—The project report has been submitted and is awaiting the approval of the Planning Commission. Meanwhile preliminary work such as building of approach roads, power supply lines, etc. is in progress.

HOW MUCH POWER DO WE NEED ?

Two Committees To Tell

Two Committees—the Electrical Survey Committee and the Energy Survey Committee—have been appointed to survey the country's requirements of electrical power and energy. The Energy Survey Committee will assess the demand for power and provide Government with basic material for the next eight years and the other will consider development of hydro-electric, thermal and atomic power resources, outline plans for regional and all-India grids, local facilities, investments and imports. Foreign experts from U.S., U.K., Belgium and France are among the common members of both Committees. In addition, Indian experts in the respective fields have been appointed as members in each Committee.

SECOND ATOMIC POWER STATION

The second atomic power plant to be set up at Pratapsagar in Rajasthan is expected to completed by the end of 1968. It will have a capacity of 500 mW and will be connected with thewestern and northern power grids.

SWAMI VIVEKANANDA

(From page 45)

approach to the fundamental issues of life has an important bearing on the problems of today. According to him the ideal of Vedanta lived by the recluse outside the pale of society can be practised even from hearth and home and applied to all our schemes of life. That he actually lived the life he preached to others adds to the effectiveness of his doctrines. His 'world-view' continues even today to have an undeniable influence as a practical guide to life—individual as well as collective, national as well as transcendental.

SOME SAYINGS

"None can resist her (India) any more; never is she going to sleep any more; no outward powers can hold her back any more; for the infinite giant is rising to her feet."

"Religion is realisation; not talk, nor doctrine, nor theories, however beautiful they may be. It is being and becoming, not hearing or acknowledging; it is the whole soul becoming changed into what it believes".

"To be in harmony with nature means stagnation, death. How did man build this house? By being in harmony with nature? No. By fighting against nature. It is the constant struggle against nature that constitutes human progress, not conformity with it."

"You think that, because you talk a little more polished language, you are superior to the man in the street. And above all, if the pride of spirituality enters into you, woe unto you. It is the most awful bondage that ever existed".

N. R. MALKANI

Time We Did Something about Our SMELLY TOWNS AND VILLAGES

NEARLY three years ago, the Union Ministry of Health constituted a committee "to make assessment of the requirements of water-supply and sanitation, both urban and rural, and to suggest ways and means of financing these programmes effectively." Smt. L. Simon, Minister for Local Administration, Madras, was the chairman. The Committee's report on national water supply and sanitation was submitted on September 30, 1961, and was considered by the Central Council of Ministers for Local Self-Government at its annual meeting held at Calcutta from November 1 to 3, 1962.

It is generally recognised that the adequate supply of safe drinking water should have the first place among "minimum amenities" that our national Plan must provide. According to the Committee's report there are 2,282 towns in India with a popultion of more than 5,000 each. But only 245 towns have "adequate" water supply; 427 towns have inadequate supply and 1,056 have no piped water supply whatsoever. In terms of population, 26.3 per cent of the population is served inadequately and 39.9 per cent is not served by any system of piped water supply.

The progress of rural water supply is shown under four schemes run by four different Ministries. The survey of rural requirements is based on incomplete and doubtful data but, according to the Planning Commission, the estimate of the total work-load at the end of the Second Plan period to provide minimum drinking water supply to all rural villages was roughly Rs 200 crore. But the actual provision in the Third Plan is only Rs 67 crore. It would appear that it will take two or three more Five Year Plans to supply this "minimum amenity" to all rural areas.

In this article I intend to discuss mainly the problem of "sanitation" as presented by the report on national water supply and sanitation. It appears to me that the Committee imposed on itself two very serious limitations. Its assessment of the problem and estimates of expenditure is mainly of water supply and not of sanitation. In rural areas the problem of sanitation, which means

Water Schemes Favoured at Cost of Sanitation

the sanitary and scientific disposal of all human wastes, remains as serious as before and the "national water supply and sanitation scheme" is really intended for the "nation" minus the rural areas.

It is well known that 80 per cent of the population lives in rural areas. We also know that in the cycle of nature what is taken out of the soil must be returned to the soil, so as to enrich and replenish its fertility. But in India these "organic wastes" are allowed to become filth that breeds disease and robs the soil of its riches. Owing to our traditional habits and, worse still, owing to our criminal negligence our agricultural production has been allowed to deteriorate from generation to generation.

Secondly, by "national sanitation" we really mean only underground drainage of sullage water and removal of rubbish. The scheme does not include surface drainage of sullage water. The report states that "sewers had been laid only in 35 cities and towns, but even so, there were unsewered areas within those cities and areas". I visited Bihar recently and found that only Patna has an underground sewage system, which, however, covers only one-third of the city. The remaining 75 towns have no such system. Madhya Pradesh has partial sewerage in Indore and Gwalior only; Madras has sewerage in Madras city which covers two-thirds of the population and Madurai and Coimbatore have but partial sewerage systems. And so on for all the other States. The "national" scheme for sanitation really covers only 35 cities out of 2,282 cities and towns. Even these are "partial" projects and State funds under this scheme are mostly spent on improvements and extensions of the incomplete projects. As the population of cities goes on increasing rapidly, a provision that is adequate today is found to prove inadequate after five years and so the race between need and funds for meeting the need is always an unequal one.

But there is another and a graver problem that is now assuming dangerous proportions. The population has become water conscious and insists on adequate supply of clean drinking water. More and more funds are demanded for piped water supply. But people, and specially those of municipalities, have not become sanitation or drainage-conscious. Very few new schemes of drainage are taken up for execution and most of the funds are spent away on improvements and extensions of old schemes in big cities. A handful of cities swallow 95 per cent of the funds for water supply and leave hardly 5 per cent for drainage.

The Inquiry Committee on Scavenging Conditions recommended

that "a specific amount must be earmarked for the underground drainage schemes separately and at least one-third of the total allocations of the national water supply and drainage schemes should be earmarked for drainage schemes". The Third Plan accordingly earmarked a "specific amount" which is only one-fifth of the total allocation under this scheme. But I have found that this is a paper allocation and the hunger of municipalities for water supply remains insatiable as ever. For the last several years the Central Council of Ministers of Local Self-Government and the Central Council of Health Ministers have passed resolutions showing the danger of neglecting drainage, specially in areas infected by filariasis and the irony of improving one amenity and simultaneously increasing another disamenity. The Central Council of Local Self-Government which met at Calcutta two and a half months ago resolved that "there should not be separate schemes for water-supply but schemes for water supply and drainage should be formulated and executed as one unit . . ." In spite of the unanimous and persistent opinion of Ministers of Health and experts the neglect of sanitation continues. The reason is that funds allocated for this scheme are so meagre that water supply projects swallow up all and ask for more. Secondly, in my opinion, we in urban India have not yet become sanitation-conscious. We prefer roads, lights and water to sanitation. Very few bother about or are even aware of the fact that our towns stink and reek with filth. It is time that sanitation ranks as one of the problems of national emergency.

State Subsidy

But the financial aspect of the problem has to be touched in a realistic way. Underground sewerage schemes are fairly expensive, more so if costly plant is installed for treatment of sullage water. Water supply schemes are equally expensive, if not more—but these are believed to pay for themselves by means of the water tax. It is accepted that the supply of water is a service which should be run by Water Boards, as electricity is supplied by Electricity Boards, so as to leave a neat profit. The water tax is generally 10 per cent of the rental value of house property, while the latrine (sanitation) tax is only 7½ per cent of the rental value. In fact the latrine tax should be higher than the water tax, considering the growing deficits arising out of sanitation services. In any case they should be equal to and not lower than the water rate. As it is, even the water rate does not pay for the services. The national water supply scheme is based on the advance of loans by the Central Health Ministry, to be returned with interest in due course. In fact, as the report of the National Water Supply and Sanitation Committee states: "The Central assistance was in the shape of a total loan to State Governments who distributed the amount to the local bodies as loan and partly as a grant-in-aid. The pattern of such State subsidy varied from one-third to two-thirds of the cost of the schemes.

Inadequate Water Tax

The State water supply schemes are not self-supporting but are heavily subsidised by State Governments and the water tax is inadequate for the return of the loan. Year after year Ministers and their experts pass resolutions and insist on grant of Central subsidies for drainage schemes, appointing sub-committees to persuade the Planning Commission to sanction grants, without which drainage schemes cannot be undertaken by municipalities, most of them with poor resources and with heavy annual deficits. I am of opinion that the State Governments should be stopped from sanctioning grants for water supply out of funds advanced only as loans. To the extent they sanction grants for water supply these must be out of their own and local resources. It is a diversion and misuse of funds to convert Central loans into State grants. On the other hand I suggest that at least 50 per cent grants should be sanctioned for underground drainage schemes—25 per cent paid by the Centre and 25 per cent by the State. Without some such financial arrangement the execution of water supply and drainage schemes as a unit will be but a joke at the cost of national health.

But this leaves the problem of surface drainage, which prevails in almost all the cities and towns, completely untouched. With regard to rural areas there is no scheme of surface drainage as such but haphazard attempts at *kucha* drains out of residual funds at the disposal of Development Blocks, without site plans, estimates and technical advice. All the sullage water in villages is collected in pools and ditches all round, to breed flies and mosquitoes and to brew that smell peculiar to our villages. In urban areas, as we know, 68.2 per cent of our population is not served by sewerage system and 11·2 per cent is served but inadequately. And yet there is no national or State scheme for surface drainage of these vast areas. I have visited about 35 municipalities during the last six months, with the Advisory Committee on Scavenging Conditions as its chairman. Our invariable experience was that one-third to two-thirds of surface drainage was *kucha*, with no plans and estimates of a phased programme for total *pucca* drainage.

I have generally found that water supply is improving—fairly rapidly in larger cities—while drainage schemes remain in the survey or estimate stage. In places where the annual rainfall is over 40 inches the problem assumes a serious form. In Bihar, where there are almost annual floods, the storm water flow makes the problem of drainage particularly acute. I found the industrial town of Katihar swimming in the midst of pools of water and Muzaffarpur thoroughly water-soaked. At the highest levels there is a surreptitious struggle going on between underground and surface drainage. There is some expert opinion in favour of underground drainage in *all* towns as against surface drainage. It believes that surface drainage plus storm water channels cost anything from 60 per cent to 80 per cent of the costs of underground drainage. In smaller towns of population between 5,000 to one lakh the relative costs will be nearly the same. This view has yet to be accepted by Health Engineering Departments before it becomes operative. The large number of smaller towns have mainly *kucha* drains, carrying sullage, night soil, storm water, flood water and even rubbish to no one knows where. We are fabricating Master Plans for Monster Cities bursting with crowded populations and shouting for more water and drainage and other amenities. The more they get the less is left for the whole country. And yet we are astounded at the break-neck rate of our urbanisation with all its evils.

THEN and NOW

Some Reflections on the Economic Experience during the War of 1939-45

M. K. RAMAMURTHI

The industrial base today is far stronger, the world-force more aware of its responsibility, and the acceptance of austerity is derived from a sense of community.

THE present emergency which demands the enforcement of regulations touching economic life at many points has made many remember that appeals for austerity are by no means new, that the suspension of forward business in many markets has a precedent, and the stimulation of specific enterprises is part of what may be called the war effort, without disregard for the work of the peace makers in Delhi and elsewhere.

The radical distinction between 1939 and 1962 is in the political structure and aims of the Government. That 1947 changed men and minds is borne home by the way in which the Indian Parliament endorsed war preparations. Not the Viceroy under instructions from Whitehall, but the people's own representatives reacted to the new danger from outside.

In the steps taken to collect private gold hoards, to issue gold bonds and to introduce 14 carat jewellery may be detected a great difference between 1939 and the present. But what has been attempted or done resembles the measures adopted in the past. Invention is rare in politics and the experience of the past still governs the policy-makers' attitude. Of course, there are great changes in regard to money matters. In 1939-40 the note issue was Rs 208.86 crore only and the Scheduled Banks' deposits totalled Rs 245.57 crore of which advances by banks amounted to 53.3 per cent.

In the transition from peace to war in 1939 new official agencies made their bow. They were the War Resources Board, the War Transport Board, the Department of Supply and the Council of Industrial and Scientific Research followed later by the expanded Executive Council. To the economic historian, the pattern of events and orders in 1962 presents a strong resemblance to that of 1939. Whether a recovery in the cotton mill industry reported in the Reserve Bank report for 1939-40 will take place in 1962-63 is debatable, but the fall in imports during the war anticipated the latest developments there. In spite of a rise in exports in 1939-40 the surplus was thin and a fall in bullion imports was the major result of a change in foreign trade. A higher excise on petrol and sugar was not the only tax measure introduced.

The advent of an Excess Profits Tax at 50 per cent marked the Government's resolve to mop up surplus income. But one point merits notice. No import control was set up in 1939-40 and India's trade with the U.K. and the British Empire proceeded on familiar lines. There was no foreign exchange problem and silver and gold prices did not go up as expected. The demand for sterling tapered off and initially there was no general rise in prices, in spite of increased spending by Government on defence. The 1940 Budget put the bill for Defence at Rs 53.52 crore and the deficit of Rs 7.16 crore was covered duly by taxation. Money rates were low and a new loan at 3 per cent was issued early at Rs 98 for Rs 5.72 crore because the Bank rate was 3 per cent. Further, the public debt stood at Rs 730 crore only and the fall in gilt-edged security prices proved only temporary.

There is really a difference between the conditions of 1939-40 and today, for India has been forced to raise interest rates as much to curb inflation as to stimulate savings at home. The vicissitudes of 1940-41 were due mainly to the fall of the Third French Republic. The country's trade and income shrank, and the hoarding of silver coin was a symptom of political anxiety after the end of the phoney war. What marked out 1940 was the spate of war orders for factories and the continuance of easy money conditions. The fluctuation in wholesale prices was limited, the general disequilibrium due to war being merely incidental. A fall in grain imports influenced a rise in the favourable balance of trade traced to larger exports of cotton.

The major change was brought about by the loss of many European markets. Today growing trade with Eastern Europe is a compensating factor for end of trade with China. The strain placed on industry in India was reflected through the fall in imports. The rise in railway traffic was a direct result of the new effort to make India arm for victory, to use a catch phrase of yesterday. A ban placed on the import and export of gold created a speculative demand for it, raising the price to Rs 42.25 per tola. Silver prices also rose but more significant was a rise in public debt. New loans for Rs 53.35 crore in 1940-41 were made easy by abundance in the money market indicated also by the Treasury Bill rate going below one per cent.

It was only in 1940 that export control made its bow and India began to conserve dollars received for jute, mica and other export commodities. In December 1940 private dollar assets were taken over, largely because the U.K. had

extended financial controls. The nationalisation of some railways was achieved easily by the growing surplus of sterling which enabled India to replace debt in London by rupee counterparts. A significant result of the war was the sharp rise in trade with the U.S.A. especially under imports. A bigger budgetary deficit enforced higher taxes and the Defence bill put at Rs 72.02 crore compelled the introduction of an excise duty on tyres along with enhanced levies on matches and rayon. If some relief was secured by the agreement with Great Britain to share war expenditure, there was no doubt as to the economy then being on a war footing.

Costs and Credit

The fall in cotton prices after a brief spurt was a problem for exporters. A price control conference had to consider only measures to increase output. Financial strain was accentuated by the war with Japan, which suddenly reduced old established trade with places like Singapore and Hong Kong. The flow of supply orders was stimulated by the Eastern Group Council which brought Australia into direct relations with India. The Colombo Plan had its precursor in 1940-41. An increase in raw material imports and a rise in exports of manufactured goods pointed to the altered position. Financial control ended strawdle operations in raw cotton. More significant was the expansion of textile exports by India owing to the sudden displacement of Japan as a major supplier to the Middle East. The rise in currency and credit led to a rise in bullion prices also. But more important was the extension of exchange control introduced first in March 1940 and a ban on the remittance of profits by big foreign firms. The deepening of inflation was heralded by the issue of one-rupee notes in 1940-41 owing to the shortage of silver coins.

A reduction of the external debt to £ 130 million was a welcome feature of the financial operations attested by a strong rise in India's sterling assets. The rise in bank deposits in India followed a temporary break caused by the entry of Japan into the war. The 'concentration' of imports by a division into essential and non-essential was parallel to the control over wheat as also iron and steel from July 1941. But a rise in food prices was inescapable owing to inflation. Price control over sugar, rationing and the efforts to keep cloth prices down by the manufacture of standard cloth were derived from textile control imposed in June 1943.

Symptoms of strain were provided by the control of capital issues and a curb on Stock Exchange transactions also. In the cotton market speculation was bridled and prices stabilised. But the cost of living continued to rise and an attempt was made to prevent hoarding and profiteering by means of Ordinance. The dislocation of trade due to priority for war supplies in the railways had a bearing on prices and trade movements. The plan to effect saving on exchange led to control over 68 items, though coal came within the scope of control only in 1944. The creation of Boards to handle export of tea and coffee and conserve rubber at home was inspired by confidence in the official machinery that demonstrated its faith in rationing. Though one cannot overlook the rise of black markets, the fall in business morality, and the rise in official misconduct during the war it must be said that the Defence of India Act then helped the Government to provide supplies, utilise installed capacity in expansion of enterprises and to create local substitutes for imports, for instance, under chemicals like dichromates. The rise of war babies among Indian industries was attested by the grant of tariff protection after, though not during, the war.

Gains from Plan

To compare the complete mobilisation ordered against Japan in 1942 with the efforts made in November, 1962, under the proclamation by the President, can be a distortion of both facts and trends. For a decade of planning has made both aims and objects clear. India's industrial structure has been altered greatly by the creation of a public sector in coal, steel and oil too. The tighter import controls are largely a result of industrial growth. And protection for the consumer through co-operation goes far beyond the maintenance of grain shops during the war mainly to preserve industrial peace. The commitments to the Third Plan explain much of what has been done in regard to woollen textiles. Far more significant is the public support offered for controls, meant to conserve essential supplies, hold prices and prevent hoarding.

In regard to food, what happened in 1942 owing mainly to the absence of rice import from Burma, can hardly recur, for India has a call on the U.S. surplus of grain and the agricultural problem has to be viewed only in terms of a rising standard of living. This also merits emphasis here because the rise in wages invariably follows the rise in prices and the public regulation of wages and elimination of disputes goes far beyond what was attempted during the last World War. There is, of course, anxiety over power shortage, the transport difficulties and the failure of new enterprises to put their plans through on time. The improvisation of civil defence in a hurry is not being now undertaken and that is far more significant of national resolution and resilience than what obtained in 1942-43.

The Reserve Bank's report for 1944-45 speaks of the better food position, helping price control, and the growth of confidence in the success of Allied arms. A rise in cloth supply to 4,800 million yards per annum called for mention but the valiant effort to increase consumer goods by imports, mainly because control of prices and distribution had not the intended effect, suggests only that history will not repeat itself in 1963. A reaction in bullion prices which rose in 1943-44 marked 1944-45 mainly because official sales of gold and silver after April 1944 absorbed surplus cash and depressed prices for the time being.

It was then possible because of the steady rise in sterling assets which had risen from Rs 64 crore in September, 1939, to Rs 945 crore in March, 1945. The accretion to oversea assets helped to extinguish external debt to the tune of Rs 414 crore. The outstanding sterling debt fell to £ 10 million only. Owing to an extra outlay for defence, rise in public expenditure was also reflected in the increase in the Scheduled Banks' total deposits to Rs 585.8 crore. This raised free balances, enlarged money supply and credit facilities. A forecast of subsequent

(*Continued on page 57*)

Exploring The Indian Ocean *from page 33*

quantitative determinations of marine trace elements—copper, iron, manganese, calcium, cobalt, uranium, potassium and radium. In these studies, they would use spectrophotometric and radio-activation methods. About 200 cc of deep-sea-water samples were collected in smaller, white polythene flasks for the estimation of calcium, potassium and uranium.

On five occasions when the oceanic waters showed signs of wavy disturbance, P. S. Srivastava of the Directorate of Scientific Research, Naval Headquarters, New Delhi, began quick, single observations of the contour flow of the upper layer of the ocean and the travel time. Using stringed buoyant wooden floats, tied about 50 feet apart, the different wave heights, slopes and acceleration were estimated visually. With wind data provided by the meteorologists, it is expected that new and various forecasting theories will be evaluated.

This is perhaps the first time that this method of mapping the moving sea surface has been tried in India, according to Srivastava. Such information as will be provided by these studies on the dynamics of the sea and from shore-based wave recorders along the Indian coast will be quite useful in assessing the interaction between wind and water.

Attempts were also made at three deep stations by K. N. Mathia of the Indian Naval Physical Laboratory, Cochin, and Narayan Pillai, an INCOR fellow, to tune into the very sea itself and to measure the ambient noise level. Using a Garard tape recorder, an acoustical microphone probe was dipped into the water up to a depth of 35 feet before sunrise and about sunset. Though the knocks of the waves were registered, the mingling sounds of fish could not be properly sounded owing to various technical limitations.

Experimental fishing was a large-scale operation, and sometimes called for the services of the ship's company. A Russian type of pelagic otter trawl was tried out on the second day of the voyage but unfortunately it did not open out. On the homeward leg, in the early morning of November 14, the trawl drew a successful catch of marine fauna. In the sprawling heap of diverse fish were several species which in the Bombay fisherman's parlance is called "Dhoma", a variety of prawn breeding in profusion, large sting rays and electric rays, "Bombay Duck", perches, goggle-eyed squids, sloppy jellyfish, limpet-like valves and other molluscs. The catch included over a thousand specimens belonging to about 35 species.

The fishes were sorted out and classified by the fishery biologist and ichthyologist; the helminthologist dug into the insides to ferret out the parasites; the radiobiologists were keen on collecting the fish to examine possible traces of radioactivity.

The seascape during the ten-day voyage across the Arabian Sea was brilliantly glazed and the waters sparkled crystal-clear and turquoise blue in the tropical sun. Yet, despite the oceanic stillness, there was no pattern of monotony. Schools of flying fish darted and skimmed the wavetops and occasionally landed on our ship. Dolphin fish would daringly glide around it during the halts; a shark or two would forage, peer grimly and disappear. And as we moved on towards the seamounts of Socotro Islands, land of aloes and dragon blood trees, the bathymetric charts revealed that the KISTNA had been travelling in the vicinity of large submarine mountain ranges—of the Murrary Ridge.

On November 12, on our return voyage to Bombay, a monstrous Balanopteridean whale was sighted, travelling at high speed, about half a mile away from our ship towards the Indian coast. A thrill filled seamen and scientists as they watched the passing of this marine mammal, discharging a jet of salt water, plunging and rearing its huge black tail, leaving a furious swirl of watery foam. Fishery biologists conjectured that it might have strayed from the icy-cold waters of the Antarctica. Such sea creatures have been known to be stranded on the western coast of India. About 12 have so far been recorded during the last ten years.

The reconstruction of the three-dimensional look of the Indian Ocean is a complex process. The KISTNA scientists have produced considerable data and observations of promising value which will now have to be subjected to critical analysis. When fully co-ordinated and integrated, these new facts will make a significant step forward in enlarging knowledge of the Indian Ocean around us and be of immeasurable help to monsoon-ruled Asia.

National Character

(*Continued from page 28*)

But India has gained a new status, a new set of values; new modes and techniques of thought, analysis and organisation. It is thrown on the currents of international living and is called upon to function not only against the conservative and disruptive forces within the country but against world forces. Young America may or may not be representative of a new Asokan culmination of the Western Civilisation; nor Communism be the new Barbarian force wrecking it. The viciousness of every circle can be broken with wisdom and providence. Steps can be taken forward gathering the two attitudes—the Western and the Eastern—in a new synthesis. And India's is a genius for synthesis.

Vivekananda gave a fresh orientation and extension of purpose to the old *sannyasic* order of the Paramahamsas; Tagore spoke of *Ajasra sahasra charitarthata* in a world from which none may seek Deliverance 'when the great creator has taken upon himself the bonds of creation'. The Planned democratic development programme is an experiment to work out a new social and cultural purpose with political backing, resources, supply of incentives and institutional equipment. The Chinese invasion has awakened us with a shock and taken us out of passivity, Ahimsa of the feeble and helpless negative pacifism, demanding that we develop tooth and claw in defence of values which we hold dear. On the whole, the hope may be indulged that we will take the leap forward into an 'emergent creative novelty' such as Whitehead speaks of. All may yet be, and shall be, well.

Economic Experience of 1939-45

(*Continued from page 55*)

tax measures was available in March, 1945 when the budget referred to the need for death duties and agricultural income tax to help in paying for planning and development.

But the war had already doubled India's public debt which stood at Rs 1609.5 crore in March 1945. A deep scar was left on the body economic by a rise of 38 per cent in the price line in 1943-44. If the subsequent rise was only 3 per cent the transition to peace was by no means smooth for communications had been strained by the diversion of resources for war purposes. In 1945 the obvious factor was the rise in purchasing power coinciding with a shortage of consumer goods.

The pressure of demand for investment and consumption was accentuated by demobilisation. But a declaration concerning postwar policy made on April 21, 1945 contained the assurance of aid to Indian industry. There was also a hint that nationalisation of basic industries was in view. New industries like chemicals were assured of survival. The experience of the last year of the war is certainly significant for no rise in wholesale prices was recorded. Hopes were raised by the prospect of a boom for new issues connected with chemicals etc. This was sustained by the success of new loans floated at 2.5 per cent because money was then cheaper. Idle funds were to some extent absorbed in banks whose fixed deposits rose continuously. The rise of many new banks indicated the need for control of the business by regular inspection but the framework was completed only in 1960, long after the Reserve Bank was nationalised.

The references in this brief, selective account of what happened in 1939-45 may well indicate that in the absence of civil disorder or natural calamities the position today is distinctly better for the authorities as well as the citizen of India. The partition of India has made direct comparison difficult to some extent, but the integration of the princely States has produced the conditions suited for central direction and control. Though history never repeats itself it is patent that monetary and fiscal policy may not overlook the happenings of 1939-45, also that the ascent to economic independence has taken place since 1945. For the renewals and replacements that seemed so difficult in 1945 are now facilitated by the local production of machinery for established industries like sugar, paper and cement. Transport equipment from locomotives to bicycles is now made largely within India and the import surplus is the result of India's industrialisation which is part of the attack on world poverty, to adopt a familiar phrase of Andrew Shonfield.

What is vital is that the industrial base is far stronger, the work-force more aware of its responsibility, and the acceptance of austerity is derived from a sense of community (in the original, not the local, sense). The deficiencies that alarmed the Grady Mission in 1942 can hardly be spotted today and the country has a surplus in manufactured items including some medicines. That significant difference needs to be emphasised at present.

WAR ECONOMY

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More Attention to Transport

(*Continued from page 17*)

facilities to operators at reasonable interest should be increased and institutionalised, and steps should be taken to ensure that operators are not exploited by dealers. I feel that the introduction of large-capacity vehicles and multi-axle vehicles would not only effect considerable economy in operation but would also help to expand and develop road transport generally.

The reorientation of our transport policies and targets in the context of the Emergency situation postulates the same broad purposes as had to be pursued by Great Britain during the Second World War, namely:

(1) To secure and exercise control over the chief forms of inland transport and over the provision of transport services.

(2) To try continuously to assess in advance the expected demands for inland transport and to relate them to the capacity of the system.

(3) To control or restrict demands for inland transport, keeping them within the capacity of the system and giving preference to the most essential.

(4) To secure fullest co-ordination of traffic among the different branches of inland transport (taking account of the relative scarcity of different transport resources) by a deliberate allocation of traffic and a consistent rates policy.

(5) To increase inland transport capacity as much as possible within the limits set by war-time scarcity by providing additional resources and organising existing resources more efficiently.

We must realise that in the Emergency situation, motor vehicles, locomotives and transport planes are as important as weapons. Transport means economic mobility as well as military strength.

Improving Administration

(*Continued from page 10*)

top policy-making and executive positions in any area of governmental activity. It is not unusual to find a person moving from position to position inquire different functional fields—and this not at comparatively lower levels where it may be treated as job rotation for training but even at senior levels in the administrative hierarchy. This system has many adverse effects. But the most troublesome from the point of view of a developmental administration are (i) that the persons who are functional specialists feel increasingly frustrated because they find they always have to play second fiddle to persons who, at least to begin with, have little or no comprehension about the problems relating to the particular field where they are operating; and (ii) that there is inadequate commitment on the part of the even top officials to particular policies or programmes in a given functional area. Many of these officials are undoubtedly intelligent, conscientious and hard-working (that is why the system has not broken dow); but tnhey just do not usually get a chance to know enough about the the area in which they are to operate to be able to give real leadership. The obvious effect is that new ideas, policies and methods do not receive adquate encouragement and support from them. That is why perhaps the pattern of governmental work, its method and procedures, have changed so little in spite of the highly complicated the challenging new tasks that the Government and administration are faced with.

I think it is high time the organisation of our administration in its various aspects was subjected to a close scrutiny. What is necessary is a thorough and high level enquiry such as was conducted by the (second Hoover Commission in the U.S.A. Only such a study can make it possible for the various aspects of this organisation tion to be examined in relation to the new tasks faced by the country and changes introduced so as to make administration increasingly equal to these challenges.

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BOOKS

Love ★ Drama ★ Current Biography ★ History and the Plan

Chemmeen : Thakazhi S. Pillai (Victor Gollancz Ltd. London) Pp. 228, Price 18s.

Theatre in India: Balwant Gargi (Theatre Arts Books, New York) Pp. 245, Price $ 6.95.

Nehru—A Pictorial Biography : Michael Edwardes (Thames and Hudson, London) Pp. 143, Price 25s.

A Forgotten Empire : Robert Sewell (National Book Trust) Pp. 407, Rs 4.50.

Trends in Indian Planning : Shriman Narayan (Asia) Pp. 139, Rs 10.00.

A COUPLE of years ago the novelist R.K. Narayan was introduced to an Indian official in New York. His book *The Guide* had been attracting notice and the fact was mentioned.

"Oh, you are the person who writes the guide-books for our Government?" the hard-worked official politely murmured. Without knowing it this official was making a point which has been aired increasingly in the recent years—that our novelists who write in English have a foreign audience in mind and that in their management of material they stress the colourful and the curious at the cost of what should matter: the mystery of human character and its interaction with social values.

Now, those who hold this view also believe that the real Indian novels are written in the mother-tongues. There is a risk involved in this assertion because most Indians speak one or at best two out of our twelve languages, with the result that generalisation ceases to be general. They will also have to answer Mr Khushwant Singh who will say: "If the novels you speak about are so good, translate them and let us see if you are right".

Literature is said to be that which remains after being poured from one vessel to another. This is not true at all of poetry—I recall Dinkar shaking his head at what had become of Bharati in a Hindi translation—and probably not very true of prose fiction either. We can get genuine translations of Indian novels in English only if people whose mother-tongue is English do them. To claim English as the stepmother-tongue is not enough. In other words, a good translation comes from a foreign tongue into one's own language. The author himself translating it is rarely the answer. Lord Hallam Tennyson last year told us how Tagore had ruined his Gitanjali poems in Englishing them himself.

Against this background *Chemmeen*, the novel everybody is talking about, must be regarded as a very successful translation. Those who have admired the novel in its original say that its remarkable beauty is due as much to the simple story of love on the sands as to the lyrical intensity of Mr Thakazhi S. Pillai's Malayalam prose. Dr Narayana Menon captures the grace and song of this prose. By exploiting English understatement he also brings out the contrast between the love of Karuthamma and Pareekutti where nothing happened (and everything happened) and the fear of the fishing community that the sea goddess would visit her wrath on the entire fisherfolk if just one woman strayed. The sunshine shows through the narrative—the waves, the sand particles, the coconut leaves and the nets laden with *chemmeen*—all glisten in it. Joy, sorrow, selfishness, fear are all felt and not felt. The people are sometimes individuals and sometimes merely puppets in the grip of some collective impulse or superstition.

As we go on absorbed, suddenly the song stops and it is a storm. In a melodramatic end, the husband is swallowed by the waves when the wife and her childhood lover give themselves up to the passion of years. It is difficult to convince ourselves that what takes place has grown out of the narrative. Again, those who know the Malayalam say that the verbal power of the original rarely allows the reader to notice this.

With this reservation, *Chemmeen* is still the finest Indian novel to have been put into English. It has a literary validity in English which books like Manik Bandopadhyaya's *Boatmen of the Padma*, Prem Chand's *Godan* or even the Tagore's novels do not convey.

★

IN the art of the leg-pull the Punjabis are still the best Indians. According to a friend, Mr Gargi has managed to write a book on a thing that does not exist—the Indian theatre. Let the theatre crowd argue this point, but the first thing that strikes the reader looking at the book is its excellent production, the beautiful drawings by Shiavax Chavda and the lovely photographs. Mr Gargi is a dramatist in his own right and he has spent considerable time among the made-up people. He has also, as the blurb says, gone up and down India gathering material about the theatre in the various regions. And before publication, the book has been shown to authorities like Dr V. Raghavan and Faubion Bowers.

But where is all the material that was collected? And what did Mr Gargi do to all the advice that he must have received from friends and experts about the organisation of his material?

Throughout the nearly 250 pages there is not as much as a hint of what is probably the basic problem of Indian drama as of all Indian literature—the distance between the *marga* and the *desi* forms. Mr Gargi has of course dealt with the folk forms and the classical forms

but he does not examine at what periods they drew near each other and why at other periods they did not. Similarly, though he has devoted a number of pages to "modern" plays, he has not discussed the conflict between traditional Indian modes and the European-inspired forms and attitudes. We get more insights into such problems from Mr Faubion Bowers's *Theatre in the East*, although only a part of that book is devoted to India.

★

ANOTHER elegantly produced book is Michael Edwardes' *Nehru—A Pictorial Biography*. It is part of a series in which some others who are dealt with are Leonardo, Churchill, Dickens, Beethoven, Shaw and Hammarskjold. An unusual assortment, but one that lends itself admirably to pictorial treatment. In 128 pages there are 128 pictures—and what more would a reader want? Mr Nehru is a much photographed man and it requires judgement to pick out the best from the album. This Mr Edwardes has. The narrative, which is only a device to hold the pictures together, closely follows the Prime Minister's autobiography up to 1936. For the later period Mr Edwardes draws upon his own histories of Asia and India. The concluding paragraphs have a somewhat cavalier reference to the Caesarism of this "noble tyrant" who "does not relish criticism from individuals" and is therefore "surrounded by yes-men". But one should not worry too much about the narrative when the photographs have such a rich story to tell—the story not merely of Nehru but of India itself in the last 50 or 60 years. They bring out the diversity of the country and the forward movement of a people in freedom. What a contrast it is to see a picture of the desolate Delhi Durbar of 1911 and then turn to the shattering portrait of Motilal Nehru before his death?

★

EVERYTHING is going up these days —peace, blood pressure, age of consent, expectancy of life and prices as well—including book prices. Even paper-backs are becoming costlier than hard-cover books and a mere 100-page booklet gives itself the airs (and the jacket design) of a full-length book and takes on a two-digit price label. Books to be costly is not good for the intellectual life of the country and for the education of our youth. The best and most recent that is thought or written in the world must speedily become available to our people at prices they can pay. Penguins, Pelicans, Peregrines, Permas, Signets, Papermacs—all are welcome—but all these will still not be enough. We must have our own standard publications which know and minister to the full needs of Indians. It is here that the National Trust comes in even more than the Sahitya Akademi.

After three or four years of waiting the Book Trust has at last come out with the kind of books it is its duty to give our peope. If *The End of Empire* by John Strachey, *The Culture of South-East Asia* by Reginald Le May and *The Forgotten Empire* by Robert Sewell are a sample of the titles that the Trust has on its production line, then we say: Welcome and All the Best!

The books by Strachey and Le May will be reviewed in later issues of *Yojana*. They both have the advantage of being recent publications. Sewell's work, on the contrary, has long been a classic somewhat difficult for the householder to come by. This history of the Vijayanagar kingdom, published more than sixty years ago, did much to fire the imagination and patriotism of a large part of India, specially the Andhra and Kannada areas. (One scholar, not to be outdone, wrote his own account of Vijayanagar which he called: *A Never-to-be Forgotten Empire*).

Re-reading Sewell is a chastening experience. Such wealth—where did it come from and what became of it? Vijayanagar, the City of Victory, took a full five months to loot and decimate. Even the personal wealth of the Raya princes needed a hundred and fifty elephants to carry—and this treasure in gold and diamonds and precious stones has been valued at more than a hundred million sterling. And the battle of Rakkasa-Thangadi (1565) which dealt a blow to this magnificence—what fatuous ineptitude! A million foot soldiers fled because of the poor generalship of leaders who personally were valiant men. It is indolence that killed Vijayanagar as it killed Rome. No war that a modern nation fights could be managed that badly, but the lesson for India is that purpose is a greater guarantee of victory than numbers.

It is good any way that the Book Trust has overcome a hoodoo. Having said that we might also ask the Trust to give a little more attention to the design and colour scheme of its covers and to typography. The three books bear no family resemblance in their format—as they should. Low price and the small print orders of the present cannot be an adequate reason not to try for the mark of quality. "Swadeshi" should not become a disqualification in books.

★

THERE has been too little non-technical writing on our plans. We have also tended to make too much of economic planning and too little of social planning. Mr Shriman Narayan's book does well to stress the man in the Plan. The opening chapter is an impressive chain of thoughts on what is meant by *progress of people* instead of *progress in things*. The organic connection between our recent political tradition and of planning is explained in basic and intelligible terms throughout the book. To read something about the plans in everyday language is a welcome change.

But a collection of articles has its own drawback. It whets the appetite but cannot satisfy it. As in the old three-minute discs, the *khayal* is over just when you feel like getting involved. A chapter such as "Indian Planning and Gandhian Thought" makes you desire a Long-Playing record. The Prime Minister in his foreword to the book refers to the importance of the subjects touched upon by the author. As Mr Nehru has remarked, the book is of help in understanding our approach to planning. Mr Shriman Narayan, with his intimate knowledge and participation in education, politics and planning, must now satisfy the appetite, he has whetted by giving an ampler book. At a time when we as a people are fighting to defend a way of life, we need books that will spell out at length what this way is, so that national conviction is deepened and widened. H.Y.S.

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PRIDE OF PLACE

Silk Paintings of Bengal



On the walls of many drawing-rooms you will find small, enchanting paintings which are too revile to be calendars and too bold to be Rajasthani miniatures. You might take them for conventional paintings done on paper. But peer closer, and you will find that they are drawn on silk. They mostly come from Bengal.

Painting on silk is an old form of art which flourished during the Buddhist period. With the spread of Buddhist culture, silk painting went to Tibet (where it is known as *Tankha*), China and Japan. In India the art was revived by Abanindranath Tagore. Some excellent specimens of this form of art are preserved in our museums.

With the revival of folk arts and crafts in recent times the painter-craftsman in Bengal has begun



exploiting the commercial possibilities of silk painting. The process is simple. He takes a silk fabric of fine quality and cuts it into small vertical or horizontal sizes. These are pasted on bigger masonite boards coated with white paint. Following the style of Jamini Roy, the painter then draws typical scenes from rural Bengal life. To add to the beauty he fixes narrow, unpolished bamboo reeds on the top and bottom of the paintings which serve as frames. It is the combination of stylised work and the indigenous frame that lends these paintings a decorative quality.

QUOTATION BOX

Asked what it did in 1962, the world can reply curtly that it survived.
—The Economist

The Athens of Asia.
—Mr Guy Wint on Delhi.

India certainly will be able to maintain the price-line of essential commodities like food and simple clothing. But if the prices of Banaras saris and petrol go up, that, I consider, will not be any great disaster.
—Professor Galbraith, quoted in "The Hindustan Times"

The Engineering Association of India has conducted a survey in regard to the capacity of industrial units in the country and has come to the conclusion that 50 per cent of their capacity is centralised.
—Calcutta correspondent of "The Hindu"

South Indians who take to Hindi make a very fine job of it, oftentimes taking greater care than we do about the dictates of grammar, particularly the gender of the nouns.
—Mr Lal Bahadur Shastri

Our sales are one hundred times the normal turnover. Up till now we were soliciting customers, but now the customers are chasing us.
—A jeweller of Zaveri Bazar, Bombay

I myself would be happy if all parents would pledge themselves to postpone the marriage of their children for five years.
—Rajkumari Amrit Kaur

We can afford to keep using an old model car but not an old model rifle as the current events have demonstrated.
—Mr I. S. Gulati of Baroda University, writing in "Seminar"

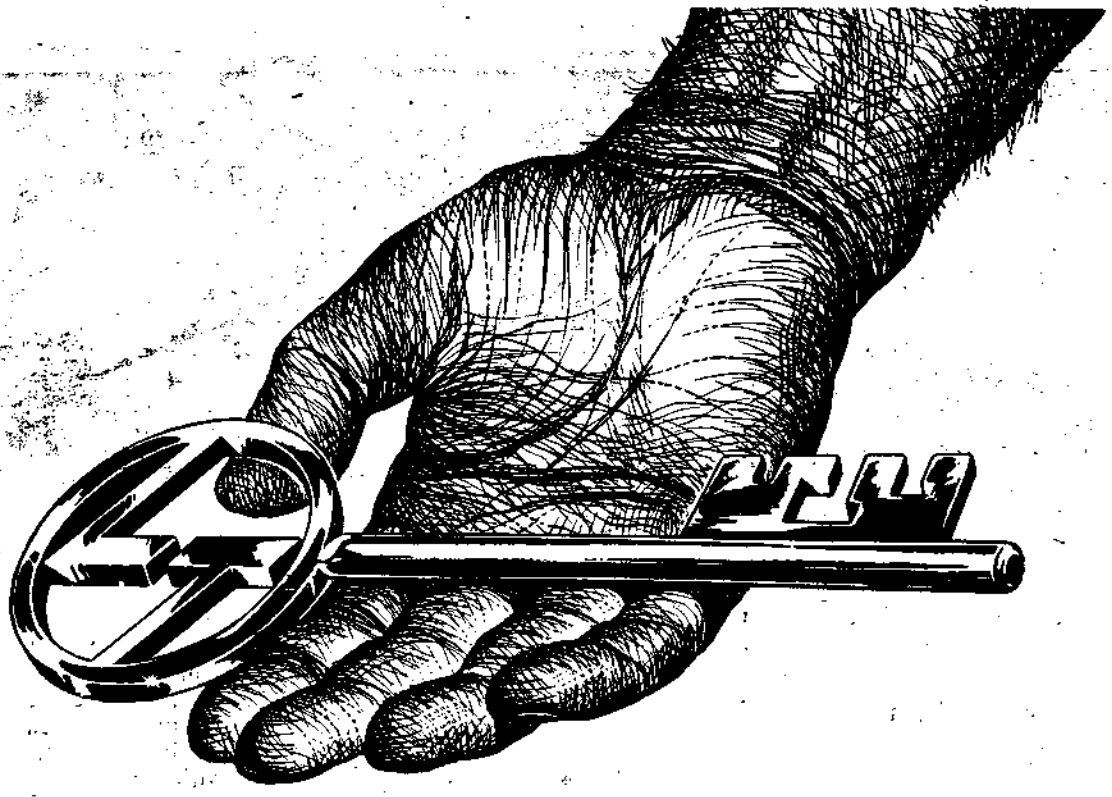
People like Government servants in the upper grades no longer read as much as their predecessors.
—A Delhi book-seller quoted in "The Statesman"

Even if we succeeded in driving out the invaders only at the cost of our economic disruption, or at the cost of surrendering our way of life (so painstakingly nurtured by Nehru) to indigenous militarist or communal-fascist dictatorship, that would be a disaster of almost equal magnitude, not only for India, but for the greater part of Asia.
—Prof A. S. Ayyub in "Quest"

Indian parents show none of our anxious concern for babies to be clean and dry as early as possible: that part of a child's training is attended to without fuss and allowed to take its time. According to Freudian theory, this should be associated with an easy-going, disregard for punctuality or precision and that is what I found.
—Prof G. M. Carstairs, British social scientist, in his Reith Lectures

The Monkeys Return
To Bhakra
Strange Calm Descends
On the Dam
—Headlines of a feature in "The Statesman" on the completion of the Bhakra Dam

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NO-26

YOJANA

SEVENTH YEAR
26
JAN. 5, 1964

HOW JAPAN HAS CONTROLLED POPULATION—*Pages 3-4*

ABOUT YOJANA

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

It is issued every other Sunday in two separate editions, English and Hindi.

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OUR COVER shows a technician assembing a precision part at the Indian Telephone Industries, Bangalore. I.T.I. was one of the many public sector undertakings which made a profit in 1962-63. See Page 6.

by PK. DE

TO READERS

Have you renewed your subscription? New volume starts with next issue. Please hurry up.

OVER TO YOU

CHILD WELFARE

THE need for providing child welfare services for the development of a better nation and a healthier society can hardly be over-emphasised. In fact such welfare services are a peculiar type of investment and serve as protection against the depreciating human capital. In most of the advanced countries, including the U.K., U.S.A., the Soviet Union, child care has been given highest priority. Modern child welfare programmes are not confined only to the care of the destitute, neglected, deserted, sick, handicapped, or maladjusted and delinquent children. In case of normal children also it has become all the more necessary to provide them with all the facilities and care so that they can develop their personality.

Children in the age-group of 1-16 years represent approximately 43 per cent of the total population of our country. Though the children form the most vulnerable section of our population, welfare programmes for them have been progressing at a slow rate. Although it is the State's responsibility to provide basic services to children, voluntary agencies are also playing an important role in this field. But in most cases such programmes are being handled by untrained workers who are not in a position to organise child welfare services on scientific lines.

We have to do a lot of work for child welfare in our country, particularly when our society is in transition. Of course, our social conditions differ from those of other countries. But still there are some problems which are common to the children of India and those of foreign countries. Measures taken to solve these problems in other countries may also be adopted in our country. In short there is a scope for our social workers for further study and research in this field. A better and healthier nation can be built only when competent social workers have made a scientific study of the problem in the light of experiments made in other advanced countries.

P.C. Bagla Degree College, Hathras. SATYA PRAKASH ARYA

ACCIDENTAL SUICIDES

PLEASE tell Ignoraman that (1) "paid Shramdan" (*Yojana*, November 24) is prevalent in the land of "aided self-help" and (2) in all countries where accidents are planned, "accidental suicides" are not uncommon.

Ranchi BIGNORAMUS

THE RIGHT KIND OF PRIDE

IS it not better for our Government to boast of the lowest capital cost per acre or per megawatt when publicising their irrigation or power schemes, instead of emphasising the bigness of the total cost?

I thought that only the film magnates bragged of trillion dollar pictures and billion dollar actors.

Kodaikanal SIMPLE SIMON

GOLD COINS

MR. R.V. Iyer (*Yojana*, December 8) has posed a question "Why Not Gold Coins?" I would like to put a counter question: "Why Gold Coins?"

Mr. Iyer's argument is that the so-called developed countries have gold coinage. It is true, but the coins as such have nothing to do with the development of a country. Development is a relative term. Money is one of the mediums for measuring the extent of development. Of what the coins are made is irrelevant.

Even in the developed countries cheques are in more use than the paper notes or even gold coins. Moreover, according to Mr. Iyer's argument, a man who possesses gold coins of, say, a hundred rupees will be richer than a man who possesses currency notes of even a crore of rupees.

The main value of currency today is the general acceptance. If paper notes are generally accepted then why gold coins?

Kanpur C.L. JANGRA

YOJANA

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NUMBER AND TENSE

ALDOUS Huxley used to say that the biggest problem that the world faced was not even the hydrogen bomb but human population. Unchecked numbers, it is easily seen, spell economic danger, even political disaster. Most developing countries are aware of these consequences and are convinced of the need to undertake population control policies. But the full dimensions of the problem are even now not known. A recent conference in Delhi did much to enlighten scholars and scientists about the implications of population growth for the pace and pattern of social and economic planning. The conference was organised by the Economic Commission for Asia and Far East and was attended by delegations and experts from the countries of the region as also from outside.

Although the ECAFE region covers only a sixth of the world's land area, it has more than half of the world's population. In 1920 the population of the region was 1,000 million. By 1940, the figure had risen by 200 million, and in the interval between 1940 and 1960, by another 400 million. The reason for this phenomenal increase was a continuing high birth rate and a declining death rate. The combination of drugs discovered by science in recent decades and energetic governmental action in public health cut down the death rate spectacularly in the 'fifties. The result was that the rate of population growth in one-third of the countries of the region was between 2.5 and 3.5 per cent a year in the last decade.

If births continue at this rate and death rates fall further, the region will have 1,500 million *more* people by 1980.

A high birth rate, combined with a fall in infant mortality, means that there will be a larger proportion of children in the population. With improved medical facilities and nutrition more people will live on into old age. In a phase like this, there will be a large dependent population, that is, the young and too old taken together. The burden of feeding them, maintaining them, clothing and educating them falls on the able-bodied working population. For its part, society has not only to create more jobs but open a correspondingly large number of schools and so on. Furthermore, the developing countries, being in the first stages of industrialisation, have a fairly large migration from villages to towns. These, then, are some of the demographic facts.

Population growth determines and is in turn determined by the economic and social environment. When population grows rapidly, any increase that might occur in national income gets absorbed by this growth. As a result, per capita gains are slow and small. The benefits of increased food production, to take an example from our own country, get nullified.

The governments of developing countries have no escape, if they are far-sighted and prudent at all, from taking bold policies to control population. Nowhere is this conviction more firmly held than in Japan and India. But there is a difference between the two countries. In Japan family planning has already yielded measurable results. The birth rate has come down by a half within a decade. In India, however, the policy is yet to make itself felt.

Why this difference? The reasons are simple. In Japan secondary education is almost universal. The people, having had experience of industrialisation for nearly four generations, know that there is a direct relationship between rising standards of living and the family size. In addition, Japan's recent history, especially the involvement in wars, has brought home to the people the fact that uncontrolled population creates urges and pressures which disturb peace. What has helped the Japanese people to exercise restraint in the matter of reproduction has been well brought out in the article by Mr Yoshio Koya on Page 3.

In India, on the other hand, the people are too poor and too much the victims of an indifferent Karma to believe that improvement of their lives is in their own hands. Except for small groups in the middle classes and industrial labour, rarely do people appreciate the importance of not bringing forth children that cannot be given a decent life. The size of the family is nowhere a matter of daily and constant concern. The Government is, no doubt, converted, but here, more than anywhere else, the responsibility is each individual's. The Government can provide facilities and incentives. It can, as it does, undertake extensive education and publicity. But utlimately the decision is with the citizen. Improvement in living standards would itself, no doubt, act as an incentive. The attempt at planned economic development must continue. For one thing, even if by some miracle all births can be stopped for, say, the next twenty years, still what we have is too little to go round the existing population. Secondly, the most underprivileged people must see for themselves the kind of life that is possible.

The slogan of the family planning movement is that a child must be the fruit of choice, not chance. A nation, likewise, has to choose. We cannot sit back in the hope that some improvement in standards by way of better income and more nourishing diet will itself bring about a climate in favour of population control. We have a willing government and some devoted workers, but family planning is still to grow into a titanic national movement as in Japan. Indeed, if the movement has to grow into a magnitude that will make a difference to India's life, even more effort will have to be put in than what the builders of our nation devoted to the solving of another great social problem, namely the eradication of untouchability.

The next issue will be

YOJANA'S ANNUAL NUMBER

It will be dated January 26, 1964 and will mark the beginning of the eighth year of the journal.

Besides several special features and pictorial reports, the Number will have many articles on an urgent topic:
WHAT IS WRONG WITH OUR AGRICULTURE?

Some of the contributors will be

TARLOK SINGH : After the Appraisal ★ H. M. PATEL : How to Create Psychology of Higher Production ★ M. S. RANDHAWA : Technology in Agriculture ★ S. P. RAYCHAUDHURI : Increasing the Fertility of Land ★ S. KRISHNAMURTHI: Research and Extension ★ N. G. CHAPEKAR : Who Should Own The Land? ★ SUNIL GUHA : Land Resettlement ★ KHUSHWANT SINGH : The Nilokheri of Afghanistan ★ K. KRISHNA MOORTHY : Orissa—A State on the Move ★ V. SITARAMIAH : A Poet Looks at Gold ★ J. P. CHATURVEDI : What India Wants to Know about the Plan ★ KALINDI PANIGRAHI : Gopabandhu Das—Maker of Modern Utkal

ALSO : First Indian at South Pole. Wool in Rajasthan. Bag of Books. Hamara Hindustan.

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PRICE STABILITY ESSENTIAL TO SOCIALIST PLANNING

THE impact of a varying price line is being felt in every walk of life.

An increase in the prices of commodities hits the middle and wage-earning classes rather adversely. It lowers their already low standard of living, causes hardship and gives rise to many social and economic problems.

An increase in the production of capital goods can come about only when increased investment takes place. Such investment may come from saving, public loans, or deficit financing. Deficit financing in a developing economy, however, creates an inflationary situation and as such is not desirable. Likewise public loans and taxes have their limitations. People cannot contribute to the exchequer beyond a point through either extra loans or fresh taxes.

In every country several groups of commodities are produced which may broadly be divided into two categories, namely, basic consumer goods and non-consumer goods. Prices of all these commodities cannot be held at any particular level, simply because the pulls, forces and strains under which an economy operates would not permit such a course.

It would therefore be best to hold prices of basic consumer goods, variations in the prices of which hit the common man. Other prices may be determined by the free forces of demand and supply. In the long run the problem can however be tackled only by forming co-operative sale societies or consumers' co-operative stores.

The only way out is to form consumers' unions. If they function effectively, they can curb the malpractices prevalent in the trade. As a reinforcement to comsumers' stores, the Government can open fair price shops supplying goods at regulated prices. The Government should also hold buffer stocks and sell and purchase food grains. Taxes should also be imposed on all accumulated profits which are unproductive and are not used for increasing output.

J.B. MATHUR

By YOSHIO KOYA

The JAPANESE MIRACLE of Population Control

HOW WERE PEOPLE TAUGHT?

This is a part of a paper prepared by Mr Koya of the Family Planning Federation of Japan and presented at the Asian Population Conference held in New Delhi between December 10 and 20. The Conference was sponsored by the United Nations Commission for Asia and the Far East (ECAFE) and the Government of India.

THE studies we have pursued since the end of the second World War have been of a purely practical, perhaps teleological, nature. Circumstances obliged us to undertake our family planning programmes. We have been more concerned with the procedure and results of the experiments than with academic, scholarly studies, because we believed that the economic reconstruction of Japan would become more difficult if the post-war rate of population growth remained constant. My assistants and I, therefore, share in the thinking that childbirth, when neither needed nor desired, should be controlled.

How does one teach people that family planning is desirable? How does one teach the necessary techniques? To what extent are these two questions independent and to what extent is motivation a concomitant of suitability and availability of method? Looking back, it seems we were needlessly apprehensive; yet only fifteen years ago the Government and people alike were fully convinced that the growth of population was a fundamental and necessary factor in building up national strength. Farmers, who comprised about half the population, were particularly opposed to the concept of birth control because, traditionally and historically, they regarded children as a treasure, which indeed they were when it was necessary to have as many hands as possible to carry out their husbandry.

Work in Rural Areas

This was the social context in which we set out to give guidance and instruction on limiting family size. To tackle the crux of the situation, we started our experiment in rural areas in 1949. A year later we directed our efforts towards recipients of relief under the Livelihood Protection Law, namely, needy families in the Tokyo slums.

Despite our doubts about the prospects of implanting family planning ideas in the minds of people of this social stratum, we felt that no other group had a greater personal need for guidance and that, on the national level, failure among such people could lead to eventual qualitative deterioration.

By 1953 we extended our endeavours to industrial workers, recognising the importance of their welfare to the industrialisation of the nation which was indispensable to the wholesome growth of the national economy. For this purpose we chose coal miners, because in no other industrial group was the proverbial deprivation due to large families so marked.

Although we had anticipated all sorts of difficulties, our worst fears were not realised and our efforts bore fruit earlier than expected. Since details of our experiments have been published in several magazines, it is sufficient here simply to touch upon the birth rate. In the three rural villages, not only did the birth rate of 26.7 per thousand population in 1950 drop to 13.6 by 1956, but induced abortions declined during the period by 70 per cent.

This is in marked contrast to what happened in the rest of the country, for which it is estimated that abortion accounted for perhaps up to 70 per cent of the controlled births.

The results of our guidance in the three districts of the coal mining area were also reassuring. *After five years of instruction the birth rate fell from* 36.9 *to* 9.3 *per thousand population.* People were amazed at this decline, but the explanation is simply that the mothers had already borne more children than they wanted.

What did astonish us was that our experiments with the relief recipients were as satisfactory as those with the married couples in the farming villages and coal mining districts. These people, we discovered, were less a gathering of persons of low quality than unfortunate beings who had either lost their property during the war or their employment because of illness, often tuberculosis.

Although their frequent change of resistance prevented us from keeping an accurate record of birth rates we were able, for three consecutive years, to keep track of 277 of 418 families to whom we gave guidance. Among the 277 families, 33 children were born in the third year compared with 92 the year before we started our programme. This result provided great stimulus and encouragement to the so-called "specific family planning programme" launched by the Government a year later.

On the whole, we had every reason to be pleased with the response of the population to the idea of family planning. Nevertheless, soon after we inaugurated our experiments, a new development began to take share in the nation that caused us great concern. This was the growing tendency of married women to control births by means of induced abortion.

With abortions rising in the country from a level of about 100,000 a year in 1949 to over a million a year by 1953, excluding unreported operations, we had reason to be seriously concerned with the possible effect of this method on the health of the mothers.

The researches we made on this subject in 1952 disclosed two important findings. One was the association with abortion of a high incidence of various diseases, ranging from light anaemic symptoms to serious bacterial infections. We found that about 47 per cent of all those undergoing operations were suffering from some form of one or other of these diseases. The second finding was the high probability of another pregnancy following induced abortion : 43 per cent were pregnant again within six months of the abortion and 73 per cent within a year. We are happy to say there were no deaths among the women in our survey, which covered only married women.

Although our studies were made from a medical and not from a socio-economic or socio-psychological viewpoint, our information has led to the realisation that abortion is neither a convenient nor an inexpensive method of controlling births because the operation usually has to be performed repeatedly.

Abortion continues to be a major problem in Japan. Too little is known about the medical consequences of repeated abortions. Some doctors are of the opinion that ectopic pregnancy, irregularity in menstruation, and miscarriage are more frequently encountered in women who have experienced induced abortion. I have found recently that repeated abortion is a cause of sterility. A followup study on a wider scale is now being planned.

Research in Contraceptives

Our concern with the question of abortion impelled us to investigate the causes of contraceptive failure. Were the contraceptives defective; were they being used improperly; or were the couples concerned simply not using them?

Our study, although conducted on a small scale, showed clearly that the major reason for failure was omission of a contraceptive during the period of the menstrual cycle when it should have been employed. So many failures were attributed to the mistaken use of the safe period method, and so widespread is the use of this method that I am fully convinced the question of its effectiveness should receive close and extensive study.

Reference has already been made to the fact that the number of undesired pregnancies caused by the omission of contraceptives is greater than is generally realised. What is the best way to minimise such omissions? Obviously, guidance instructors cannot din too frequently into the ears of married couples the probable consequences of such omission, stressing the threat to the health and welfare of the family of unwanted pregnancies.

Related to the question of regular use is the importance of selecting contraceptives that are easy to use, easy to learn to use if this has to be learned at all, easy to purchase, and last but not least, easy to carry about. People are generally becoming aware of the importance of simplicity in a method. Heretofore it has been recognised that only the simplest method is of use to the needy and poorly educated. What I should like to emphasise is that a simple method is equally necessary for the better educated; for if contraceptives, however efficacious, are too complicated to use, difficult to adjust, too difficult or expensive to obtain and difficult to dispose of after use, they are liable to be omitted even by the most well-meaning contraceptors.

We became interested in contraceptive foam tablets, on which we started a study in 1955, with a three-fold approach. Firstly, we tested 82 women with one kind of tablet called "Sampoon". Among these women who used contraceptive foam tablets for at least one month during 1955-58, and whose average exposure to pregnancy during the interval was 22.1 months, the pregnancy rate was 11.9 per 100 women per year of exposure to pregnancy, with a standard deviation of 1.6 months. This degree of protection, together with the fact that foam tablets are inexpensive, easy to use and easy to learn to use, made it desirable to test them extensively.

The design of the tablet was improved and its weight increased from 0.55 to 0.75 grams. Among the 190 wives who used the newly designed tablets at least one month between 1959 and 1961, eight pregnancies occurred, the rate being 2.6 per 100 wives per year of exposure. This is remarkable improvement over the rate of 11.9 for the former tablet.

Further experimentation to determine acceptability of the foam tablets is still in progress.

By now it is well known that, of all the people in Asia, the Japanese have displayed the strongest will and capacity to limit births to the number parents feel they can adequately support and educate. While we are proud of this achievement, abortion and to some extent sterilisation have been important means towards this end.

Many visitors, particularly those from other countries, have asked us, "What kind of contraceptive are you using in Japan?" I have answered, "There is no particular preference." But I have added in such cases that, "Simplicity of the method is one of the most important factors, because, if the method is too much complicated, people will tend to use it less often. We made a survey and found out that about one-third of contraceptive failures were due to omission. *However, a much more important factor was how to make people conscious of the importance of this programme for their welfare and happiness.* This is what should be done first."

I would also comment in such discussions that "however, delicious a food may be, it is useless if people have no appetite for it." Asked, "How can one then whet the appetite?" I would reply : "You yourself should find it out taking all the social and economic conditions of your people into consideration : their educational level, socio-economic conditions and traditional as well as cultural situations."

As far as Japan is concerned, fortunately or unfortunately, the situation was very favourable due to the military defeat we had suffered, most of us were obliged to limit our family size for our survival. Of course, there were many types of difficulties in making people fully aware of the value and significance of this programme. This was particularly true for some groups in rural areas—farmers and coal miners, for example. For the former, we made them realise that the new law gave the right to each child to inherit an equal share of the father's property; and, for the latter, we stressed that they would become miserable if they had a newly born baby when they were close to their retirement age.

Our Agricultural Statistics

SHORTCOMINGS MUST BE SOON OVERCOME

M.C.K. NAMBIAR

THE economic emphasis in all developing countries—including China and even the Soviet Union—has moved back to agriculture. The emergency in our country makes it specially urgent that we strengthen our agricultural base, and the National Development Council has underlined the need.

The Third Plan contemplates an increase of 30 per cent in agricultural production by the end of 1965-66. But the current level of production does not lead to a confidence that we can reach the target. Whereas the rate of increase of agricultural production was 8.1 per cent in 1960-61, the increase was a nominal 1.6 per cent in 1961-62 and there was even a fall in 1962-63. Even though the prospects for the current year are said to be better it is only a miracle that will enable us to fulfil the Third Plan targets.

It is often said that in Indian agriculture the remedy is known but the treatment is still not mastered. It has of late been realised that it is not enough to set the national target for each commodity. A definite annual target has to be set at State, district, block and village levels. Detailed plans for each small area should be drawn up, taking into account the available resources of that particular area such as the type of farming, nature of the land, extent of irrigation, crop pattern, and needs for technical equipment and supplies.

Such detailed planning at State, district, block and village levels requires detailed information about area, crops, land utilisation, irrigation, labour force, wages, prices, livestock etc. in each area. Unless the data are sufficient, there can be no efficient formulation, execution and evaluation of plans.

★

ARE agricultural statistics in India adequate for this purpose? The pioneering work done by the Indian Council of Agricultural Research and the Directorate of Economics and Statistics of the Ministry of Food and Agriculture in collecting and co-ordinating agricultural statistics should not be underrated. But the fact is that a good deal more has to be done by way of systematising and refining the information before we could say that we have a body of usable and classified data covering the entire range of needs.

Some of the shortcomings of our agricultural statistics may now be looked at. First of all, they do not cover the whole geographical area of the country, and reliable data are not available in respect of certain areas and about certain items. Even such data as are available suffer because of lack of uniformity in definition and classification, lack of proper tabulation and processing and absence of efficient co-ordination. Even in regard to area statistics it cannot be said that we have complete coverage. No estimates are at present available for about one-fourth of the area of the country. While certain areas have not yet been cadastrally surveyed, certain others which have been surveyed are not provided with any primary reporting agency.

Besides, in recent years, much reliance is being placed on the estimates of the National Sample Survey which for most part do not agree with the official ministerial estimates. Though the random sampling method may give fairly reliable figures of area under principal crops for the State as a whole, it cannot give reliable data for smaller units such as a block or a village. And since the basis of all development programmes is supposed to be the village, it is highly essential that we should have detailed statistics about this unit. For this purpose complete enumeration, rather than sampling, should be adopted. The primary reporting agency should be strengthened to ensure complete enumeration.

There are important limitations in yield statistics as well. So far as yield statistics are concerned, two series are at present available, namely the official series and the N.S.S. series. The official series relate to a very large number of crops, but the N.S.S. series is at present limited to certain crops.

Under the traditional method, estimates of yield are arrived at by finding out the product of area under a crop and the average yield per acre which in turn is obtained as a product of what are called the *normal yield* and the *condition factors*. Both depend, to a great extent, on personal judgment. The yield statistics as calculated by this method are therefore very defective and have come in for much criticism.

★

HOWEVER, the traditional method is being gradually replaced by the method of crop-cutting surveys based on random sampling. The advantages of sample surveys in yield estimation are that they give a more objective estimate of the average yield per acre and indicate, in addition, the margin of error by which the estimated average yield is likely to depart from the true unknown value of the yield. Because of these advantages the technique of random crop-cutting has been given increasing prominence. This method is now being used both by the Indian Council of Agricultural Research and the Indian Statistical Institute.

But the agencies responsible for the conduct of these surveys are generally overburdened with other duties. There is also lack of effective Central supervision over the crop-cutting surveys conducted at the State level. Besides, the techniques followed by various States are not uniform. For example, the type of cut is not always the same. There are also fundamental differences in the details of the procedure adopted by the ICAR and ISI.

Yield statistics are at present available for cereals, pulses, oilseeds, fibres, some of the plantation crops like tea, coffee and rubber, and for

some minor crops such as indigo and tapioca. Absence of production estimates for minor cereals and pulses, principal condiments and spices, fruits and vegetables and fodder and cattle-feed is a serious limitation. The area under such crops and the volume of production might be small; but since they are export items and help nutrition, it becomes imperative to collect regular and reliable information about them.

Similarly, reliable information regarding certain other items like cultivators' holdings, animal husbandry products and agricultural labour should be made available. We need accurate statistics on cost of production of principal crops, utilisation of agricultural produce and rural indebtedness. Data on cost of production are important for price-determination which has become an important part of Government's policy. Another serious gap relates to marketable surplus. We should have a clear knowledge of what proportion of producers has any surplus at all, what proportion of the produce is being consumed by the subsistence farmers and so on.

It is a common knowledge that the price realised by cultivators is much less than the price paid by consumers, the difference being middlemen's charges. No regular attempt has been so far made to ascertain these changes exactly.

Very little information is available at the moment in regard to agricultural wages, rural savings, investment etc. Statistics on agricultural wages collected by the various States relate only to a few selected centres. The Rural Credit Surveys conducted by the Reserve Bank of India have helped to throw some light on the nature and extent of rural savings, but there is much more to be done in this respect.

★

USUALLY two or three forecasts are issued for the major crops. They give information about the area sown and the probable size of the crop before it is actually harvested. These estimates are published in "Estimates of Area and Production of Principal Crops in India" issued by the Directorate of Economics and Statistics of the Ministry of Food and Agriculture. The publication of these statistics, however, is not punctual. Sometimes they are published long after the crop has actually reached the market, reducing the usefulness of the estimates.

The method of crop forecasting is also defective inasmuch as the technique used is still the traditional one based on personal observation. Although sample surveys have been conducted in recent years for obtaining crop estimates the adoption of this procedure gives rise to another handicap. The final estimate can be made only when the crop is ready for harvesting and not before. But price policies and food administration require pre-harvest estimates.

Further, crop estimates are not available at present for all important crops and in all parts of the country. The Government of India issues crop estimates for some 23 crops grouped as cereals, pulses, oilseeds, fibres and miscellaneous crops. It is necessary to extend the scope of the all-India crop forecasts to all important items which are not already covered and the coverage of forecasts should be extended to all areas.

It should be acknowledged, however, that the system of making forecasts and the collection of other agricultural statistics have undergone considerable improvement in the last few years. Statistical coverage both in respect of area and crops has increased. The collection of agricultural statistics was in the past treated only as incidental to the collection of land revenue and it had not been realised until recently that every development plan has to be based on adequate and accurate statistical information.

Planning for agricultural development presupposes the existence of meaningful statistics by which to measure capabilities and needs, evaluate progress and find out shortcomings.

PROFITS IN PUBLIC SECTOR

Several public sector enterprises earned profits in 1962-63.

HINDUSTAN STEEL—Rs. 6.63 crore; this goes to reduce the loss of Rs. 61.50 crore accumulated in the previous years. Total gross sales amounted to Rs. 130.5 crore.

INDIAN OIL COMPANY—Rs. 59.61 lakh. Sales almost trebled to 6,29,639 kilolitres of petroleum, 16,764 kilogrammes of greases and 11,498 tonnes of petroleum coke.

BHARAT ELECTRONICS, Bangalore—Rs. 46.86 lakh (Rs. 26.53 lakh more than in the previous year); wiped out all the earlier losses. It also started production of transistors in September, 1962 and transistors/diodes valued at Rs. 10.46 lakh were turned out by the end of March 1963.

INDIAN TELEPHONE INDUSTRIES, Bangalore—Rs. 1.02 crore (an increase of Rs. 28 lakh over the previous year); declared a dividend of 4 per cent. It produced 1.32 lakh telephone sets and 1.14 lakh auto exchange lines besides transmission lines valued at Rs. 1.52 crore.

INDIAN AIRLINES CORPORATION—Rs. 20.91 lakh, a new record. The total income amounted to Rs. 17.31 crore.

HINDUSTAN HOUSING FACTORY, New Delhi—Rs. 4.15 lakh. It has already booked orders which will keep it fully busy up to September 1964. An expansion programme has been taken up.

FERTILISER CORPORATION OF INDIA distributed a special bonus, equivalent to a month's salary, to all the employees drawing less than Rs. 500 per month of the Sindri and the Nangal factories.

ASHOKA HOTEL—Rs. 32.22 lakh.

PRAGA TOOLS CORPORATION—Rs. 34,382 (as against a loss of Rs. 4.34 lakh in the previous year).

FRANCE'S Indicative Planning and how it is drafted and worked

By GEORGE DAVID

FRENCH economic planning has by now got a good deal of publicity, and the French themselves have put a sophisticated label on their work. By calling it Indicative Planning, they underline its special frenchiness. It is neither the imperative planning of totalitarian regimes, nor the conditional planning of some of the Nordic countries. The fierce individualism of the French people will not admit of any regimentation, and in any case they say that only a divine (not ordinary) electronic machine could pretend to know all about the past and the future. Hence the French claim that their plan obeys no dogma, shelters no creed; it is designed to work within the cultural and administrative tradition of France, but turned towards the whole world and intimately involved with European Common Market and French-speaking Africa.

France is now in her fourth plan (1962-1965), and to know what it is about, one must go back to the first plan (1947-1952/53) which came in the wake of the revolutionary measures decided by the first de Gaulle Government, when, with a stroke of the pen, France nationalised deposit banks, coal mines, electrical power and production, and a few other industries. It was Gen. de Gaulle and no fanatic leftist that decided that the Government should take over many lines of economic activity. Jean Monnet, author of the first plan of modernisation and equipment, was a man of no inhibitions or prejudices, and was also a fanatic for efficiency. His slogan "modernisation or decadence" sought to do away with the old French tradition of protectionism and economic Malthusianism.

The first plan concentrated all efforts on the building up of five basic sectors. U.S. aid through the Marshall Plan came in time to carry the plan to a successful conclusion. The second plan (1954-57) laid emphasis on quality and price in production and extended its activities to all sectors of the economy. The third plan (1958-61) was meant to adapt the French economy to the European Common Market and French-speaking Africa. This was a troubled period characterised by the circumstances leading to the devaluation of the franc in 1958 and the low rate of progress at least for 1958 and 1959 (the increase in the national product was as low as 2.5 per cent as against the target of 5 per cent).

On the whole, the French economy had progressed at an average rate of 4.5 per cent per annum since the beginning of the plan to the end of the third plan.

The fourth plan (1962-65), conceived in the new de Gaulle era, naturally aims at giving concrete expression to the President's ideas of French grandeur in national and international affairs. In the French scheme of things, the former plans were concerned with modernisation and equipment, while the present plan is deliberately economic and social.

During this plan, it is estimated that national production will go up by 24 per cent, per capita consumption by 20 per cent, "economic investments" by 28 per cent and "social investments" (education, urban and rural equipment, health, research, culture) by 50 per cent compared to 1961. With 1961 as the base year, it is expected that by 1965 the following rates of growth will have been obtained: building construction and public works—132, chemical industry —129, services—127, energy—124, metals, housing and processing industries—123, transport and telecommunications—121, agriculture—119.

Nearly a million jobs are sought to be created, 14 university institutes will be established in the less developed regions, family allocations and old age allowances will be increased, and most important of all, the housing shortage will have been reduced to a minimum. On the trade front, the authors of the plan boldly envisage an export surplus. One of the concrete tasks of the present plan will be to develop the much neglected western regions of France.

The most revolutionary item in the fourth plan is the importance given to the cultural equipment of the country. The budget for this item has been trebled and the museums and cathedrals of France will get adequate funds for much needed renovation and repair works. One of the favourite schemes of M. Malraux, the Minister of Culture, will be taken up: ten popular theatres in different parts of France so that cultural life need not be a remote luxury to large numbers of people.

How the Plan Is Made

FIRST STAGE—preliminary draft. This is done by the Planning Authority jointly with the Service des Etudes Economiques et Financieres (SEEF) of the Ministry of Finances. The SEEF is the creation of M. Gruson, engineer and Inspecteur des Finances, who, assisted by a team of experts, did pioneer work in the organisation of statistical material for the presentation of the French national accounts. It has since been considered the theoretical wing of the Planning Authority.

The SEEF under M. Gruson was responsible for the close contacts with the university world. Every French economist of some prominence has been associated

with the elaboration of the plan through the SEEF. The university professors have thus been able to come out of the purdah into the living world, and the administrators too have developed a taste for intellectual exercises.

The input-output table of the French variety has rightly been praised in many countries, as also the prospective economic budget of the SEEF which sums up the salient features of the national economy and tries to include in its forecasts the possible variations due to international conjuncture.

The preliminary draft is based on final consumption figures. Attached tables relating to foreign trade, investment, manpower and inter-sector dealings give some idea of the possibilities of the plan.

The draft is passed on to the Government which asks for comments from the Economic and Social Council, a body enjoying a good deal of moral prestige and a large degree of commanding power. This body is composed of representatives of all the articulate and active opinions in the country. Their main recommendations are taken into consideration by the Government which gives permission to go ahead with the Plan.

Second Stage—the deliberations of the modernisation commissions. The reports are passed on to the modernisation commissions, of which there are thirty, each composed of members drawn from every shade of opinion in the country. Five "horizontal" commissions deal with problems common to all sectors, while twenty-five "vertical" commissions deal with different sectors of the economy. The discussion is free and uninhibited, and this leads to the correction of dogmas, a direct knowledge of the technical and physical possibilities and limits, tending to develop a spirit of accommodation in the most intransigent among the participants.

Third Stage—final draft. The Planning Authority and the SEEF undertake a synthesis of the Plan in the light of the general discussions of the modernisation commissions. This final plan is discussed in a plenary session of the Economic and Social Council. Then Parliament debates the subject, and approval is given by the Government.

How the Plan Is Implemented

THE facts of life in the French economy are such that it is difficult for the plan to go unimplemented for lack of power in the hands of the State. Let us look at a few facts.

(1) The State is the most powerful economic agent in national life and its behaviour as producer, buyer, seller, employer and lender of capital funds is bound to change the action of the rest of the economy.

(2) The State is estimated to possess nearly half of the capital resources in the country. Its involvement in productive investment in railways, airways, road transport, merchant navy, the tobacco and matches industry, petrol, coal, steel, aircraft production and automobiles gives it enormous bargaining power in the conscious change of direction of the economy.

State ownership has come to stay in France, and critics are often at a loss to discover concrete reasons for criticism. The competence of the executive and technical cadre of the Government enterprises is beyond reproach and their remuneration leaves little to be desired in comparison to that of their colleagues in private industry. Often, Government executives have more freedom of action, if only due to the facility of credit from specialised institutions belonging to the Government.

(3) The main legislative instrument for the implementation of the plan is the "loi du programme". This law is designed to give wide powers to the Government to implement the plan through a system of fiscal incentives to those who would go the way of the plan. These incentives are strong enough to influence private entrepreneurs in their programme of investment.

(4) The Government has organised a large number of organisations, financial and administrative, to give special attention to the implementation of the plan. Thus, whether for regional development or for urban and rural equipment, or for technological research, the Government has formed specialised organisations with the result that in each chosen line of development, the will of the State —obeying the spirit and objectives of the plan—imposes itself on the rest of the economy.

(5) Government permission in regard to lines of investment or location of industry closely follows the spirit of the plan; the preponderance of Government involvement in production bends the rest of the economy to the general objectives of the plan.

What Is Original in French Plan

THE originality of the French planning system is in the institution of the "modernisation commissions" where all the "living forces of the nation" find their representation. Thus within the same commission are found the representatives of the four major trade unions including the communist union, civil servants of the Government departments concerned, and experts with academic background quite at ease in the lecture hall or in the directors' meetings. The total number of the members of these commissions has gone up from 1,000 in the first plan to 3,500 in the fourth plan.

> President de Gaulle's advice to M. Jean Monnet to canalise the goodwill of the whole people in the collective enterprise of economic reconstruction has been given practical expression in the very nature of the composition of the modernisation commissions. Thus no section of opinion in France could pretend that the plan was imposed on them. Frenchmen never hesitate to talk when they have something on the mind, and the modernisation commissions are no exception.

The very organisation of the planning procedure in France rules out the exclusive victory of any pressure group, political or economic. The

idea of development has found votaries among people of different views and temperaments. The working groups of the modernisation commissions provide the ideal forum to all such people for the unrestrained expression of their views. Since no political party of any significance, no school of thought of any relevance, has been excluded from the deliberations of the plan at any stage of its progress, the plan in a real sense belongs to the nation.

Thus, in a country where hair splitting is the dominant national trait, where there is room enough for a dozen major political parties, where only coalition governments are possible, where logic reigns supreme in the most irrational of things, where leftists and rightists often indulge in ugly shows of temper, in such a country, the economic plan alone is left out of polemics.

The plan cannot serve as the trumpet for any political party, and no politician stands to gain or lose by the fortunes of the plan. France, the country of ministerial instability, is also the country of administrative ability and permanence. The vagaries of the political profession do not affect the course of action decided by the administrators. Ministers come and go, but the Polytechnicians and Inspecteurs des Finances remain.

It was indeed a great day for French planning when on May 30, 1962, M. Pierre Masse, chief of the Planning Authority, was called upon to address the National Assembly on the fourth plan.

There can bo no universally acceptable planning system if only because each country has its own stylised economy—conditioned by past history and contemporary involvements. What is perhaps worth looking into is the possibility even under different circumstances, of the participation of a larger number of representatives of every shade of opinion—the original French contribution—in the deliberations of the plan. In Indian circumstances, it seems reasonable to suggest that some system of consultations should be instituted whereby the representatives of the disinherited sections of the nation could make their voice heard.

A closer contact between Indian and French planners could only be to mutual advantage.

SMALL INDUSTRIES NO LONGER ENJOY SHELTERED MARKET

They Should Develop as Feeders to Large Units

CONTRIBUTED

PLANNING assigns an important place to small industries, and their progress and contribution to the economy have been considerable in the past decade. It appears doubtful, however, whether small industries will be able to hold their own in the future.

To say so may be unpopular, but a close examination of the scene does not give rise to firm optimism. Small industries came up because the developmental expenditure during the First and Second Plans created a surge of demand in the country and because, simultaneously, imports of consumer goods were curtailed or banned to conserve foreign exchange. The large units did not have enough of capacity to satisfy the whole of this additional demand. If the small industries stepped in, they could do so mainly because of the assistance given by Government which allocated scarce raw materials, encouraged common production programmes, gave price preference to the products of small industries in government store purchase, and provided loans, factory space and power. As a result, the competitive position of small units improved in a sheltered market; and they could obtain certain materials and services at much lower rates. Most ready to take advantage of these conditions were the light engineering industries. The existing units expanded, and new ones sprang up. So much so that clocks and watches, tape recorders, scooters, transistor sets are all now being manufactured on a small-scale basis.

But Government assistance has been responsible for lop-sided development of small industries. Only those industries have come up in respect of which indigenous quotas or essentiality certificates for import of scarce raw materials are available, primarily light engineering industries and electrical industries to the exclusion of ceramics, chemicals and food industries. It is common knowledge that many units obtain quota certificates or import licences only to exchange them into hard cash. An example might be cited. During the last two or three years a large number of units have been set up to manufacture wire products. Their formation was ecnouraged because of the large difference between the controlled rates of wire and the open market rates. When the difference vanished, many of the units were found to have ceased working.

Problem of Quality

Small scale industries are generally associated with inefficient technology. They lack capital resources, technical know-how and management experience. The machinery and equipment they possess are largely second-hand and are often sub-standard. Their products could sell because the market was sheltered owing to import restrictions and insufficient production by the larger units and the high prices prevailing. While a few small units improved their technical efficiency, most were content to reap the temporary benefits of ready saleability. In concentrating on keeping prices low they sacrificed quality. As a result they could not command brand.

As raw materials became relatively less scarce, more units came up, both small and large. The small units had now to face competition not as within the sector, but from the large-scale sector which was technically more efficient and had a well-organised sales organisation. This increasing competition forced many small units to reduce prices as well as quality even further. Not unoften foreign

brand names were stamped on goods produced locally to attract sales. The competition from the larger units is already being felt by the small-scale units engaged in the manufacture of snap-fasteners, switches, fountain pens and so on. Common production programmes have not been able to save the small units. These production programmes are drawn on the basis of estimated future demand. But when demand forcecasts happen to be higher than the actual, it is the small-scale sector which suffers; for instance, production of bicycles in the large-scale sector rose from 1.5 million in 1960 to 1.12 million last year, whereas in the small-scale sector, it decreased from 514,000 in 1960 to 228,000 in 1961 and 59,000 in 1962. This is because against a demand forecast of 1.7 million, the off-take in 1962 amounted to only 1.15 million cycles. Government assistance in the form of technical know-how and through store purchase has not been very significant. Purchase by the Directorate-General of Supplies and Disposals from the small units has been just 5 per cent (worth Rs 14.5 crore) of the total purchases during last year.

The Way Out

It is thus evident that small units, with their inefficient technology, can thrive only when scarcity conditions obtain. The situation can be saved by planned development of the small industries as ancillaries to large units. That would eliminate competition between the large sector and the small sector and solve the problem of marketing the products of small industries. The small units very often get technical guidance and raw materials from the large units for the production of quality parts and components. In all industrially advanced countries like Germany, U.S.A., U.K. and Japan the organised large units depend upon small industries for nearly 60 to 70 per cent of their requirements of parts and components; and the Government of India has a policy of developing small industries as ancillaries to large units in both the public and the private sectors. It might, however, be mentioned that many large units in our country (as elsewhere at certain stages) undertake production of more and more parts and components in their own factories. One bicycle manufacturing company indeed proudly claimed that it was perhaps the only factory in Asia (or in the world) to produce all parts under *one shed*. The development of ancillary and feeder units is beset with several genuine and some imaginary problems. It is often alleged that non-interchangeability of the parts made by small units, lack of quality control, use of different qualities of raw materials for different batches of products and irregular supplies from the small-scale sector will disrupt the working of large units. But many of these problems have been known to disappear with right co-ordination.

Specialisation

Demarcation of production between large and small sectors may prove useful in some well-established industries. Competition within the small-scale sector will ensure that prices are governed by the quality of the product, and contacts between large sector and the more efficient of the small units will lead to the improvement of technology within the small units. But such demarcation is possible only in well developed industries like bicycles, sewing machines, motor parts and radios. With demarcation, the large units will be able to concentrate on production of major parts, assembly and sales. The small units can specialise in parts and components for which they are technically competent.

Thus ancillary development and demarcation of production will enable the small industries to withstand and even prosper in a situation in which scarcity conditions no longer prevail. Otherwise, the small industries will go to the wall, and only produce inferior products, with the workmen pushed into disguised employment. Present forms of assistance are not enough to enable the small units to hold out for a long time.

QUOTATION BOX

Government officials even today spend hundreds and thousands of rupees to save four annas. Many do not take quick decisions...This costs the Government ten lakh rupees each day.

—Mr. Nehru

The University, the Registrar (of Utkal) announced, had, despite its best efforts, failed to secure the necessary amount of gold for making medals. He however assured that gold medals would be sent to the recipients either after the Gold Control Order was lifted or some time when the University was able to secure gold.

—A Press Trust of India report

Once a man gets into the list, it is always possible for him to get a quota unless something is found against him.

—Mr. C. Subramaniam

The beautiful pink city of Jaipur, which I have painted many times in my murals in America, is at present being hideously blemished by thousands of large commercial signs and monstrous-visaged movie bill-boards.

—From a letter to the Editor in "The Statesman"

The pattern in India is choice by the group which shares responsibility, whereas in the West marriage involves a greater element of chance.

—Dr. Eugene P. Link, Professor of Sociology, New York State College

English education and all that it connotes was deflated, if not discarded, on a wider scale in Uttar Pradesh than in any other part of India.

—Mr. Humayun Kabir

Unique distinction of having the best of expertise, generous foreign aid, a near perfect Plan and about the lowest growth rate among the underdeveloped countries of the world.

—"The Economic Weekly" on the progress of Indian planning

The government continues riding the Plan-tiger. But what about the people who are meanwhile being eaten, whoever may ride the tiger to avoid being eaten up?

—Mr. C Rajagopalachari

The man in the village is more conversant with the co-operative movement than the urban man. The higher a person's education the less he seems to know about co-operation.

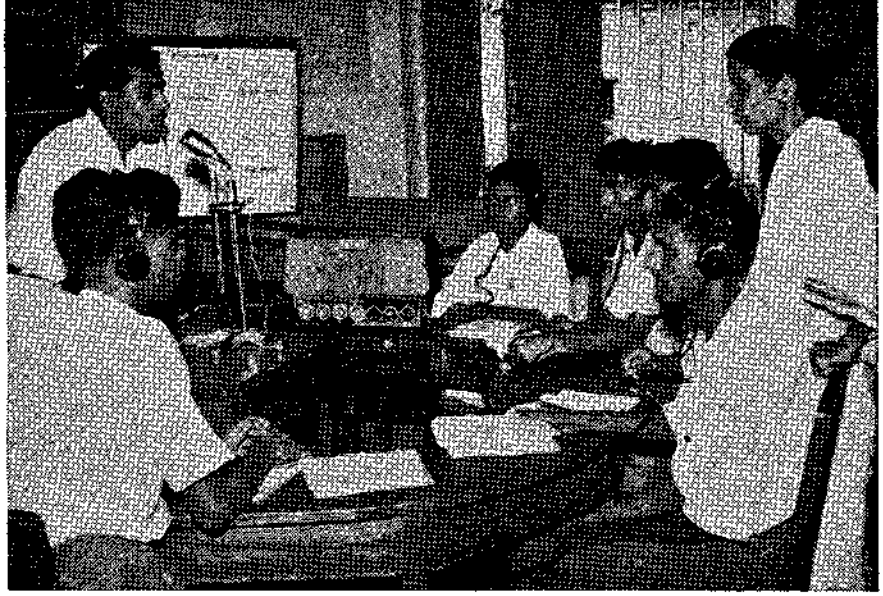
—A delegate to the Indian Co-operative Congress

Indian culture did not elevate poverty to an ideal. The Vedas, as is well known, consist mainly of prayers and sacrifices for earthly prosperity.

—Sardar Panikkar in a lecture posthumously published

Jawaharlal Nehru is unique in the country. But everyone should not consider himself a Nehru and continue to occupy office after 60 or 61 years of age.

—Mr S.K. Patil



BETTER HOMES FOR CHILDREN IN AKOLA

AKOLA district of Maharashtra has been making steady progress in its welfare schemes. The facilities mainly serve children, women and invalid or disabled persons.

There is a school for the dumb and deaf, started in 1958, which serves all the eight districts of Vidarbha. It admits 35 children in the age group of 9 to 14 years. The children are taught to speak and hear with the help of hearing apparatus. Training is also given in crafts like weaving and carpentry. The children live in a hostel and the expenses are borne by the Government.

Juvenile delinquents are kept in the remand home at Akola while under trial. The case history of each boy is thoroughly studied during his stay of two to three months in the remand home. He is also taught to read and write as also a craft. Selected children are sent to the certified school. Some children are restored to their parents who are willing to look after them. In the three years it has been in existence the remand home admitted 287 children of whom 151 were later restored to their parents and 120 sent to the certified school.

For the general welfare of children, the integrated Child Welfare Demonstration Project has been located in Akot Panchayat Samiti in the district. The Central Government has opened one such project in each State and for Maharashtra it has been located at Akot. Under this project, all the children welfare activities, done by both official and voluntary organisations, are co-ordinated, problems of allround development of children are studied and solutions sought over a period of five years at an expenditure of five lakh rupees. The activities of the project are routed through Gram Panchayats, Mahila Mandals, educational institutions and public health units.

The Akot project, started only last year, will look after 30,901 children below 11 years in age from 129 villages in the Samiti area. Preliminaries, such as survey of the area, have been completed. To start with, 40 Balwadis are being organised and midday meals served once a week.

The Child Welfare Scheme sponsored by the Central Social Welfare Board has already been working in 45 villages in the Washim and Murtizapur blocks. There are 15 centres and two sub-centres. At each centre there are a Mahila Mandal, a Balak Mandir and a Gram Sevika. Milk is distributed free to children and training in tailoring and knitting is given to women. At some centres, *dais* have been appointed to guide women in pre-natal and post-natal care.

An additional activity for women is the two-year training course to prepare women from villages for training as *dais* and auxiliary nurses. The course is conducted by Maratha Boarding at Akola. Every trainee is given a monthly stipend of Rs. 25.

There are number of industries in the district, which come under the Employees' State Insurance Scheme. Workers receive free medical aid under the scheme. Since 1955, three dispensaries have been opened for this purpose. Permanently disabled workers are given pension. Women workers are given maternity benefit of three months. Last year Rs 84,020 were spent on providing relief and medical assistance to workers under the scheme.

There are also four labour welfare centres in the district—three at Akola and one at Karanja. Two of these centres, including that of Karanja, are multipurpose, conducting classes in crafts for women, indoor and outdoor games and reading rooms. The Karanja centre also gives training in carpentry and weaving.

FARMERS' BANK

Near Coimbatore in Madras State there is a bank with a difference. The Tudiyalur co-operative bank advances money as well as services to cultivators. It thrives on the small savings deposited by peasants in the midst of the highly industrialised area of Coimbatore where interest rates are quite high.

The bank has been supplying 9,000 kilograms of superior cotton seeds to cultivators every year for sowing in selected plots under the supervision of the Agriculture Department. It also prepares, stocks and sells fertiliser mixtures valued at about Rs 3.5 lakh to its members and 45 other co-operative societies in the district. It has bought 95 sprayers and 30 dusters for hiring out at nominal charge; they spray 8,000 acres of land and fetch Rs 3,000 as hire annually. Insecticides valued at Rs 25,000 are also sold every year. It also lends on hire improved implements such as ploughs, bund-formers and levellers.

The bank proposes to set up a soil testing laboratory and to provide marketing facilities for the benefit of its members.

The bank started functioning in April 1955 and now covers 13 villages. Its shares are on a guaranteed liability basis. During the past eight years, it has increased its share capital from Rs 28,600 to Rs 1.61 lakh, and its annual profits have risen from Rs 762 to Rs 50,000.

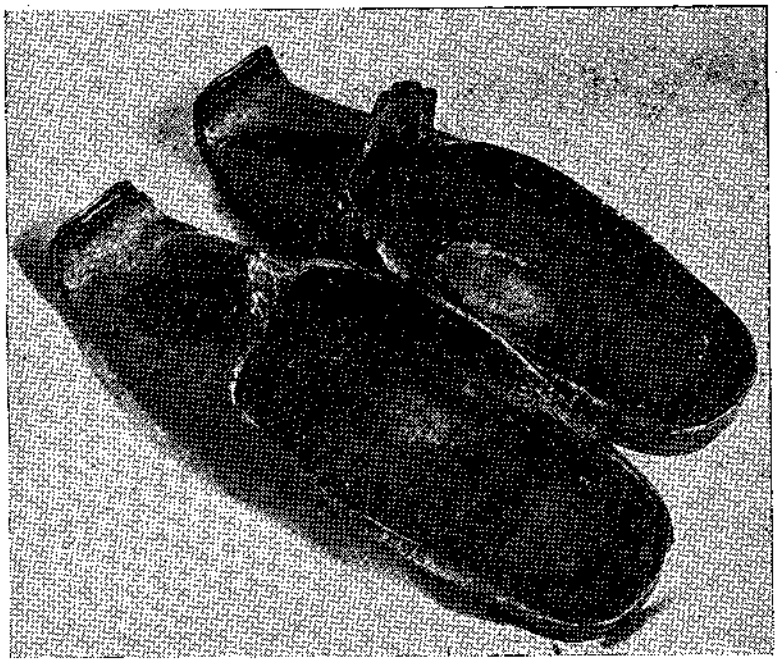


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VIDYASAGARI 'CHATIS' OF CALCUTTA

Pride of Place—94

In the seventies of the last century, Pandit Iswar Chandra Vidyasagar, the great social reformer and educationist, was once among the audience in the National Theatre, Calcutta, witnessing the celebrated play *Nildarpan*. The drama written by Dinabandhu Mitra was based on the inhumanity of the European indigo planters. Ardhendu Sekhar Mustafi, a well-known actor of the time, played Mr Wood, the overbearing planter. It is said that Mustafi was so convincing in the tyrannical role in a particular scene that Vidyasagar could not help hurling a slipper at him. It hit the actor's face. The incident is now a legend in Bengal. The slipper, or *chati* as it is called in Bengal, was an improved version of Taltola slippers manufactured by the cobblers of Taltola, a locality in central Calcutta.

With soles leather-stitched, Taltola slippers were made of patent-leather and used by the gentry at the time. To suit his own requirements, Vidyasagar introduced certain changes in the Taltola slipper. The upper part of the soft-leather slippers was extended to fully cover the feet, and the tip was turned up. This improved version caught the fancy of the market and came to be known as Vidyasagari *chatis*.

Vidyasagari *chatis* are durable and known for the comfort they give to the wearer. They are now manufactured on a large scale. They are popular with the younger people also.

More Minerals Raised, New Deposits Found

India produced minerals valued at Rs. 110.5 crore in the six months January to June, 1963, showing an increase of Rs. 17.3 crore, or 19 per cent, in value of output in the first six months of the previous year.

A belt of iron ore seams, 68 kilometres long and 32 kilometres wide with 2,726 million tonnes of deposits—the largest in India—has been located in the Singhbhum-Keonjhar-Bonai area of Bihar.

Deposits of magnesia, amounting to 11.6 million tonnes with 40-44 per cent of the metal, have been proved in Almora district of U.P.

New Year Glossary

SIR—That racy reporter, Mr. James Cowley of "The Statesman", says that the Institute of Economic Affairs of Britain has a novel idea on its Christmas cards this year—to give the true meaning of some jargon words in economics. He gives some examples :

Affluence : An immoral development that is in danger of superseding honest poverty.

Law of the Jungle : A disorderly state of affairs in which some prices or profits might be in danger of falling.

Unfair Competition : Selling cheaper than someone else.

A similar exercise is very necessary for the planning jargon that has been developed in India. I have tried my hand at it, although I am neither a good economist nor a satirist.

Mid-term Appraisal : A document which says our work is no good at all but turns round and claims our ideas are not so bad after all.

Target : An object which, because of our heritage of non-violence, we prefer not to hit.

Perspective Plan : Carrot at the end of a fifteen year-long stick.

Per Capita Income : Figure which tells how much per head but how little per stomach.

Irrigation Potential : Water that goes down the drain.

Gestation Period : A seemingly interminable pregnancy.

Priorities : A group of claims in which each is more equal than others —(e.g., Agriculture, Defence, Basic Industries, Employment, are all *first priorities*.).

Implementation : The tool which the worker has ready at hand to blame.

Eight's enough. But I wonder whether, as a journal committed to compulsory optimism, you will publish this letter.

NEW DELHI — ANIL BOSE

COMMUNITY DEVELOPMENT

India's Significant R



Afghan women have been out of purdah for the last five years. Tod
restaurants have young Afghan girls working as saleswomen, stenograp
stan has its first batch of lady doctors this year. A large number have

in AFGHANISTAN

AFGHANISTAN and India have much in common because they share a common legacy. Afghanistan was a stronghold of Buddhism when Buddhism was the State religion of India. Ajanta is but a replica of the caves at Bamiyan and our best Gandhara sculpture is of Afghan origin. When the Afghans turned Muslim, they introduced Islam to India. A succession of Muslim dynasties which ruled India—Ghori, Ghazni, Tughlak, Sur and Lodhis were Afghans. The languages of northern India and the Afghan's Pushto and Farsi have a common origin. The two peoples are of the same ethnic stock claiming to be Aryan—the old name for Afghanistan was Aryana as the old name for India was Aryavarta. These ancient ties of blood, culture and way of life manifest themselves to this day. Of all the foreigners working in Afghanistan, the ones closest to the Afghans are Indians. And the Indians themselves feel as if they were working amongst their own countrymen. One of the best examples of this fraternal co-operation is in the rural development programme of Afghanistan.

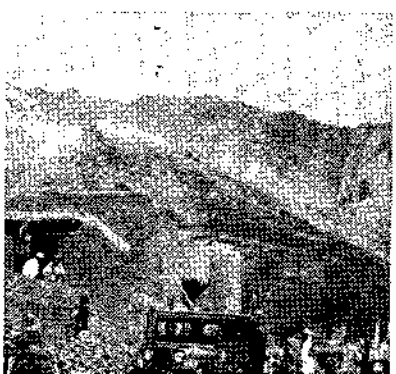
COMMON PROBLEMS

AFGHANISTAN like India is a large country—it is larger than France. But unlike India it is sparsely populated; barely 13 million people scattered over 250,000 square miles. Very little of this vast territory is however arable; most of it is mountainous without a layer of earth or even grass to grow on it. The mountains create many other problems. The valleys in which people can live are separated by long distances and are virtually cut off from the world for almost six months of the year when snow lies thick on the ground. In a typhus epidemic in 1947 whole villages near Ghazni were destroyed without as much as a word getting out to near neighbours. Afghan villagers like the Indian were poor, illiterate and isolated from the winds of change that were blowing over the rest of the world. While Kabul was fast changing from a medieval Central-Asian town to a modern European city, Afghanistan's hundreds of thousands of villages remained in cloistered backwardness.



WINDS OF CHANGE

NO country which ignores its peasantry can hope to go ahead. Afghanistan's progressive monarch and the then Prime Minister, Daud Khan, knew this full well. The start was made in September 1954 with a pilot project in two adjoining villages, Shewaki and Deh Yousuf, seven miles outside Kabul. The technical personnel and the driving force was provided by the United Nations



Middle:

**The Afghan countryside is ve
like that of Kashmir; so are th
people and their problems.**

Left:

**The ubiquitous jeep—now see
where in Afghanistan carrying
Development Officers and oth
munity project personnel.**

in Neighbour's Progress

By

KHUSHWANT SINGH

Photographs: UNICEF



l's shops, offices and waitresses. Afghani- ined as nurses.



Five years ago no woman could go unveiled in the country. Today almost all young women are unveiled. Nurse Audila Amiri is seen talking to her mother.

First of Three Articles

Technical Assistance Board; UNICEF took the lion's share of responsibility for supplying equipment: transport, books, medicines, audio-visual apparatus etc. Amongst the pioneers in the work was an Indian, Hari Govind Gupta, who had worked in Etawah and had made his mark as an expert on rural industries.

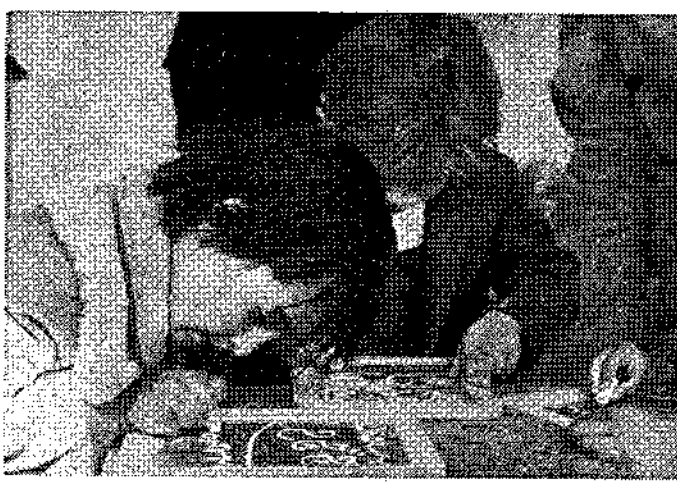
The Shewaki-Deh Yousuf experiment was a success. Its achievements were enlarged and a year later another 30 villages covering the administrative division of Bagrami in Kabul province were brought under purview: and a few months later yet another 30 villages in Charasia division.

Afghanistan's First Five Year Plan (1956-61) provided for the setting up of eight projects including Shewaki. In the Second Five Year Plan (1961-66) provision has been made to cover 25 per cent of the population of the country. The speed with which the movement is catching on is faster than envisaged by the planners. Today Afghanistan has 14 Community Development Blocks; in the next six months another three will be opened. Mr. Malik Yar, who heads the department, told me with absolute conviction that by the end of Second Plan he expects to have 29 blocks *i.e.*, 12 more than the Plan target.

Indian collaboration has continued throughout. On the death of Hari Govind Gupta, the services of Mr. S.L. Khurana of our Community Development Ministry were loaned to the Afghan Government. And today, Mr. Malik Yar's right-hand man is Ayodhya Prakash who has considerable experience of the rural movement in Bihar. Prakash is young, clear-headed, enthusiastic, and above all other things, loves Afghanistan and the Afghans. Amongst his colleagues is Fateh Singh who is an expert on rural co-operatives.

PEOPLES' PARTICIPATION

THE crux of the community project movement is participation by the people. In India this has been organised by the renaissance of the Panchayats. Afghanistan has a similar village institution known as the *Kili Jirga*. The village Jirga is not elected; leadership is *understood* and vests in the elders. Hitherto the Jirga has not been given a legal or constitutional status, it has no power to raise money nor therefore to expend what the Government gives it; all these will come in due course. But it has shown its potential in arousing the enthusiasm of the people in co-operative effort—link their villages to towns, observing sanitary regulations,



The three R's. Education has made tremendous strides in Afghanistan. In Kabul practically all children of school-going age are in school.

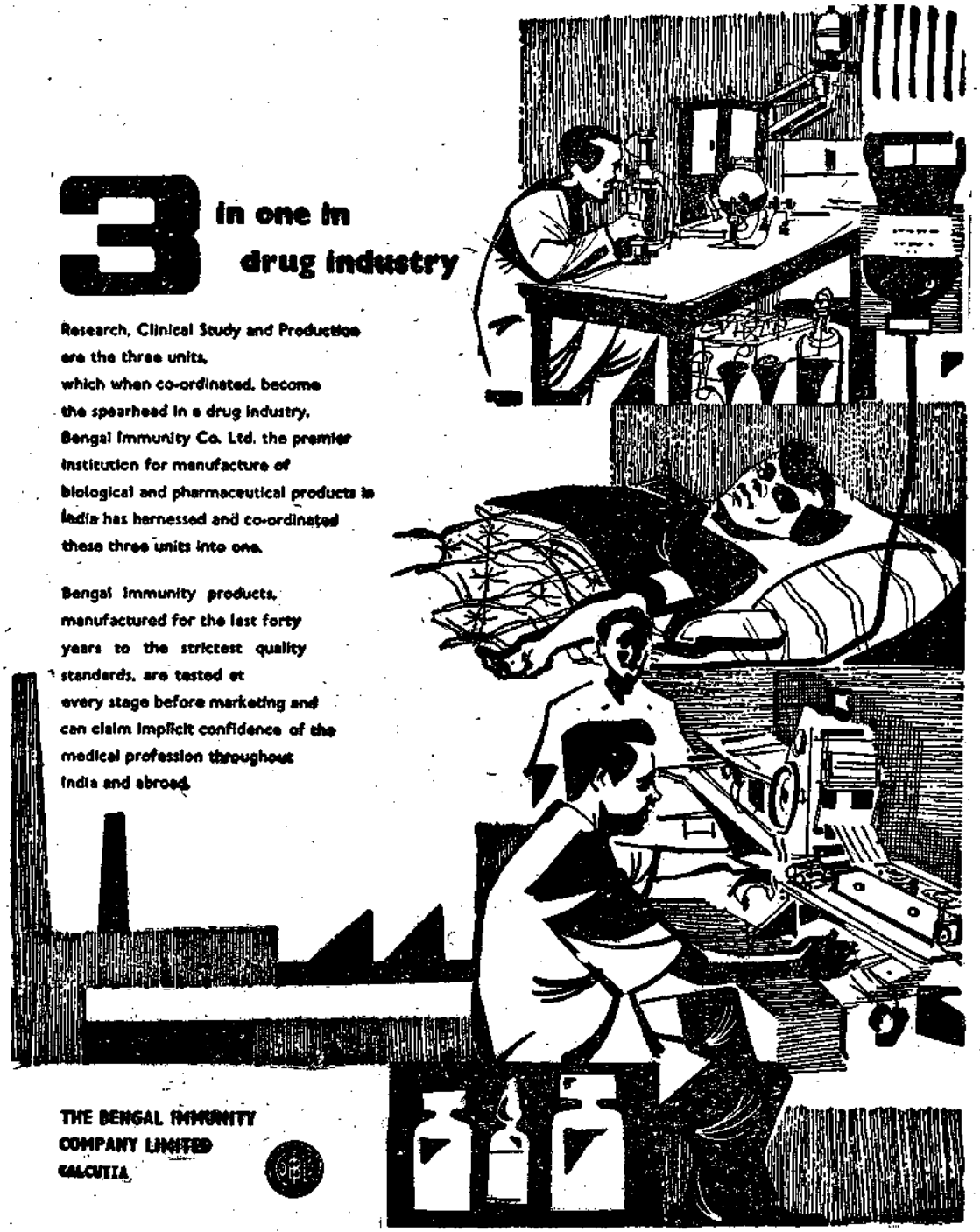
sending their children to schools and voluntarily submitting themselves to medical examination.

THREE is little doubt that the rural development movement has caught on in Afghanistan. The Government gives it high priority in its planning; UNICEF is coming in with assistance in a very big way and is the chief organisation behind the setting up of a large training centre at Gulzar, a few miles from Shewaki. And the peasantry itself are responding to it without any reserve whatsoever. It is apparent from the new vocabulary they use. When I was in Afghanistan ten years ago whenever I asked anyone how long it would be before a building or a road would be completed, the usual answer was *Khuda Midanad*—God alone knows. Today you rarely hear these words; they have been replaced by *Imroz, Fauran, Zut*—today, immediately, at once.

3 in one in drug industry

Research, Clinical Study and Production are the three units, which when co-ordinated, become the spearhead in a drug industry. Bengal Immunity Co. Ltd. the premier institution for manufacture of biological and pharmaceutical products in India has harnessed and co-ordinated these three units into one.

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THE BENGAL IMMUNITY COMPANY LIMITED CALCUTTA

Making It Clear

A British geographer, Professor B.H. Farmer of Cambridge, went round India recently looking at our various land resettlement projects.

He made two interesting minor discoveries : one, that in Rajasthan ex-*jagirdars* are allotted lands on the ground that they are under-privileged people; two, that in Central India there is a settlement which proudly claims to be "Ex-criminal Tribes' Colony".

The "criminal" tribes of old were "denotified" precisely to remove the stigma but some officials evidently don't give in to reason.

Salute to Giant

LAST month hundreds of office workers collected at lunch-time along Delhi's most prestigious road, Parliament Street. They were all looking in the same direction and we were curious to find out if a VIP was speeding by.

No. What they were seeing was only a dumper—one of those mammoth trucks used in the bigger construction projects. Yet to people in the capital the vehicle which could tilt its load of 20 tons was a novelty.

Plain instance of Delhi wondering at what the rest of India is familiar with.

How Many Bikes?

IN the Parliamentary debate on the Mid-Term Appraisal Mr. Masani quoted from a book which is going its rounds, Welles Hangen's *After Nehru Who*?

The passage Mr. Masani chose to quote sought to make fun of Mr. Nehru's observation that India could be said to have entered the bicycle age. Considering that the production of bicycles in India is one million a year and the population 440 million, Mr. Hangen argues that 440 years are required before India can claim to have really entered the bicycle age.

Here is a special kind of logic..... As though, when we say U.S. is in the jet age, it means that every household in the U.S. owns a jet aeroplane!

This kind of reasoning is characteristic of every page of Mr Hangen's infantile book.

Birth of a Town

TWELVE pages in our last issue, we found, were not enough to tell the coal story fully.

For example we did not do justice to Bisrampur. Indeed Bisrampur is a good exhibit in the show-window of our industrial progress.

If you looked at a railway map of India you would find two areas where the lines are fewest—the Dandakaranya region around Bastar, and the stretch to its north. This 'farthest from everywhere' region consisted of some of the most benighted princely rulers until fifteen years ago. Bisrampur is situated in what was once the Surguja State. Even two years ago it was dense forest, and cheetahs roamed freely there. The Adivasis of the place did not know what buying and selling was. When the first electric poles were laid they had to be guarded for fear that the people might, in their curiosity, get electrocuted.

Today Bisrampur is a modern township. The railway has reached there. (The first coal began moving last November). Not only does it have primary schools but even a convent which offers middle-school teaching.

It is here that two draglines, each 1,800 tons in weight, will soon begin working. The coal output, which is now a nominal 15,000 tonnes a month, will then rise to 2.7 million a year.

Industrial Gods

NOT only are we having the new temples; the old temples are becoming new, too. There was a time when the only activity a temple undertook besides its religious (and monetary) transactions with devotees was to run a Sanskrit school. In recent years temples have come to realise that its social obligations ought to mean more than feeding the poor and building *dharmashalas*. An example of what a temple can do is the university started by the famous Tirupati temple in Andhra Pradesh. The bigger temples have always owned large areas of land and in most of them the deity was regarded as the landlord. Deities are now showing signs of turning industrialists. The Jagadguru of Dwarka recently said that his temple will be starting a few small industries.



IGNORAMAN

Wants to Know

What Is Needed?
—Centralised Civil Service, or
Civilised Central Service?

Dry Comment

SAYONARA, they say in Japan. Come again, say the gregarious Americans. The French *au revoir* implies meeting again. The Tamil word for farewell is "go and return".

But three in ten visitors to India do not want to come back at all—not for anything in the world.

The Minister for Transport said that a special study conducted for the Government by a U.S. research institute showed that the non-returners don't like the beggars in our streets, don't like our climate, don't like our hotels, don't like our transport. But none, the Minister revealed, had a grouse against our prohibition laws.

Collector's Item

Heard in Delhi:

"Why should Krishi Bhavan have security arrangements? Agriculture is such a harmless subject."

"The reason is simple: People might walk away with our agricultural statistics."

Books

Study of 5 Maharashtra Villages

FIGURES THAT DO NOT GIVE MUCH INSIGHT

Group Relation in Village Community. Irawati Karve and Y.B. Damle. Deccan College Post-Graduate and Research Institute, Poona. 483 pages. Rs. 20.

K. C. D.

IN recent years there has been growing interest in sociology in our country. Some social scientists attribute the present state of affairs in our country mainly to the prevalent social attitudes and relationships. When efforts are being made to change the country through planning a wider study of sociology is of theoretical and practical value.

Thanks to the Research Programme Committee, a number of field studies have to understand the structure and motivation of Indian society. The present study sponsored by the Committee covers five villages in western Maharashtra. The field work was carried out from December 1955 to June 1956 in three villages ,Varkute, Ahupe and Karul, and from December 1956 to March 1957 in the two other villages, Wadi and Vasti.

The study consisted of six investigators, besides the authors. Their academic grounding raises some expectations, especially in regard to how the quantitative and qualitative material has been correlated in the study.

The book is in two parts. The first, consisting of 75 pages, is descriptive material. The second part runs to 408 pages and contains 144 tables and an appendix. The first part has been further divided into six sections. The opening section sets out the methodology and gives primary information. The second deals with inter-group relations and the third with the attitudes and opinions of villagers in regard to social distance observed in their respective villages. The fourth section is devoted to a study of beliefs and the normative structure underlying behaviour patterns and attitudes. The fifth is a note on the position of scheduled castes studied with special reference to programmes for their betterment. In the concluding section the authors assert that their major hypotheses about kinship, caste and locality as the determinants of inter-personal and inter-group relationships have been proved by and large.

A very comprehensive questionnaire was adopted for the study. In addition to identificatory and kinship data, emphasis was placed on collecting both factual and attitudinal material from the respondents. Heads of 343 families belonging to 21 different castes were interviewed and detailed information gathered from them. Analysis of the material showed that, first of all, the settlement pattern of the villages was in terms of caste. Whether the villages were nuclear or dispersed, the nearest neighbours tended to be the agnates or affinial kin. The villagers of Karul, a dispersed village, did not mind the caste of their neighbour as far as their attitudes and opinions were concerned, but in practice their neighbours were invariably caste fellows.

In economic relations, the landlord and tenant tended to belong to the same caste except in Karul. The villagers worked as labourers or workers outside their own caste except in Ahupe. They also went outside their caste for lending and borrowing. This type of economic interdependence was also reflected in the Balutri system, in which a large number of families belonging to agricultural castes received certain types of traditional services from the families of other service castes. Payment was made in kind or money as an obligation in return.

As is well known, rules about dining play an important part in Indian social relationships. The survey showed that in everyday life, meals were given only to kinsmen and to lower castes. Agriculturists served meals to the entire village on the occasion of marriage. But untouchables fed only their kin and caste members. Ideas of pollution and ritual purity still held sway in the touchable castes. Six cases of touchables accepting hospitality from untouchables were recorded showing a tendency towards a loosening of the caste code.

Factions and quarrels involving inheritance and land were among kin and those involving leadership, personal differences and trespass were between different castes.

Caste appears to be so pervasive that, irrespective of legislation, in none of the villages had untouchables access to wells and temples situated in the touchable areas. In Varkute, which has a small river, untouchables filled water downstream so as not to pollute it for the touchables. This tendency was also reflected in work projects wherein the touchable castes mostly contributed money and little physical labour to avoid contact with untouchables who contributed physical labour only. (To remedy the problem of untouchability the authors have suggested the mass migration of scheduled castes to industrial areas. This is a novel idea, but the authors do not seem to have worked out the full implications of such an experiment.)

A limitation of this study is that the authors have clubbed together villages from three geographically distinct environments and not considered each village as a separate entity. And, although they have done a wise thing in studying two villages more exposed to modern communication to find out if any influences other than caste have affected the pattern of group relations, they have not subjected the findings to much analysis. The reviewer must confess that he was looking for such comparative analysis and that he was disappointed.

The authors also say that they intended to study the leadership patterns in the villages as also the foci of status. The power-structure has not been brought out in detail and one fails to understand how the authors could come to the conclusion that the caste system and system of age-grades continue to determine status.

In the second part of the book the authors have quantified a mass of qualitative data which are not easily manipulable. References have been given in the first part, while interpreting and presenting the material, to the tables in Part II. But one has to turn the pages too often to get at the point made. The 144 tables stand as isolated pillars with no connecting roof over them. In the absence of cross-tabulation it is difficult to relate each table with the others. Comparative analysis has also not been attempted between the data from different villages. Tables selected at random show more blanks than figures in the various columns. The tables should have been more compact, and published only when necessary. At present they needlessly swell the size of the book.

As a whole the study shows what dangerous ground social scientists tread when they rely too much on quantitative data to study and analyse social phenomena. Lacking in penetrative analysis, it is a lesson in how quantitative data do not add up to much when unrelated to social facts. Group relations in a village community cannot be brought out by producing 144 tables. More of the tools of social research than merely data collection should be brought into play. The participant-observant should observe relationships in a number of social and economic situations over a period of time, as relations do not remain static.

PUBLICATIONS RECEIVED

Production of Commodities by Means of Commodities by Piero Sraffa. 118 pages. Rs. 4. *Development with Stability—The Indian Experiment* by S. L. N. Simha. 131 pages. Rs. 9. Both published by Vora and Co., Bombay.

The Analysis of Braced Domes by B. S. Benjamin. Published by Asia Publishing House, Bombay. 110 pages. Rs. 12

The Makings of a Just Society by Chester Bowles. Published by the Delhi University. 120 pages. Price not mentioned.

NEEDS AND RESOURCES OF GUJARAT

Techno-Economic Survey of Gujarat : By the National Council of Applied Economic Research. 260 pages. Rs. 20.

A.R. Desai

LIKE the earlier twelve techno-economic surveys by the National Council of Economic Research, this one on the new State of Gujarat is at once scientific and comprehensive. Bringing out in bold relief 'the areas of *strengths* and *weaknesses* in the existing structure of State economy', it analyses clearly their implications in the context of planning for the period 1960-61 to 1975-76.

The points of strength in the Gujarat economy brought out in the report are:

1. 'A relatively high land-man ratio', and 'a well developed dairy industry.'
2. 'The enterprise and dynamism of the farmers of Gujarat'.
3. Potentiality of rich forest resources.
4. Rich fishing grounds all along a coastline of one thousand miles.
5. An advanced, and well diffused, industrial sturucture.
6. A fairly large and diversified industry. Existence of a class of energetic entrepreneurs., who with their capital resources, and in view of the new petro-chemical base that Gujarat oil now provides, would enable the development of small industry on the Japanese pattern.
7. Relatively better off situation in regard to railways, with 4.6 miles of track per 100 squae miles compared to the national average of 2.5.
8. A fairly good record in respect of social services.

Against these advantages must be seen the areas of weakness in the State's economy. First of all, agriculture is inhibited by a relatively high percentage of fallow land and an inferior crop pattern and poor yields of most of the major crops. The poor yields are largely due to unfavourable climatic conditions over major portions of the State and low percentage of irrigated area. The forests are exploited wastefully. Because of the dietetic habits of the people, the fisheries resources do not find a domestic market. Better provision of transport, marketing and refrigeration facilities is required if the fish have to be exported to outside markets over long distances.

Secondly, Gujarat is a power-hungry and power-shortage economy, so much so that the annual growth rate in the industrial sector in the Second Plan was only 3.8 per cent as against 5.2 per cent in agriculture.

In regard to transport, Gujarat is highly deficient in road mileage. The availability is 30 per cent below the Nagpur Plan standards. There are only 20.9 miles of road per 100 square miles as compared to 23.5 for the country as a whole. In respect of railways, traffic is made difficult on account of gauge differences requiring transhipments.

In the absence of hydro-electricity, industries depend largely on the supply of thermal electricity which requires large supplies of coal. It is difficult to move these supplies in the best of circumstances.

Finally, in the matter of finances Gujarat is a deficit State on current account. Its interest liabilities have considerably increased and its per capita tax is lower than in many other States.

In the light of the above strengths and weaknesses, the Survey has suggested an integrated 15-year development programme to achieve an increase in net output of agriculture and allied activities of 52 per cent and a 170 per cent increase in industrial output and about 95 per cent increase in tertiary output between 1960-61 and 1975-76. This programme, the survey says, is a minimum one and would raise the per capita income to Rs. 445 at the end of 1975-76 as compared to Rs. 287 in 1960-61 (at 1955-56 prices). The income of the State would go up from Rs. 655.7 crore in 1960-61 to Rs. 1,247 crore by 1975-76 in such a way that 63 per cent of the State income in 1975 would be derived from non-agricultural activities as compared to 54 per cent in 1960-61. Such a development programme is also likely to provide additional employment of 3.2 million persons in non-agricultural jobs—1.14 million in urban and 2.08 million in rural areas.

The discusion in the Survey in regard to choice between alternative projects should be of special interest to students and policy-makers. In agriculture, the Survey repudiates the widely held view in favour of food self-sufficiency as the primary objective of planning in a State. It boldly asserts that "while the attainment of food self-sufficiency may become necessary objective at national level, it would be unwise from an economic point of view" at State level. The primary goal here should be to raise income levels.

In view of the inadequacy of the State's financial resources the Survey suggests that priority should be given to capital-light and quick-yielding measures, such as use of better seeds and fertilisers along with intensive cultivation practices. Success of these measures, it points out, does not necessarily lie in the larger coverage of rural population by the agricultural extension services but rather in achieving the maximum effectiveness of the service. Soil conservation has been recommended because of the lower capital-output ratio and the scope it offers for utilising idle manpower. As for irrigation, the Survey comes out in favour of major irrigation works as against minor works which, it finds, have a higher capital-output ratio and an unfavourable cost-benefit ratio. Major works would also benefit the eastern areas of the State. The Survey wants the official and non-official critics to remember that 10 to 15 years are required for full utilisation of irrigation facilities after completion of a project.

In the case of the Narmada project the choice of sites raises important issues. Navegam in Gujarat has a high power-generating capacity but on completion of the first stage it will provide only irrigation, and power will not be available until the Fourth Plan. However, Navegam would be a low-cost project (Rs. 600 per kW) as compared to the thermal project at Utran (Rs. 3,300 per kW.). But the potential at Navegam cannot be exploited unless the most important dam is constructed at Punasa. It is for this reason that the Gujarat Chief Minister has recently moved constructively in the matter of the Punasa dam with the Madhya Pradesh Government.

As regards the alternative sources of fuel, the report seems to suggest that coal will have to be used increasingly. The question is one of utilising a nearer source, Madhya Pradesh, rather than the more distant Bengal-Bihar collieries. By cutting down the distance, some cost advantage will also accrue.

The Survey also recognises that if the technology of nuclear power continues to improve as it does, the relative economies may shift in its favour by 1971. Both oil and gas having been found, Gujarat would stand to benefit from an additional base resource of development.

All in all, the Survey has been wise in whatever it has talked of. However, there are certain significant aspects of the economy of Gujarat which have been either ignored or have received scant attention. For example, the chapter on social overheads does not even mention the proposed universities in Gujarat and the establishment of agricultural and medical colleges in the Surat region. Similarly, the problems of housing and town planning are only touched upon.

The discussion on employment, again, evades the issue, especially in the rural sector. The solution for unemployment, in the words of the Survey, is as follows: 'Increase in agricultural population need not be a source of anxiety so long as institutional structure continues to be accommodative to the under-employed and the disguisedly-unemployed'. As if the solution lies in the institution of joint family and public charity. It may be pointed out that in highly urbanised Gujarat the joint family is rapidly giving place to the individual family. This is so even in rural areas, owing to the demonstration effect.

There is considerable regional imbalance within Gujarat. The development has generally been a ribbon development confined to about ten miles on both sides of the main north-south railway track. Barring this narrow strip of 20 to 25 miles along the coast, the rest of the State is undeveloped or under-developed, especially the eastern fringes. The welfare content of the perspective programme for the next 15 years for these areas is likely to be small and it is legitimately feared that by 1975 disparities of income and wealth between different tracts in Gujarat will increase. As a techno-economic survey, this report is probably not concerned with the problem of dispersal of fruits of planning over different regions and classes equitably.

(The reviewer is Principal of the Sir K. P. College of Commerce, Surat.)

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INDUSTRIALISTS MEET PLANNERS

MR. Asoka Mehta, Deputy Chairman, Planning Commission, urged the industrialists of the country to boost the output in vital industries like machine tools, chemicals and alloy steel. Mr Mehta, who invited representatives of industry to Yojana Bhavan on December 23, sought their views on how best the private sector could increase its tempo of industrial development.

Explaining the difficulties that stood in the way of the programme of development in the private sector the industrialists are believed to have emphasised the need of the withdrawal of the Super Profits Tax and the granting of higher development rates and also of the simplification of administrative procedures.

Mr. T.T. Krishnamachari, Finance Minister, who also attended the meeting, said that though no additional taxation would be imposed to affect production adversely there could be no escape from high taxes. He however assured all possible help to speed up economic activity. He urged the private sector to step up production in cotton, textile, sugar, cement, and fertiliser industries.

The industrialists later met Mr. T.N. Singh, Member (Industries), Planning Commission.

Among those who attended the meeting were : Mr Bharat Ram, Mr G.L. Bansal, Mr A.M. Murugappa Chettiar, Mr S.L. Kirloskar, Mr T.S. Krishna, Mr D.P. Anita, Mr M.S. Madgaokar, Mr Arvind Mafatlal and Mr P.L. Tandon.

Earlier, on December 20, Mr. Asoka Mehta and the Minister for Planning, Mr. B.R. Bhagat, met the Informal Consultative Committee of Parliament. Mr. Mehta gave the Committee his impressions of the talks he had had with foreign economists and financiers during his recent visit abroad. He also outlined his ideas in regard to get the economy moving. The nation, he said, had to make some difficult choices and take calculated risks next year or two. The Planning Commission was thinking of selecting a limited number of projects and see that they were properly pushed through. Although all the targets of the Third Plan might not be reached everywhere, Mr. Mehta said it was possible to reach the targets in selected sectors of crucial importance to the growth of the economy.

PROPOSALS for increasing the availability of tractors and cement and steel for agricultural operations were discussed at the meeting of the Agricultural Production Board which met for the first time on December 23. The question of manufacturing medium-size tractors was also examined and a committee was asked to review the problem of foreign exchange and distribution of tractors to cultivators. The Board also asked the working group studying the power rate structure to examine if power could be provided at concessional rates to those engaged in agricultural operations.

The meeting was attended by Mr A.M. Thomas, Minister of State for Food, Mr. S.K. Dey, Minister for Community Development and Co-operation, Dr K.L. Rao, Minister for Irrigation and Power, Mr. S.D. Misra, Deputy Minister for Co-operation, Mr Shriman Narayan, Member (Agriculture), Planning Commission, and senior officials of the ministries concerned.

The decision to set up Agricultural Production Board was taken at the meeting of the National Development Council which met on November 8 and 9.

A SENIOR official of the Union Government will visit the States to survey the land reform measures and submit a report on how to implement them. This was decided at the first meeting of the Land Reforms Implementation Committee of the National Development Council, held on December 23. It was agreed to tackle the problem of land reform by ensuring security of tenure, fixing ceilings on holdings, stabilising rent and fixing ownership.

The meeting was presided over by Mr G.L. Nanda, Chairman of the Committee, and attended by Mr Asoka Mehta, Mr Swaran Singh, Minister for Food and Agriculture, Mr Shriman Narayan, Mr Tarlok Singh, Members, Planning Commission, and the Deputy Chairman of the Zonal Councils, also members of the Land Reforms Implementation Committee.

Annual Plans of 4 More States

THE Planning Commission has tentatively approved the annual Plans of the States of Punjab, Kerala, Gujarat and Madras. The States with the approved outlays and Central assistance shown against each are given below :

Punjab : Rs. 57.5 crore, Rs. 29.1 crore ; Kerala : Rs. 44.17 crore, Rs. 22 crore ; Gujarat : Rs. 52.7 crore, Rs. 19.7 crore ; Madras : Rs. 70 crore, Rs. 40.3 crore.

There is a gap ranging between Rs. 5 crore to Rs. 7.5 crore in the resources of each State. Except Madras where it is proposed to increase Central assistance by Rs. 5 crore more the question is yet to be decided whether the gaps in the resources of other States are to be filled by accelerated assistance. The annual plan of West Bengal on which discussions were held earlier has not yet been finalised.

In Yojana Bhavan

I.A.S. trainees from the National Academy of Administration, Hyderabad, visited Yojana Bhavan on December 16 for a three-day orientation course. They were addressed by Mr. T.P. Singh, Additional Secretary, Planning Commission.

Mr. John L. Peters, President, World Neighbours Inc., Oklahoma City, accompanied by Mr. Merlin Bishop, Overseas Director of the Organisation, visited Yojana Bhavan on December 24 and met Mr. T.P. Singh and Mr. U.S. Rana, Director, American Peace Corps Programme.

Mr. Tarlok Singh, Member, Planning Commission, has been elected an honorary Fellow of the London School of Economics and Political Science of which he is a former student.

Mr. N.C. Shrivastava, until recently Adviser, Industry and Minerals, has left Planning Commission to become Secretary of the Metals and Minerals Department of the Union Ministry of Steel, Mines & Heavy Engineering.

Mr. Hari Bhushan, till recently with the Tariff Commission, has joined as Director, Industries.

REPORT ON THE FOURTH CONGRESS

Loosening the Official Grip on Co-ops

R.N. GUPTA

THE fourth Indian Co-operative Congress which was held in New Delhi from November 29 to December 1 was an important event in the co-operative world from many points of view. It represented an assemblage of a thousand and more non-official co-operators from district, regional, State or national-level co-operatives. Every type of organisation was represented : unions, banks and marketing companies, processing, industrial, farming, labour, consumers, forest and tribal co-operatives. Co-operatives' administrators also took part.

Official praticipation in the Congress, it might be argued, is inexplicable when the co-operative movement has been trying to free itself from governmental control. In fact, the Prime Minister said in his inaugural address: "Official control and co-operation are contradictions in terms. The Government can assist and guide the co-operative movement, but should not seek to control it in the process. Freedom and free-will are the essence of the movement".

Yet, it is the evolution of a proper relationship between officials and non-officials that made the participation of officials not only desirable but inevitable. There were, no doubt, moments of extreme embarrassment for officials, as for example when many non-official co-operators complained that despite clear declarations of governmental policy in favour of de-officialisation of the movement, registrars and deputy registrars in many States continued to dominate the State unions and co-operative banks. Still, it should be said to the credit of officials that they took the criticism in their stride. Their general attitude was: "We would be most happy to close our shop, if non-officials would take over".

The Union Minister for Community Development and Co-operation, Mr. Dey declared : "I give a most solemn assurance on behalf of my Ministry that we at the Centre welcome transfer of all our powers to functional federations of co-operative organisations, including powers of registration of new societies, provided they accept the challenges offered by the movement and assume responsibility for promotion, regulation and supervision".

Will co-operators accept these challenges?

In adopting Mr. Brahm Prakash's report on the progress of the co-operative movement since the Congress met last in 1958, the Congress said that many State Governments had not in practice accepted the proclaimed policy of de-officialisation. The feeling, thus, was that there still seemed to be mental reservations on the part of Government. The Union Deputy Minister, Mr. S.D. Misra, himself said that policy decision taken at the highest level were not implemented with speed in their true spirit by smaller officers.

But are the non-officials free from blame?

Despite public talk of de-officialisation, they show utter dependence on officials in most of their affairs. In the State co-operative unions, banks, training centres, committees and conferences, non-officials do not, with notable exceptions, give evidence of either adequate study or self-confidence. It is only by building up a well-trained and fully oriented cadre of non-official workers in the co-operative movement that it can move ahead with speed and force. The present position is far from satisfactory. Workers of integrity are few and far between in the movement. But co-operatives can gain the requisite momentum only if there are hundreds and thousands of dedicated and well-trained workers.

It is good that the Congress in its working group on "Co-operative Education and Leadership" devoted itself to this problem and spelt out measures by which this process could be quickened. But it failed to adopt a code of conduct for non-official co-operators by which it could be made impossible for corrupt and self-seeking people to capture power in co-operatives for selfish ends. In the ultimate analysis, the future of the movement, even with governmental support, will depend on the character, integrity, drive and dynamism of the non-official workers in the movement.

As regards other subjects, the Congress devoted considerable attention to the question of co-operatives and agricultural production. It set out in detail the measures by which village service co-operatives could act as the economic arms of panchayats and help in raising farm output. It also discussed problems of consumer protection, industrial co-operatives and economically weaker sections of the community.

HEL to Produce Giant Turbines

THE Heavy Electricals, Bhopal, has undertaken, in collaboration with a British firm, the Associated Electrical Industries, the manufacturer of giant steam turbines for thermal power plants. The first such giant of 30 mW capacity will be supplied to the Madras Electricity Board.

HEL has also started last month the making of industrial machines. Three sets comprising 42 motors of totally enclosed fan-cooler type and 63 machines of screen protected drip-proof type are under production. HEL has already been making traction motors and has supplied five sets of 1,500 volts to Indian Railways.

A factory for manufacturing transformers of 1,000 to 50,000 kVA capacity will shortly be set up at Ankamali, 20 miles from Cochin. It will have an annual production capacity of 6 lakh kVA and is expected to start production by the middle of June, 1965. It will be set up by the Kerala Government in collaboration with a Japanese firm, Hitachi Limited.

P.W.D.

Three Letters that Need Not Always Stand for Slackness

M. K. Ramamurthy

THE Committee on Plan Projects, of which Mr. S. K. Patil has been the head, has recently produced a report on public works administration. It is a brief and business-like document, the sort of thing that he who runs may read.

Public works administration is a field where attention has to be paid to uniformity as between Centre and States, and between Defence and civil works. P.W.D. should cease to be a subject of interest only to contractors and builders. It must be recognised that public buildings and amenities concern the public at large, and reducing costs is but one aspect of reform in view.

Irrigation and electricity have been excluded from the scope of the investigation. The conclusions have been set out in no admiring spirit. Their tenor is that the organisation and methods of public works leave much to be desired. As the agency working for the public good the P.W.D. is apparently unconscious of aims and claims arising from what Henry Nevinson called the new spirit in India. Practices inherited from the British bureaucracy require alteration for the sake of both efficiency and economy.

It is on this score that the panel propounds its idea of technical integration, with a Central service that fosters professional expertise. Backed by expert opinion as to the need for radical changes, the planning team asks for care in preparing projects with due regard for raw material supplies. Today when defence and development clash to some extent, it is vital to secure proper sites, make sure of materials and machinery and regulate the flow of expenditure.

The report is critical of delays, but has several positive suggestions in regard to speeding up the procedures for tenders and payment of bills. It should not be forgotten that delay in payment for work done happens to be a cause of corruption and contractors usually collect a sort of insurance premium against the slow realisation of dues. It is felt the old code of procedure has to be revised. The administrative reforms outlined in the report are concerned with securing good value for all money spent. The military engineering services seem to be better organised for the purpose of getting results fairly quickly, and the civilians in the States too have to take note of what is practised by the Defence Department and the Railways that rely largely on contractors.

Since a lot of work ranging from schools to bridges will devolve on local authorities, it is strange that the team has tendered no specific advice for the benefit of municipal corporations and district boards. The local authorities handle public funds, employ engineers and deal with contractors. Therefore the report ought to have glanced at the performance and practice of local self-governing institutions. In any event, there is a lesson for mayors and corporations in the clear and cogent analysis of what must be done to keep contractors up to the mark and to keep costs down by checking rings that compete ostensibly in tendering for works. But contractors' operational problems are not overlooked. It has been ascertained by due inquiry that Government, owing to its inability to fulfil obligations such as supply of drawings or stores, can hold up work and the contractor cannot hope to get his overhead expenses. A further source of irritation is the inordinate delay in payment of bills and refunds of deposits. Accounting procedures are such that even for completed works the accounts are not closed and the bills are kept pending for months if not years. A square deal to the workers can be an incentive for extra efficiency. In a welfare state especially, the P.W.D. has to prove itself a good employer caring for the clamorous minority of labour and also for the voiceless poor.

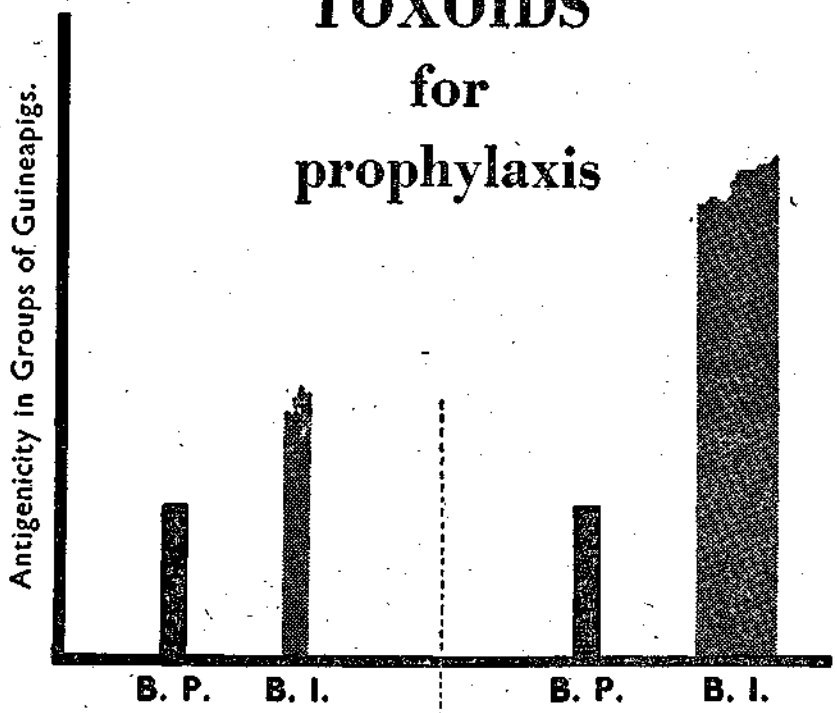
All in all the report pleads for more power to the men in charge and less interference from above. Separation of audit and accounts with a self-contained autonomous accountant staff for engineering works has been approved in view of the practice obtaining in the Defence services. Freedom of action for engineers, it is hoped, will speed up departmental work generally. Probably the most important change advocated is that the Chief Engineer as a secretary to Government should have more power and responsibility. Sanitary and public health engineering do not figure in the outline of departments that need to be remodelled. And unification of the engineering staff is probably suggested as a means to fertilisation of ideas adapted to changed conditions.

An appendix to the report declares that retired engineers should not set up as contractors or employees in engineering firms. Likewise, on grounds of public policy, it is suggested that relatives of engineers in actual service should not be eligible as contractors. The recommendations are in line with current ideas and are designed to secure disclosure of special interest for preventing the improper mixture of motives and methods in awarding contracts. Such hints or directions can hardly be deemed superfluous, having regard to the moral perils involved in development. Fair employment practices in the widest sense can further the public interest, as our planners will concede readily.

It is recognised that many contractors have of late preferred to undertake contracts for the private sector rather than the public authorities. Rates and schedules in force are apt to overlook the tremendous fact of inflation in India. Simpler, more equitable contracts will attract contractors of standing and experience.

A useful point made relates to the lessons to be drawn from failures, such as defects in planning, waste of materials, and imperfection in procedure. We do not have a system of independent professional consultants who will be above the executives and contractors. A careful look by an expert outsider may put contractors on their mettle. But the resources in expert knowledge are too limited in India to justify imitation of advanced countries.

TOXOIDS
for prophylaxis



PROGRESS MADE IN INDIA

DIPHTHERIA TOXOID
(A. P. T.)

Titre of 10 Immunised Guineapigs
(Geometric mean)
per ml. of Serum
B.P. (1963)—2 units minimum
B.I.—3 units and more

TETANUS TOXOID
(A. P. T.)

Titre of 9 Immunised Guineapigs
per ml. of Serum
B.P. (1963)—0·5 units in
at least 3 animals
B.I.—1 unit or more in
all the 9 animals

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MORE CREDIT FOR INDUSTRIES

The Refinance Corporation will be given another loan of Rs. 25 crore to enlarge its assistance to private industry. It had earlier been given loans of Rs. 26 crore from the U.S. aid and it has already disbursed Rs. 24.81 crore.

The State Bank had advanced Rs. 15.39 crore as loans to 3,524 entrepreneurs of small industries up to the end of September last. Besides, the Bank gave Rs. 1.08 crore to the Small Industries Corporation and Small Industries Development Corporations, Rs. 6.7 lakh as medium-term loans to small industries, and Rs. 43.91 lakh to buy demand drafts. Under the new scheme of the Bank for providing instalment credits for modernisation of certain categories of small industries, about Rs. 3 lakh have so far been given as loans.

An export credit and guarantee corporation is to be set up by January 15 to promote exports, covering both credit and insurance aspects. It will take over the work of the existing Export Risks Insurance Corporation.

SNIPPETS

A centre for training mechanics in making precision instruments has been opened at Chandigarh. It has been set up by the Council of Scientific and Industrial Research with the help of the Swiss Foundation.....A new gliderdrome has been built at Hyderabad in a record time of 45 days.....A wireless station has been opened at Calcutta for improving communication between the border and strategic areas..... A high-power medium wave transmitter will be installed at Simla to counter Chinese propaganda..... New premium prize bonds 1964 have been introduced this month replacing the bonds for 1963..... A committee has been set up to study a scientific system of flood forecasting and warning.....Another high-level committee has been appointed to advise Government on setting up industries in the free trade zone at Kandla port.

As The PLAN Moves

Prices Decontrolled For 16 Items

Price control has been removed in respect of 16 industries including rayon yarn, staple fibre, tyres and tubes, sheet glass, paper board, washing soap and certain chemical industries.

Similarly the limit for exemption from licensing and for purposes of capital issue control for industries has been raised to Rs. 25 lakh from Rs. 10 lakh.

Collection of premium for the quarter January-March 1964 under the Emergency Risks Insurance Scheme has been temporarily suspended, but the Scheme continues to be in force.

PROMOTION FOR EIGHT CITIES

The cities of Madras, Hyderabad, Ahmedabad, Bangalore, Kanpur, Madurai, Allahabad and Jaipur have been upgraded by the Union Government, benefiting 1.5 lakh Government employees in these cities to the extent of Rs. 2.59 crore every year.

The family pension scheme for Central Government employees has been revised from January 1 to provide for pension (maximum Rs. 150 per month) for an employee's widow and allowances to minor children if the widow dies. The scheme will benefit 20 lakh employees.

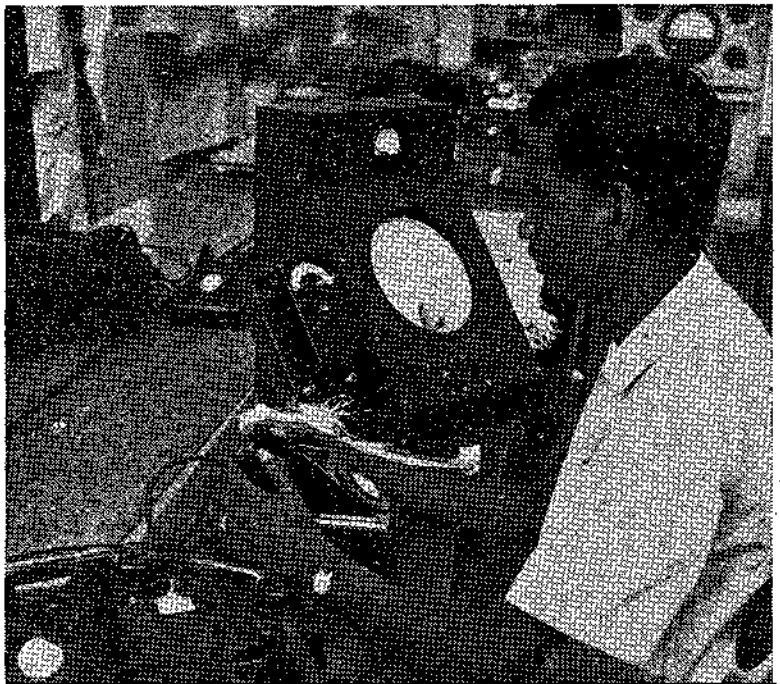
SARODA PROJECT

The Saroda irrigation project has started irrigating 9,000 acres of paddy land in the Durg district of Madhya Pradesh. Expected to irrigate a total of 18,000 acres of land, the project has cost Rs. 1.60 crore.

*

Work on the project for manufacturing MIG aircraft in India is progressing according to plan.

INDIAN TELEPHONE INDUSTRIES: A worker examining telephone sets assembled in the Bangalore factory. See Page 6



SELECTED INDEX FOR VOL. VII OF YOJANA

With this issue Yojana *completes its seventh year of publication. As in previous years, we publish a select index of the material published during the year. Many of the regular features such as 'You Ask Us', 'Side Track' and 'As the Plan Moves' are not included in the Index. Books reviewed during the year have, however, been taken.*

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YOU ASK US WE TELL YOU

Questions from readers on planning and development will be answered on this page. It might be noted that the purpose of this service is to provide information. But we won't be able to entertain trade queries.

Finance for Industries

N.K. SARKAR, Bhagalpur

1. How far specialised institutions are able to provide industrial finance to the Indian industries?

2. To what extent managing agents may be successfully replaced by those specialised institutions for (a) finance and (b) promotion?

ANSWERS: (1) The long-term financial requirements of the industries are being met by a number of special financial institutions. Most of these institutions have been set up by Government as autonomous bodies. The first of its kind is Industrial Finance Corporation, a national organisation incorporated in 1948. Other institutions are : State Financial Corporations (15), National Industrial Development Corporation, Refinance Corporation and Industrial Credit and Investment Corporation, a private financial organisation with Government support. These institutions provide loans and advances and guarantee facilities. The tenure of the loan ranges from 5 to 20 years depending upon the circumstances of the credit, e.g., development, modernisation, etc. During the year 1962-63 a total loan of Rs. 91.50 crore was sanctioned and Rs 57.57 crore were disbursed by these specialised agencies as under :

Rs. crore

	Loans and advances sanctioned	Disbursements
IFC	16.31	14.03
SFCs	18.33	12.91
NIDC	23.76	11.97
Refinance Corp.	13.50	8.81
ICICI	19.60	9.85
	91.50	57.57

During the corresponding period (1962-63) total capital raised by the non-Government companies through shares (other than bonus shares) and debentures was Rs 100.4 crore. It shows that these institutions are assuming very important role in industrial finance by providing substantial resources.

(2) The primary objective of these specialised agencies is to help the industries in the private sector by filling the gap in resources, rather than replacing a particular system. The managing agents combine in them the initiative and experience with financial resources. However, the Government has taken several measures to iron out the defects of managing agency system in India and the special financial institutions have helped to minimise their importance as financiers. Working of these institutions indicate that they play a very important part in industrial finance and would gain more importance in future.

Audio-Visual Teaching

P.K. BHATTACHARYA, Nadia.

What are the functions of the National Institute of Audio-Visual Education? Does the Institute conduct any training course for field personnel?

ANSWER : The National Institute of Audio-Visual Education in Delhi is one of the institutions engaged in educational research under the control of the National Council of Educational Research and Training. The Institute deals with five aspects of educational work relating to communication and use of audio-visual aids. They are—training, production, extension work, publication, and evaluation and research.

Training is given to field workers in the use and production of simple teaching aids as well as mechanical teaching aids such as projector, slides and tape recorder. The institute is engaged in devising ways and means of producing inexpensive instructional aids such as charts and models.

The extension work conducted by the Institute consists of organising seminars and workshops and arranging film shows. The Institute has built up a library of 5,000 films which are borrowed free of charge by 2,000 institutions in the country.

Among the Institute's publications is a quarterly journal which gives information on modern developments in the field of audio-visual education. The Institute also publishes brochures and books on the subject.

Under the evaluation and research programmes, studies and surveys are conducted in the use of instructional aids and the research and survey work is linked with production programmes.

The work of the Institute relates mainly to secondary education. However, it also meets the needs of primary and social education. It helps the Community Development Programme and all institutions, including technical education institutions which use audio-visual aids.

Plan and Budget

C.L. JANGRA, Kanpur.

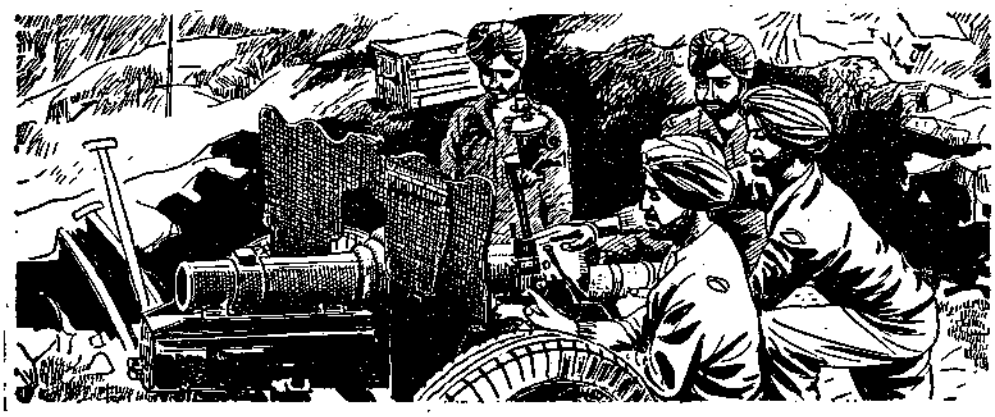
How is the Five Year Plan related with the annual budgets?

ANSWER : The Five Year Plans and the annual budgets have a vital link between them. For operational purposes the Five Year Plan has to be broken down into annual plans. The latter may therefore be treated as the instrument through which the former is implemented. The Five Year Plan defines the broad limits of financial outlay for various programmes for the Plan period. It is the annual budget that provides sustenance to the Plan scheme from year to year. The budget allocates resources according to the needs of a programme defined by its progress in the past and the needs dictated by Plan targets.

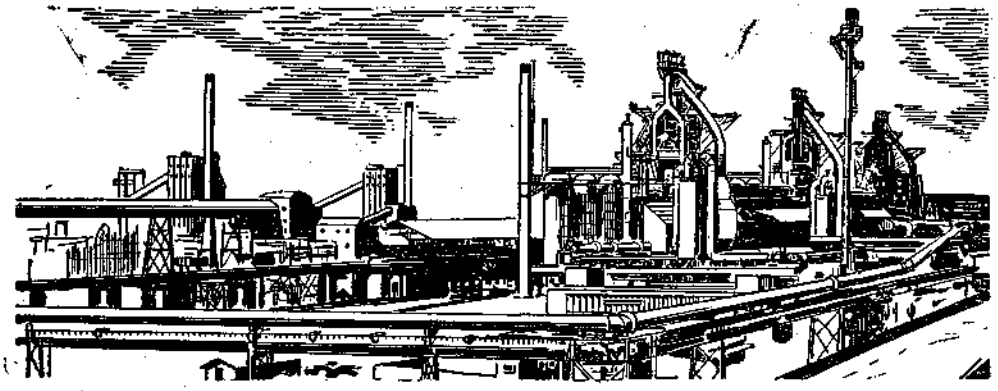
YOJANA welcomes articles, features and photographs dealing with development themes. Intending contributors might also send stamps if they desire return of material in case of non-acceptance.

REG. NO. D-876

DEFENCE and



DEVELOPMENT



GO TOGETHER

Development plans of the country are now an integral part of our National Defence. To meet the emergency new priorities have been fixed and accelerated provision made for power schemes, basic industries such as steel ; machines and machine tools and electricals ; coal mining—railways; training of engineering and medical personnel.

It is on this solid basis of strength that the Nation's defence power is built. This is the only solution of our problem.

Support this drive in every way you can—by thought, by word, by deed. For it is only by the unstinted and selfless devotion of her millions that India can hope to build up her defence potential.



ON WITH THE PLAN

STRENGTHEN INDIA'S DEFENCES

DA 63/394

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