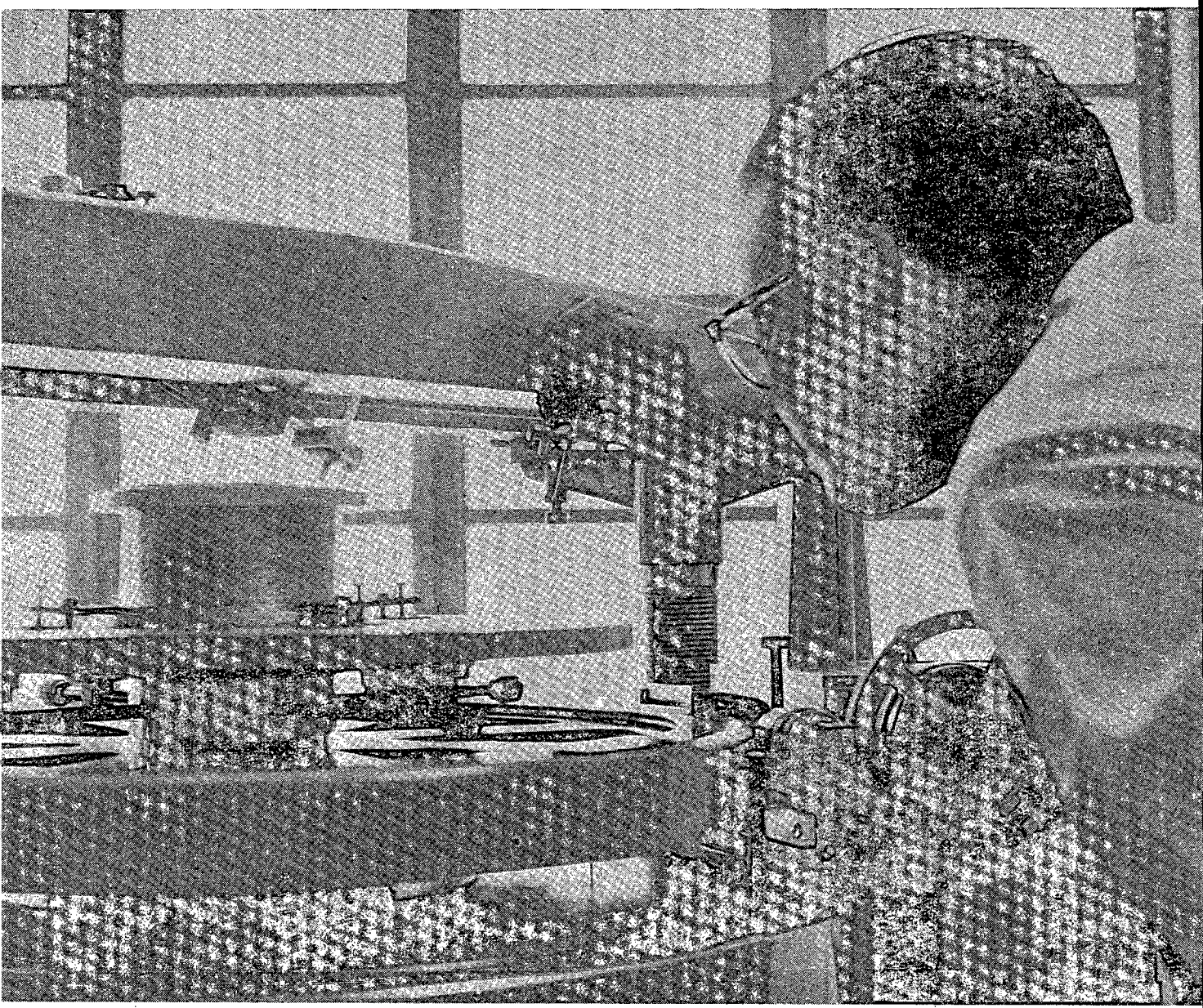
YOJANA

NINTH YEAR

13

JULY 4, 1965

N10-13



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25 PAISE

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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NEXT FORTNIGHT

MAKING HOUSES IN THE NEW WAY

★

GROWTH & CHAOS IN CITIES

★

MINE ACCIDENTS: HOW THEY OCCUR

OVER TO YOU

Let Fourth Plan Go Metric

I READ from the newspaperss and from your own *Yojana* that the draft outline of the Fourth Plan is being drafted and will soon be received.

As an ardent supporter of the metric system, I hope the plan will list the various units in the metric measures.

In fact not to do so would be contrary to law. It would also be poor policy of the Government which urges people to change over to the metric system in the interest of uniformity and rationalisation if it won't itself do so.

The Third Plan document, from a quick look at the table attached to chapter V, used all the old kinds of measures—tons, pounds, acres, feet. The Irrigation chapter spoke only in terms of acres and acre feet, and the Agriculture chapter also in terms of acres, pounds and ounces. (Careful reading of the document might even reveal a stray maund somewhere).

It is possible to be generous and say that the Third Plan document was published *before* the time-limit for changeover to the metric system. But the Mid-Term Appraisal of the Third Plan, which did not have this excuse, continued to adopt the old approach.

I hope that the Fourth Plan document at least will use:

Kilometres, not miles.
Metres, not feet or yards.
Kilograms, not pounds.
Tonnes, not tons.
Hectares, not acres.

The draftsmen might also consider whether to use lakhs, crore and million. But on that I would give them freedom. Also, we have no law against lakhs, as we have against pounds and miles.

Lucknow D. P. SETHI

3 MONTHS

I am writing this letter by way of a complaint for the uncalled for and inordinate delay in enrolling me as a subscriber of your journal.

I sent a Money Order for Rs 5 on March 6, 1965 addressed to the Business Manager, Publications Division. After waiting for a considerable time, I received a letter dated 8.6.65 acknowledging the receipt of the Money Order and enrolling me as a subscriber from June 6, 1965.

It took three months to enrol me as a subscriber. If it is a normal practice to take three months' time to register a new subscriber, kindly announce it in your journal so that the prospective subscribers may send remittance at least three months in advance.

I am sure my complaint will not be consigned to waste paper basket or merely filed.

Meerut K. L. AGARWAL

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THE COVER shows a scientist at work in a research centre. See article on Pages 5-8.

YOJANA

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STATES' NEEDS, NATION'S NEEDS

INDIAN planning, like Indian politics, is of a federal nature. Under the Constitution the power to make laws and take executive decisions is not concentrated in Delhi but distributed between the Union and the States. And more recently, under laws passed by the various States, there is a third layer of power—the panchayati raj institutions.

The political structure defines what the Union's jurisdiction is and what the States' prerogatives are. The two sets of government are vested with powers to find the means to fulfil these responsibilities. Development is a business which concerns both the States and the Centre. The Five-Year Plan is for the nation as a whole and for each of its parts. It can succeed only if there is the continuous co-ordination, in thought and in action, between the Union and the States.

When the Planning Commission was established, it was made clear that it was to advise not only the Union Government but each State Government on matters of development. The National Development Council, constituted a little later, gave fuller expression to the joint character of planning; it is this body of State Chief Ministers, Planning Commission members and Union Ministers that is the ultimate policy-maker on planning, and its recommendations go to the Union Parliament as well as the State Assemblies.

Planning is becoming daily more complex. Even the division between plan formulation and plan execution has ceased to be so simple. A plan is a good plan only when it is workable. And field experience has its own impact on policy-making. A group of men sitting in Delhi cannot decide what shall be done in the country. Centralised direction may be possible in the case of an industrial project; it is not so effective in the case of agriculture where ultimate decisions are taken by millions of farmers. As we know more of agriculture, we have come to appreciate more the importance of area planning. No two stretches of land are exactly alike in all respects; what works in one may not work in another. If both are to be brought up, there is need for variation in approach, for flexibility.

This is true at the village, block and district levels also. And at State level. The needs, resources and potentialities of our States vary. All States have to progress; and there ought not to be disparities between State and State in levels of living and opportunity. But it is obvious that the needs of Kerala, with its tremendous pressure of population, are different from those of Assam, where the density of population is low. Likewise the potentialities of Bihar, which is a huge storehouse of minerals, are different from those of Madras, which is not so richly endowed. Maharashtra, an industrial leader, needs more irrigation. Andhra Pradesh, which has a high level of irrigation (despite the arid Rayalaseema) clamours for industry.

The States are in different stages of economic and social growth. Their hopes and their developed capabilities differ. It is the duty of planning to take due note of all this. The economists and administrators within a State evidently would have a greater knowledge of these problems and aspirations. That is why the national planners have stressed the importance of strengthening State planning. Indeed the Third Five Year Plan referred to the need to strengthen the arrangements and machinery for planning at the State level. Even the setting up of planning boards in the States was suggested.

In the last four years the planning process has grown and developed in the States. And for the first time, as part of the measures leading up to the formulation of the Fourth Plan, State planning agencies have been assigned a task which, in substance, is different from what obtained in the three earlier plans. The States have prepared extensive memoranda on the plan they would like to have—and this has been done *in advance* of the publication of a Draft Outline of the national plan. On earlier occasions, detailed discussions with States, and the filling out of their plans, had followed the Draft Outline; this time they precede it.

It is hoped that in this way planning will be more responsive to the needs and hopes of the people of the various States. But these hopes and desires have to be put into a common national framework. That framework already exists. Not only must we think of giving the maximum possible to the people of a State; we must think of the best that each State can give to the nation. There are also key considerations like financial feasibility and of proper sharing of resources and responsibilities. There must be unity in objective and outlook, and freedom for variation, innovation and experimentation. Above all there must be discipline, and a resolve to fulfil obligations.

Discussions with the States on their memoranda are going on in the Planning Commission. A report in this issue explains the nature of these discussions. What is being done is to consider the magnitude of each State's plan in the light of three questions: Are the programmes technically sound? Does the State have personnel of the needed ability to put them through? And can the State find the resources? On this last point the discussions are more detailed. Yet another question is how to phase the programmes so that the State and the nation can get a steady inflow of benefits.

Need to Raise Rs. 1250 Crore by New Taxes

YOJANA REPORT

STATES and the FOURTH PLAN

One of the notable features of the work connected with the formulation of the Fourth Plan is that all the States have, for the first time, presented memoranda prior to the drawing up of a Draft Outline for the national Plan as a whole.

TALKS ON PRIORITIES AND PHASING OF PROGRAMMES

Each of these memoranda is being discussed in detail by the Planning Commission with the concerned State. *Thus has been developed what might be called a polycentric approach to planning.* The Planning Commission has always felt that the State Governments should have an active role in the detailed work of Plan formulation, so that their approach becomes part of the national scheme.

In their memoranda the States have spelt out their ideas, aspirations and priorities. The task of the national Plan is to take into account the distinctive profiles of the different States, and reconcile and accommodate them with and within the all-India Plan.

All in all, the State memoranda show that the States are thinking in terms of large outlays and rapid rates of growth. They want to handle large-sized developed programmes. Some of them also have their own priorities, which are often at variance with the hitherto accepted national priorities.

Agriculture Must Get More

For example while the national Plan is expected to give the first priority to agriculture, the States, from their memoranda, appear to accord priority to power, irrigation and roads. In addition to agriculture they have also tended to underplay social services.

These are matters which are being discussed with the States. The discussions are not only concerned with the magnitude of the Plan. A critical examination is being made of whether, from techno-economic criteria, the various programmes indicated by the States are feasible. Do they have the ability, in terms of resources and personnel, to carry out what they say they want to? Also, will they yield the benefits claimed?

States Cross Third Plan Outlay Target

The achievement of each State in the first three Plans would give a fair indication of what it can hope to do in the Fourth. The Planning Commission has compiled a brief document on the progress of the development activities in the various States and this document provides a rough yardstick.

Entitled "States' Third Five Year Plan: Outlay, Resources and Targets —An Assessment" the document is based on the actuals for the first three years of the Third Plan and the approved outlay and targets for 1964-65 and 1965-66.

The figures show that there has been a progressive increase in the Plan outlay of States from year to year: Rs 580 crore in 1961-62; Rs 675 crore in 1962-63; Rs 798 crore in 1963-64; Rs 946 crore in 1964-65 and Rs 1,023 crore in 1965-66.

The total for the five-year period would thus come to Rs 4,022 crore compared to the originally proposed outlay of Rs 3,847 crore in this sector.

Eight States have spent more than the targeted outlay. They are Andhra Pradesh, Assam, Maharashtra, Madras, Orissa, Punjab, Uttar Pradesh and West Bengal. Four States have spent less—Bihar, Madhya Pradesh, Rajasthan, Jammu and Kashmir. The Plan expenditure in Gujarat, Kerala and Mysore would roughly be the same as originally envisaged.

The expenditure on power (Rs 1,092 crore), the largest head, is Rs 210 crore more than the approved outlay. Outlays on agricultural programmes and transport and communications have also exceeded the original figures.

The States have spent more on the Third Plan; but have they been equally successful in raising additional resources ?

The States *have* found Rs 80-90 crore more but Central assistance has also increased by Rs 110-120 crore.

But the efforts of individual States have not been uniform. Eight States, Andhra Pradesh, Gujarat, Madras, Maharashtra, Orissa, Punjab, Uttar Pradesh and West Bengal have exceeded the resources targets, and seven have failed to do so—Assam, Bihar, Kerala, Madhya Pradesh, Mysore, Rajasthan, Jammu and Kashmir.

Additional resources come through taxation and through other measures. Additional taxation in Bihar, Madhya Pradesh and Uttar Pradesh has been far short of the agreed figure. *The States' aggregate, in fact, is only Rs* 584 *crore against Rs* 610 *crore which had to be raised.* Loans and small savings have together fared somewhat better. But the States' withdrawal from reserves will be larger than envisaged.

With Higher Goals, More Resources

In order to help the States to draw up their memoranda the Planning Commission had indicated that the States' outlay would be roughly twice

what it was in the Third Plan. But the memoranda as drawn up involve far larger outlays. *As against the total outlay of Rs 7,660 crore in the States sector suggested by the Planning Commission, the States seem to want something like Rs 9,875 crore.*

Of this Rs 1,200 crore is the spill-over investment in irrigation and power and in urban water supply.

While the States have indicated what they think is necessary and feasible by way of programmes, they have not given a clear hint on how they will set about mobilising the resources. The size of the State plans will evidently depend upon how far the States are able to contain their non-developmental expenditure and what steps they are willing to take to mobilise additional resources.

It is hoped that in the present discussions and through later, more detailed, discussions on the proper phasing of production programmes, it will be possible to have a well-thought-out programme of resource mobilisation. A right kind of balance has to be struck between *generation of resources and actual mobilisation* of resources.

The Planning Commission's own Memorandum on the Fourth Plan, published last year, indicated that the total outlay of Rs 22,600 crore was to be regarded as tentative, with the possibility of the Plan fluctuating between Rs 21,500 crore and Rs 22,600 crore. The corresponding outlay for the public sector, Union and States together, would be in the range of Rs 14,500—15,620 crore. The total of Rs. 7,660 crore for the State plans is tied up with the upper figure of Rs 15,620 crore, which itself depends on greater effort in resource mobilisation.

It is obvious that the State plans as now conceived, which add up to Rs 9,875 crore, cannot be accommodated in the national plan. Pruning is necessary, but pruning cannot be arbitrary. It has to proceed on sound considerations.

Deficit Financing Ruled Out

The States have to meet specific problems; they have to satisfy the aspirations of the State. That is why they favour a larger plan and a different order of priorities. But a larger plan cannot be had without readiness and ability to raise larger resources. As pointed out, additional taxation in the States is somewhat lower than the accepted level for the Third Plan. Central assistance has also had to be larger. *And there are some States who have drawn on the reserves and gone in for deficit financing.*

This is something which is neither desirable nor beneficial. In the words of Mr Asoka Mehta, Deputy Chairman of the Planning Commission, the Fourth Plan *can proceed only on the understanding that there will be no deficit financing.* The Commission has been urging on the States to go in for supplementary budgets and balance the two sides. If more resources cannot be raised, then outlays of expenditure have to be pruned even in the current year. The balancing of resources and outlays is essential even in the first year of the Fourth Plan.

Getting More Out of Rural Sector

To have the kind of State sector envisaged in the Planning Commission's Memorandum, (that is, one which adds up to Rs 7,660 crore), the States have to mobilise *between Rs 1,150 and Rs 1,250 crore of additional* resources. The State plans are likely to be twice the size of the Third Plan and, therefore, the State Governments have to mobilise twice the additional taxes mobilised for the Third Plan.

It should not be regarded that all this will necessarily mean greater squeeze. The unfolding of the plans generates more incomes, and therefore it is necessary to have larger savings and larger inflow of a portion of these incomes into the State exchequers.

Besides getting more out of land revenue, surcharges on commercial crops and betterment levies on irrigation, other methods of enlarging resources are to have an appropriate pricing policy, improve collection of taxes, and to rationalise electricity charges. Thousands of crores of rupees are being invested in the agricultural sector; these investments require that agriculturists, particularly the larger holders, must undertake a due share of the burden for finding resources.

Minor Irrigation Target Exceeded

Besides the question of *resources*, the current series of discussions cover two other key questions: *priorities* (in relation to achievements in the Third Plan period) and *phasing* of programmes and projects.

As we saw, agriculture ought to be—and is—Priority No. 1, and agriculture is predominantly a State responsibility; but the States' own preference list gives a higher place to power. This is sought to be rectified in the discussions.

The Planning Commission and the Union Food and Agriculture Ministry, after close consultations, have informed the States about the targets and outlay to be aimed at and the inputs available—water, fertiliser, pesticides, etc.

The States have also been urged to adopt the area approach. The agricultural plan cannot certainly be implemented properly if it is guided only by the total figure approach. Detailed working out of what is desirable and possible for each area has to be undertaken.

The Third Plan performance has revealed a big lag in major and medium irrigation. New irrigation potential of 16.2 million acres had been aimed at; but the achievement is likely to be only 7.9 million acres. Utilisation of irrigation potential is also likely to be 54 per cent successful. Instead of 12.8 million acres, only 7 million acres are being brought under the benefit of irrigation. It means that a million acres of land are being neglected every year. Utilisation in Andhra Pradesh is likely to be only 440,000 acres instead of 1.56 million acres; in Bihar 790,000 acres instead of 2 million acres. Uttar Pradesh is likely to do better, by bringing 920,000 acres under irrigation against the target of 1,040,000 acres.

Some of the shortfalls in the agriculture sector are as follows :

In food grain production: only 19 million tons additionally instead of 23.6 million tons (only Andhra Pradesh, Madras, Kerala and Rajasthan are exceeding the targets).

In cotton: only 6.4 million bales instead of 7.1 million bales.

In introduction of improved seed: only 121.8 million acres against 148.2 (although Bihar is exceeding the target by nearly 2 million acres).

In fertiliser: only 3.9 million tons of ammonium sulphate instead of 5.2 million tons, and 1.5 million tons of superphosphate instead of 2.4 million tons.

It is not, however, a story only of shortfalls. The targets are being exceeded in jute and sugarcane production, and in minor irrigation, and almost realised in soil conservation.

Village Power Scheme Moving Fast

In power, although the outlay is nearly Rs 200 crore larger than the allocation of Rs 882 crore, the installed generating capacity may be less than 5 million kw instead of the target of 7 million kw.

This is accounted for by the substantial increase in costs and expansion of scope of projects and increased expenditure on rural electrification. *Against a target of 20,000 villages and towns, nearly 28,000 villages and towns are now expected to be electrified.* Uttar Pradesh is electrifying 4,550 villages instead of the target of 1,550, and Maharashtra 2,400 villages instead of 700.

We have not been able to reach the targets in power; but taking the country as a whole, there has not been any shortage of power, since the load requirement has also not gone up as expected. In the current year alone, 2.1 million kw are being added to the system. The achievement of this may take a month or two more—14 months instead of 12 months.

In general education, Madras, Maharashtra, Kerala, Orissa, Mysore, Punjab and West Bengal are exceeding the enrolment targets. Technical education is also expanding faster than targeted for. In technical degree courses, against a Plan target of 5,300 additional seats, the likely achievement is 14,300. In girls' education there is a back-sliding in the Hindi areas, especially Bihar.

While the States should not develop the social services faster than the personnel can be made available, at the same time, it would not be wise to allow the social services to suffer because some States have given a lower order of priority in their Fourth Plan memoranda. This is one of the matters being discussed with the States.

Problem of Proper Phasing

An important dimension of planning is *phasing*. It is not enough if a particular target is reached at the end of a five-year period: at different stages, the benefits from a programme must be real and tangible. For several reasons, proper phasing could not be achieved in the Third Plan.

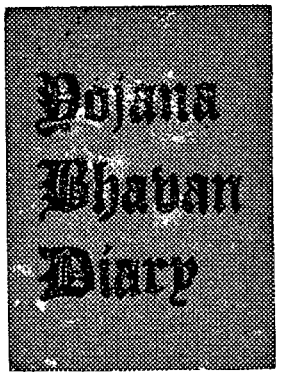
The provison of the Third Plan has not been one of uniform tempo but has been jerky. For instance, of the 7 million acres of land that are being brought under medium and major irrigation during the Plan period, 4 million are materialising only in the last two years of the Plan. In power 4.7 million kw are being added in the Plan period, but 3 million of this total will have been added to in the course of the last two years.

Jagged progress can be seen in food grain production also: in the first year of the Third Plan the potential created was 17 lakh tons; in the second, it was 39 lakh tons; in the third, it was 83 lakh tons; in in the fourth 127 lakh tons, and in in the fifth it is likely to be 190 lakh tons. The difference between the the first year's and the last year's performance is too large for comfort. It is therefore necessary that phasing has to be much better than it has been so far.

The Fourth Plan is four times the First Plan, three times the Second Plan, and very near the total outlay of the three Plans put together. Such large outlays require proper planning, proper phasing, administrative vigilance and proper balancing between investments and savings, resource generation and resource mobilisation. They require far better co-ordination between the Centre and the States. The detailed discussions are aimed at achieving these.

The results of these discussions are being incorporated in the Draft Outline of the Fourth Plan which will be placed before the National Development Council on August 9 and 10.

Report based on papers prepared by Planning Commission and the observations made by Mr. Asoka Mehta at a Press Conference on June 9.



Mr. Bernard Bell of the World Bank met Mr. Asoka Mehta on June 21 and 23.

The Planning Minister, Mr. B.R. Bhagat, returned to New Delhi on June 12 after visiting Austria, Hungary, Yugoslavia, Czechoslovakia, Italy and Switzerland.

Mr. S.G. Barve, Member, Industry, Planning Commission, has been included in a committee appointed by the Government of India to consider the question of administrative delays and allied matters.

Professor M.S. Thacker, Member, Natural Resources, Planning Commission, left for New York on June 14 for consultations with the U. N. Advisory Committee on Application of Science and Technology to Development. Later, he attended the World Congress on Engineering Education at Chicago from June 21 to 24.

The Time-Table

The following is the time-table of the Planning Commission's discussions with the States :

June 10, 11	Bihar
June 14, 15	Orissa
June 16, 17	West Bengal
June 18, 19	Assam
June 21, 22	Gujarat
June 23, 24	Andhra Pradesh
June 25, 26	Kerala
June 28, 29	Madras
July 3, 5	Maharashtra
July 6, 7	Mysore
July 8, 9	Jammu & Kashmir
July 10, 12	Uttar Pradesh
July 13, 14	Punjab
July 15, 16	Rajasthan
July 17, 19	Madhya Pradesh
July 20, 21	Nagaland

In a subsequent issue of *Yojana* we hope to publish a report on the outcome of these discussions.

THE QUESTION IS NOT HOW MUCH WE SPEND BUT HOW WELL WE THINK

SCIENTIFIC RESEARCH

A gap invariably separates what is desirable from what is possible in budgeting for any activity, be it scientific research or a schoolboy's pocket allowance. In determining how much to spend on scientific research, one can easily be led astray by considerations of what happens elsewhere. There is also a tendency to lose the ends in the means, and to assume the existence of a basic organisation that can cope with all the funds that may be funnelled in it.

Eventually, the success or failure of scientific research in India will be influenced by the environment in which science is nurtured. Lord Rutherford was prone to remark, "We haven't any money; we have got to think."

What is the role of government, university and industry on the one hand and of bureaucracy, mass research and individual freedom on the other ? These aspects of the problem are discussed in this article against the background of the recently published report on "A Study of Expenditure in the National Laboratories", issued by the Council of Scientific and Industrial Research.

CAN a country ever spend too much on scientific research? The answer, on first thought, would seem to be no. Soon, however, one hits the rock of reality, and the question will have to be amended to: how much can a country spend on research?

In seeking an answer to this question, there is a strong temptation to think that what obtains elsewhere must obtain here, and to be led into a statistical approach to research outlay, based on indices such as per capita research expenditure, percentage of gross national produce and so on.

By

P. R.

GUPTA

It is true that in 1962 the United States Government spent about 10.3 billion dollars (Rs 5,000 crore) on scientific research and development. About 90 per cent of this outlay was used for defence, and atomic and space research. Similarly, China's research budget in 1960 was estimated at Rs 200 crore, and its research objectives included the development of the atomic bomb. In comparison, India's allocation for research was less than Rs 50 crore.

It is obvious that with this level of outlay, we cannot hope for parity with these and other countries. The first reaction would be to demand a higher allocation for research. However, the relationship between national economic growth and the outlay on research is far too complex to be reduced to a simple index like per capita research expenditure. *In fact, current economic growth is tied up with the application of new technology rather than on the size of the research budget.* Input of new technology can spring either from indigenous research or from research purchased from abroad in the form of patented processes and equipment, for which royalty is paid.

Our National Laboratories Must Move Closer To Universities & Industry

Self-reliance is emotionally such an attractive concept that we tend to underrate, if not despise, the value of imported technology. There is no doubt that parasitism in research will put a country a decade or two behind others. But the levels and rate of scientific research being what they are, it is not possible—for that matter, even desirable—to aim at self-sufficiency in research. Japan is a notable example of a country which has turned to good account the imported technology.

What matters essentially is whether there is an adequate organisational framework. This framework is of more consequence than the number of scientists employed and the rate of annual expenditure on research. It is idle to pretend that gigantic laboratories staffed by research technicians will automatically pour out a stream of inventions.

If government funds on science are not to be wasted, then the science programme they support must be viewed in totality and not in isolated parts. For this, it is essential to formulate a national science policy that

will foster the growth of scientific research and scientific talents as well as build up an organisational structure that can cope with all the funds that may be poured into it. The effect of using a high-octane fuel in a low-powered car is well known to those who have tried.

What is meant by organisational structure is not a line of control or hierarchy of power but an environment which supports first-class men with first-class ideas. Such people are highly individualistic and prone to resent administrative control. Research needs a creative collision of personality, continuing dialogue among research scientists in universities, industry and government, and knowledgeable public debate.

Much can be learnt from the way Lord Rutherford gathered a galaxy of physicists at Cambridge, and Niels Bohr at Copenhagen. Some of the greatest scientists grew up there, Fermi, Heisenberg, Oppenheimer, Pauli, Pauling, Teller. It was a free-for-all, with no idle distinction between teacher and taught.

TIME TO THINK

Amidst the din and shouts for more funds for scientific research in India, some fundamentals get lost. Lord Rutherford was fond of telling his colleagues who demanded more and more funds: "We haven't any money. We have got to think."

There is plenty of food for thought in a recent report brought out by the Council of Scientific and Industrial Research (C.S.I.R.) titled "A Study of Expenditure in National Laboratories". The 98-page report, which is supported by some 60 tables, analyses extensively the disbursement of research funds allocated to C.S.I.R. What part of them goes to staff as salary, to research equipment and other facilities? What is the cost per scientist ? How does a scientist work as "organisation man" ? What is the educational level and age of scientists and how well are these attributes rewarded?—All these questions are answered.

In short, the study gives a fairly clear portrait of the Government scientist in India. Although the report confines itself to the personnel in the C.S.I.R's national laboratories, it may not be wholly unfair to claim that it presents a picture of Government scientists as a whole. If anything, the C.S.I.R. has a more liberal and flexible personnel policy, on account of its autonomous character, than other governmental agencies employing scientists.

In fifteen years since Independence, the total expenditure of the C.S.I.R. has risen from Rs 5.16 million in 1946-47 to Rs 81.22 million in 1961-62. This impressive growth rate makes it fairly evident that scientific research is not among the neglected areas of our planning.

Besides telling us where the research rupee in the national laboratories goes, the report also projects, indirectly though, some of the problems that the growth of scientific research in India faces.

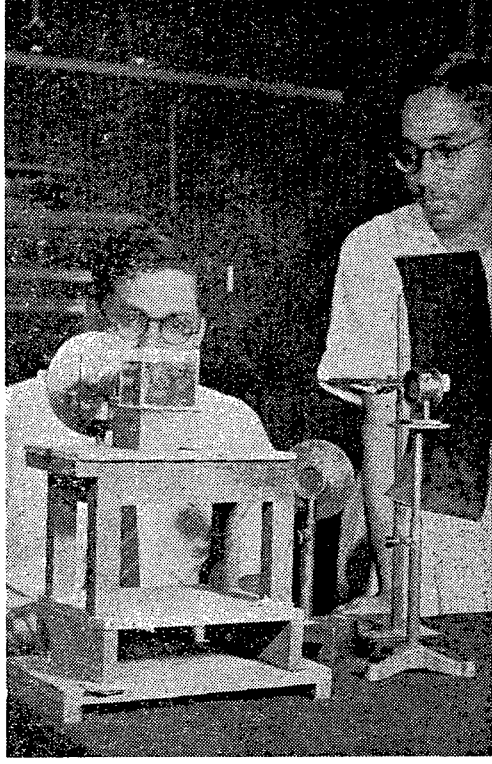
STAFF ANALYSIS

The report confirms what may have been vaguely suspected by outsiders that the largest single group of C.S.I.R. staff members is not that of scientists, technicians, or even administrators, but of *chaprasis* and messengers, officially known in our country as Class IV 'officers'.

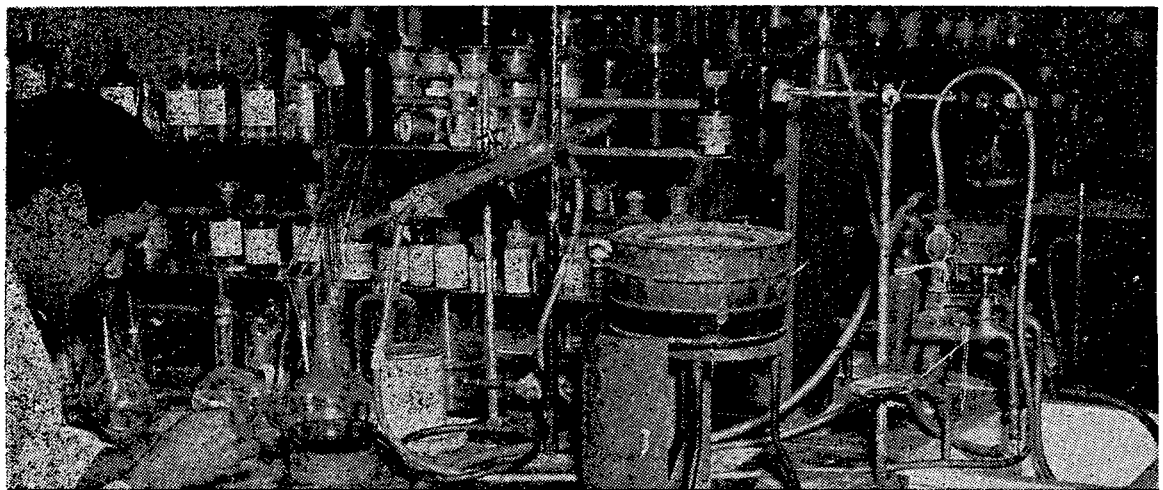
As on March 1, 1963, there were 9,663 members on the staff of the C.S.I.R. of whom about 30 per cent, i.e. 3,030, were in the Class IV service; about 20 per cent were scientists and technologists and about an equal number were administrators; the remainder were auxiliary technical staff—those with scientific qualifications but not directly engaged in research. The staff breakdown is as follows :

Scientists & Technologists	1,978
Auxiliary technical personnel	2,787
Administrators	1,868
Class IV	3,030
	9,663

What this amounts to is that every scientist supports about four others. This configuration is also reflected in the staffing of research projects.



Young scientists in a national laboratory. A half of scientists in the CSIR are below 30, but only 4 per cent earn more than Rs. 500 a month.



Equipment and materials account for only 10 to 20 per cent of the recurring expenses of our laboratories.

Every research project, usually headed by a director or his deputy, has on an average an assisting staff of seven research officers and 30 assistants.

A really disturbing element in the over-all staff situation is the large number of vacancies, about 2,000, *waiting to be filled and constituting about* 18 *per cent of the total posts sanctioned.* Not all of these vacancies can be explained by the phenomenon of "job mobility". Of some concern is the high level of vacancies in the senior scientific cadre which exceeds 30 per cent. Out of 1,244 sanctioned posts, about 400 were vacant on March 1, 1963.

A similar situation holds good for the auxiliary technical staff where the percentage is slightly lower—about 27 per cent. *Interestingly enough, in the case of administrative staff, it is barely* 2 *per cent.* The gap between the sanctioned staff strength and the actual is by far greater for the scientific and technical posts than for administrative ones.

PLACE OF YOUTH

In an activity like scientific research, youth has a big role to play, and this is confirmed by the report. In 1962, out of 3,165 scientific personnel of the C.S.I.R., as many as 50 per cent (1,566) were below 30 years of age. *Of these, more than* 96 *per cent were, however, earning a monthly salary of less than Rs* 500. *Among them were* 36 *scientists with a doctorate or equivalent qualification.*

At the other end of the scale, there were four scientists in their twenties whose monthly salary exceeded Rs 1,000. Significantly, there are just 160 scientists in the C.S.I.R. whose monthly emoluments are in the four-figure bracket.

The distribution of scientists and technologists by educational qualifications and pay reveals that there are 272 post-graduate scientists with a monthly salary under Rs 300. Among them are eleven potential "Josephs"—those with doctorate or equivalent qualifications. One of them is in the 40-50 age group.

THE RESEARCH RUPEE

The report presents at length the disbursement of research funds in the 31 national laboratories. The "top eleven" of these national laboratories, which can be considered well established and thus set the norm, spent about 50 to 60 per cent of their recurring expenditure in 1962-63 on salaries alone. Research hardware—apparatus, chemicals and scientific literature received 10 to 20 per cent.

A better perspective can be had by examining the annual cost per scientist, based on the total expenditure of a laboratory. For this purpose, the National Physical Laboratory in New Delhi and the National Chemical Laboratory at Poona may be taken as the model. In these laboratories, the cost per scientist amounts to Rs 24,000 per year, based on a three-year average (1959-60 to 1961-62). The breakdown is as follows :

Scientists' salary	5,300
Supporting staff salary	5,000
Chemicals & apparatus	4,000
Library	350
Capital equipment	1,500
Pilot plants	1,500
Others (buildings, services etc.)	6,450

Compared to the all-India average cost per scientist of Rs 16,800 in 1962, the cost per scientist in the C.S.I.R. is 50 per cent higher, but not high enough. In the United States, this figure averaged to Rs 120,000 in 1960, and for the U.K., it was Rs 105,000 in 1960-61. Research is an expensive business.

ORGANISATION MEN

Scientific research is also an activity that does not lend itself to too much direction from above. It is very often likely that the members of a group will individually know more than the head of the group and are chosen because of their special knowledge. The scientific spirit is encouraged by give-and-take and the absence of hierarchical atmosphere.

The report also throws light on the 'organisation men' in the C.S.I.R. There are some 889 committees, and 75 per cent of their membership consists of directors, deputy directors, or assistant directors. The hierarchical trend is also reflected in the pattern of visits abroad by C.S.I.R. personnel. Of the 91 who attended international meetings in the four years between 1959 and 1962, more than half were directors or deputy directors. Only two trips were made by junior scientists.

Of 803 committees on which scientists from nine national laboratories sat, about 80 per cent were those set up by either the Government or the Indian Standards Institution. *Barely* 3 *per cent were committees of universities or industries.* This is a revealing index of the poor relations that exist between C.S.I.R. scientists and universities and industry.

SCIENCE AND PUBLIC POLICY

It is both deceptive and dangerous to assume that if a large number of scientists are engaged in research, results emerged automatically. This is akin to seeing depth in darkness. In the same fashion, it is also thought that originality can be organised; that mass research will produce originality in the same manner as mass production produces canned fish. Some other beliefs of the 'organisation men' are: ideas come from groups, not individuals; decisions are best made in committees; creative leadership is a staff function.

> Contrary to the popular belief, individual scientists are still very much in the forefront of scientific progress. Out of 61 important inventions attributed to this century, more than half came from individuals who did much of the pioneering work; six are borderline cases; and only 22 come from "big" research laboratories.

It is significant that nearly all major breakthroughs in the steel production came from rank outsiders. Other examples: Kodachrome (two musicians); xerography (a patent lawyer); safety razor (a travelling salesman—Gillett); pneumatic tyre (a veterinary surgeon—Dunlop); automatic telephone dialling system (an undertaker).

Often, the size of the budget for scientific research is taken to be an index of scientific significance. Not until meaningful science policy is formulated and pursued can scientific research be fruitfully canalised. Too often, science policy is limited to the needs of science and scientists and excludes the impact of science on society—rapid, deliberate applications of science for human welfare.

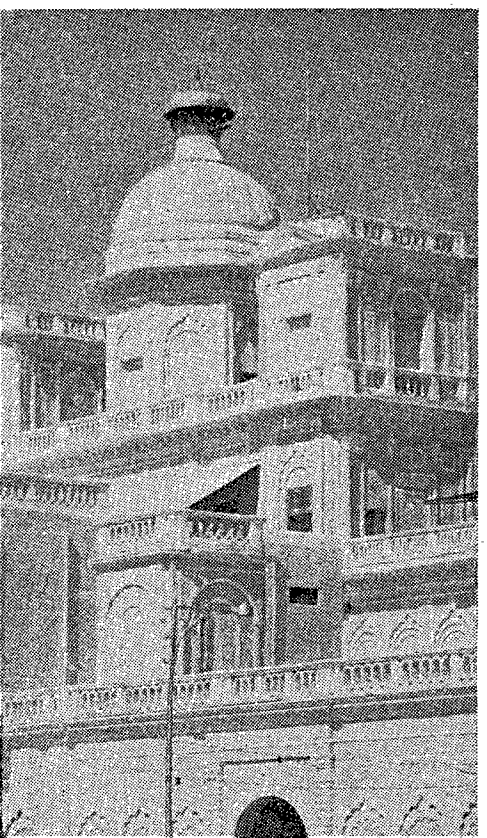
As the biggest single customer of the major sectors of industry, Gov-

ernment can influence industry so as to encourage and stimulate technical progress through an appropriate contract policy which would induce the introduction of new techniques.

Thinking has been done in different countries to isolate some of the components of a national policy that will facilitate the development of science and research. Studies in this sphere have emphasised the togetherness of scientific research and post-graduate education.

The quality of scientific research and science education cannot be separated. As the eminent American scientist, Dr James V. Conant, has observed, the future of science in a country will be influenced by its educational policy. There is always the danger that unsound planning might easily result in weakening the universities by drawing away too many research scholars, thus effectively reducing the capacity of universities to nurture new scholars.

In West Germany, much industrial research is done by students completing their degree courses and is undertaken in industry itself. In Denmark, independent research institutes do not exist, because universities and academic institutes which are supported by industry solve their problems.



Any plan for national scientific development must build up a dynamic relationship among government, university and industry.

RESEARCH PARTNERSHIP

Perhaps the most ingenious system of disbursing government funds for research without much of the accompanying disabilities of a bureaucratic organisation has been developed in the United States. There, less than 20 per cent of the total annual outlay on research (amounting to well over Rs 5,000 crore) is used to conduct research in Government's own departments. The rest is shared among universities, non-profit institutions and private industrial research laboratories.

This system is the outcome of the development of the cost-reimbursement contract which provides a legal framework for this kind of relationship between government and outside agencies. Not only research projects but also entire research centres have been set up and operated under this contract system whereby the finance is provided by the Government, and administration is the responsibility of the contractor.

An outstanding example of this contracts system is the Los Alamos Laboratory (of atomic bomb fame) which was set up under an army contract with the University of California. There are at present about thirty other such institutions in the United States.

A notable achievement of this contract system has been to do away with the traditional distinction and clash among government, university and industry which is now replaced by a relationship based on national needs for research.

This system is not without its faults. It has been criticised for polluting the academic groves and for weakening the Government science departments.

FREEDOM & DIVERSITY

It is equally important to ensure the freedom of scientific enquiry and the diversity of scientific organisations so as to attract various types of individuals, all of whom may not feel at home in big-sized, well-oiled and impeccably organised research laboratories. Many scientists have urged that all sciences need not be put in one big, single agency.

With science becoming a major establishment in the government hierarchy, there is the inevitable growth of a vast bureaucracy which, in its characteristic way, is concerned more with its own status and power than with the national purpose and policy. Under its dead weight, the spirit of scientific enquiry and independent criticism can easily get squelched. And, there is, of course, the inevitable conflict between those who think and those who organise—the individualistic scientist and the O-&-M minded administrator.

Moreover, government control of research may result in centralisation where nothing gets done which does not fit the idea of one man or one small group.

RESEARCH 'FACTORIES'

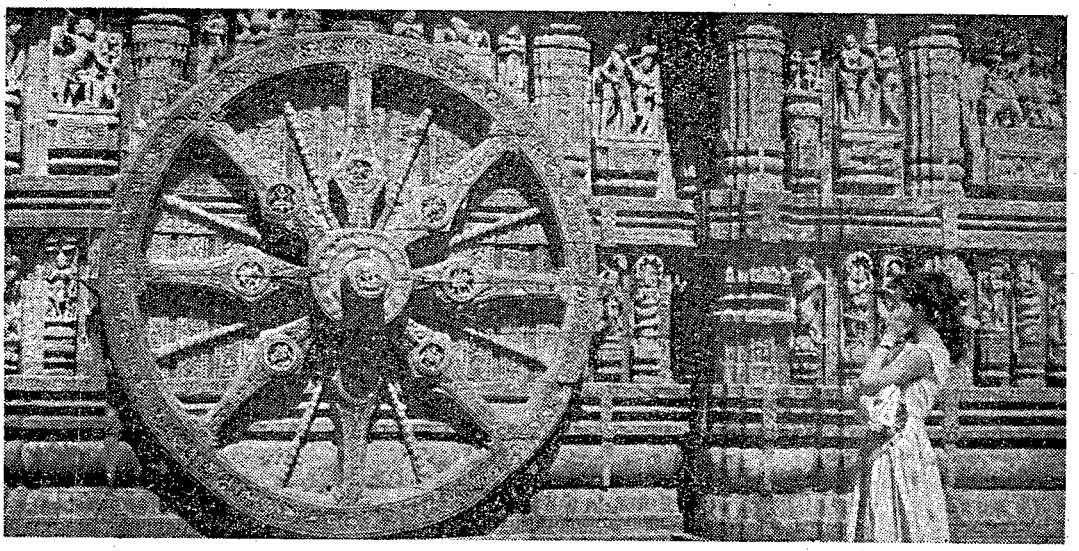
In this context, it may be useful to heed the warning of many scientists against allowing research centres to degenerate into big laboratories which are no better than research 'factories' with a facade of mass mediocrity where quantity is a substitute for quality.

In such centres, there is an undue obsession with instrumentation which can impede the chances of discovery. Excessive reliance and interest in complicated and expensive equipment can easily seduce the research scientist away from original thinking and divert him to refine results beyond a useful limit. Besides, there is also the inherent danger of scientists becoming specialist machine-minders.

In the ultimate analysis, scientific progress is made "not through the pursuit of clearly perceived social utilities, but through private compulsions of a few men of genius". It has been well said that the only thing men of power can do for men of genius is to leave them alone.

Picture at left: The facade of a palace which houses a laboratory, the Chhatar Manzil of Lucknow, new home of drug research.

TOURISM CAN BRING INDIA MORE



By ROBERT W. MOSS

A Programme to Attract the not-so-Rich

ONE of the happiest ways to improve India's earnings of foreign exchange, while winning friends abroad, is to increase the number of foreign tourists coming into the country. In 1964, more than 156,600 foreign tourists (barring nationals of Pakistan) came to India, and India was Rs 23 crore richer for their coming.

An impressive figure, certainly, but it reflects only a small fraction of India's real potential in the tourist field. Tourism accounts for only about 3 per cent of India's foreign exchange earnings, a much lower figure than observed in countries which have actively sought to increase their tourist business. Italy, for example, plays host each year to over 8,000,000 tourists, who spent more than $ 900 million (Rs 430 crore) in 1963. Japan earned $ 190 million (Rs 90 crore) the same year.

In the decade between 1951 and 1961, the growth in the number of tourists coming to India was little short of spectacular. Reconstruction in Western Europe and growing affluence in North America were creating increasing numbers of potential tourists with the necessary dollars, pounds and francs for long



journeys. India's long history and growing position in the world made her a natural goal. From 17,000 tourists in 1951, the flow grew to 66,000 in 1956 and 140,000 in 1961.

The growth was not to continue. Between 1961 and 1964 tourist arrivals increased by an average of less than 4 per cent per year. Tourist arrivals in 1964 were fewer than 157,000, only some 17,000 more than in 1961.

Few satisfactory answers have been proposed to account for this poor recent record. Certainly border troubles with China and Pakistan may have deterred a few weak-hearted potential visitors, but the decline in tourist traffic was noticeable *before* the Chinese border incidents began. Nor can the decline be attributed to any overall slow-down in the growth of international tourist traffic; tourism in Western Europe and the U.S.A. has increased significantly in the period.

For the cause, India need look no further than her own policies of attracting, transporting, accommodating and amusing the foreign visitor. The fact is that, with few exceptions, India has appealed to a certain class of Western traveller, the middle-aged to elderly, upper-class American or European.

The cost of travel to India is the first major hurdle. For an American man and wife to fly from New York to New Delhi, the tourist class return tickets alone cost $ 2,300 (Rs 11,200). In contrast, a trip to Western Europe, as part of a charter flight group, might cost the couple as little as $ 500 (Rs 2,400).

Once the tickets have been purchased, the next problem is ac-

commodation and travel *within* India. While Indian hotel prices compare favourably with those in the West, the *selection* offered to the tourist is meagre.

The chances are good that his travel agent will only know of one or two luxury hotels in a few major cities and tourist centres. And while luxury at the Ashoka hotel in Delhi is certainly cheaper than the same style of living at the New York (or London) Hilton, it is still more than the potential middle-class tourist is able (or willing) to spend. It is not only the money cost that is a problem; many travellers rebel at the thought of living in "international" style luxury at the expense of almost total isolation from the people and country they have come to visit.

Travel within India is one of the potential bright points. Although there is a lack of local transport facilities, as any one who has tried in vain to hail a Delhi taxicab at rush hour can well testify, the situation is not much worse than in many large cities of the West.



Longer distance travel is another thing. Indian Airlines' new Caravelles provide first-class service among the major cities, but air travel to the more remote historical and scenic stations remains an adventure for the daring. And reserving seats on an Indian train requires unlimited patience and quantities of insight into the mystic operations of the booking offices that few Indians, let alone foreigners, seem to possess.

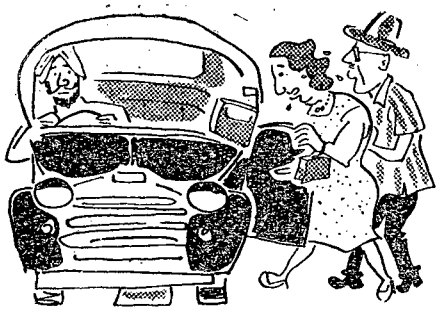
After succeeding in his day's sightseeing, and being overcharged by taxi drivers and shopkeepers, the weary traveller returns to his hotel. He is greeted by yet another "international" meal, an Indian euphemism for uniformly overcooked and underseasoned dishes introduced by the British. Why this food should have been introduced into India, and why it should have caught on, is one of the great mysteries. Almost every other major nation, except—ominously—England, has pride in its national cooking, and a desire to exhibit it before guests.

The French *sauces* and *souffles* are known well beyond the borders of France; Italian *pastas* and Spanish *paellas* are increasingly well known. Even such exotic dishes as Japanese *sukiyaki* and Mexican *tortas* have become popular in America. Yet how many Americans, and especially those who have stayed in India's luxury hotels, know the delights of the hearty *Mughlai* dishes, or the delicacies of South India? Why must India deny her guests a welcome exposure to good Indian food, seasoned to Western taste, in the mistaken belief that they prefer instead a poor imitation of the dishes they eat at home?

A PROGRAMME FOR GROWTH

The list of reasons why India has not succeeded in drawing the new middle-class tourist, who accounts for the bulk of today's international travel, could be continued through many more items. But instead of recounting what India does not do, or does insufficiently to attract these tourists, let us consider a seven-point programme for expanding India's tourist earnings. Specifically, these are the necessary items for attracting the new style of middle class tourist.

1. A CHEAPER WAY TO GET TO INDIA : This could be easily brought about, for groups, if Air India were to drop its current policy of not allowing group charter flights into India. Such flights could be sold for about $ 600 (Rs 2,850) a seat *at profit to the airline*, if all seats were sold to the chartering group. This would not involve a significant reduction in traffic on Air India's scheduled flights, as the bulk of the charter traffic would be newly created by the great difference in fares.



Such charter arrangements have proven their value on the North Atlantic routes, where they now account for a large percentage of total traffic.

2. A CHEAPER WAY TO LIVE AND TRAVEL WITHIN INDIA : The sale of package tours in the West should be encouraged. These would include transportation *to* and *within* India, hotel reservations, discounts on souvenirs, etc. Another method would be to introduce an unlimited travel plan on Indian Railways or airlines similar to the Eurail Pass sold to American tourists going to Europe. This Pass, which must be paid for in dollars before the tourist leaves home, allows unlimited first-calss travel on the railways of Continental Western Europe. It assures the tourist of fixed cost travel, without the bother of purchasing separate tickets for each journey. It would also assure the Government that the foreign exchange involved would in fact go into official coffers, not into the black market.

3. ANOTHER WAY, to reduce the cost of an Indian tour, and ensure that more foreign exchange goes to the Government, is to introduce a special *tourist exchange rate*, say at Rs 5.50 to the U. S. dollar. (The official rate is $ 1.00=Rs 4.76). This would serve to discourage tourists from dealing with black market money changers (who may offer Rs 6.50 to the dollar), by reducing the differential between "official" and black market rates. In addition, it would ensure that very few American tourists would utilise the new U.S. Embassy facilities for changing dollars into P.L. 480 Rupees at the less favourable rate of Rs 4.76 to the dollar.

4. NEW FACILITIES MUST BE PROVIDED for the middle-income tourist that will offer clean accommodation,

(*Continued on Page 18*)

How Food Trade Can Be Made Rational

Merchants Making Too Large Profit

SATWANT SINGH

RECENTLY I went on a week's fact-finding tour of Andhra, Mysore and Goa, as a Director of the Food Corporation of India. During this visit I came across numerous anomalies in the food trade that were a good example of the kind of problems that need to be solved if we are to have a rational food policy.

As regards rice, the Mysore State has fixed the margin at the milling stage at Rs 6 per quintal, that of the wholesaler at the consuming centre at Rs 5.50 per quintal and that of the retailer in the consuming centre at Rs 3.25 per quintal. On these calculations, the Government has fixed a maximum price for the consumer at Rs 71 per quintal or Re 0.71 per kilogram. But in Puttur and Mangalore in the deficit district of South Kanara the current selling price of rice is Rs 1.50 to Rs 2 a kilogram.

The private trade in the surplus area of Shimoga has built large stocks on account of the permission given to retain up to 50 per cent of stocks brought for sale in the open market. The stockists manage to sell their 50 per cent open market share at exorbitant prices in the neighbouring deficit district of South Kanara and other consuming areas.

From this example and from past experience, I suggest that during the next paddy season all purchases of paddy should be made by the existing agencies—such as private trade, producer co-operatives, State Governments—*on behalf of the Food Corporation of India.* The Corporation should function as a co-ordinating central marketing agency, which would have control on the entire stock and be in a position to direct the stockists to sell rice at a graduated profit-margin-price scale through regulated retail outlets, particularly in the deficit areas.

Corporation's Say

If buffer stocks have to be built up, if a reasonable price level to the consumer and a fair profit margin to the distributor are to be assured, and if the grower has to get scheduled prices, it is essential that purchase by the private trade as well as storage should be licensed and regulated by the Food Corporation of India under statutory powers. These powers should also make provision for compulsory fumigation and for orderly movements of food grains to deficit pockets at controlled prices.

In a surplus State like the Punjab, where the wheat-grower gets about Rs 51 to 54.50 per quintal, the trade manages to smuggle a sizable quantity to the adjoining States of U.P. and Rajasthan mostly via Delhi and pocket a profit of about Rs 15 to 20 per quintal. To counteract such a situation the State Government ought to set up subsidiaries of the Food Corporation of India on the pattern of the Australian Wheat Board. The trade must hold all its grain stocks as an agent of the State subsidiaries of the Food Corporation to enable it to exercise effective control on the movement and prices of food grains.

Maharashtra Model

In Bombay Professor D.R. Gadgil, Chairman of the Maharashtra Co-operative Bank, showed us how the procurement of *jowar* is being done at a few hundred assembly points by the joint efforts of the Co-operative Bank and producers' marketing co-operatives. This system has been able to maintain the price line and ensure scheduled prices on quality-basis to the growers. Its wholesale and transport margin comes to about Rs 6 per quintal. The successful working of this Rs 17-crore co-operative monopoly may be adopted, with local adjustments, as a model for setting up a purchasing agency of the Food Corporation of India in both surplus and deficit States.

Growers' Needs

From the viewpoint of the grower, the following measures are needed:

An efficient statutory marketing agency has to be built up, supported by a network of producer-controlled regulated markets in both the economic and the physical sense. This would motivate practically every farmer to produce marketable surplus and sell it for buying increased agricultural inputs, which in turn would further increase the grower's production capacity.

Food grains should be purchased in accordance with a price support policy that would reflect adequate remuneration for quality. Sample tests should be made of every heap of food grains.

Adequate storage accommodation should be built up at assembly points, so that orderly movement of food grains to deficit areas or pockets can be undertaken.

Any other kind of storage of food grains at assembly points should be by licensed dealers who function as agents under the close supervision of the Food Corporation and State Governments.

Timely release to deficit areas should be assured, so as to eliminate the temptation of smuggling. This will be possible by having storage of adequate stocks throughout the year at points near the borders of deficit areas.

The land reform concept should be broad-based enough to include marketing reforms, initially in the Package Programme areas.

In inferior wheat producing areas superior quality wheat should be siphoned off by paying a premium of Rs 5 per quintal for seed purposes.

The price support system should be an integrated one, covering all the important grains and pulses. The *inter se* price level of various commodities should be such that the farmer's preference for a particular crop should be guided by technological factors rather than the mere profit motive.

Inter-State movements, and movements from surplus to deficit areas within a State, should be done only through the Food Corporation of India or through Government. That would plug many existing loopholes which the trade uses as a lever for pushing up prices in the post-harvest periods.

There should be construction and socialisation of covered market yards fitted with machinery for cleaning, grading and insecticide-spraying. These structures should form an integral part of the marketing complex which should, besides, comprise processing industries, service and supply depots, banks and offices of the concerned agencies including co-operatives and the Food Corporation of India.

A producer-controlled marketing committee under the supervision and guidance of a State Marketing Board on the pattern of State Electricity Boards should be entrusted with the administration of these markets. Proceeds from the levy of a special cess on commodities should be exclusively used for the purchase of these market sites and for development and administration of grain markets.

Allocation of special funds and organisation for providing facilities to the growers on the shape of sheds, stores, cleaning and grading equipment at convenient assembly points is a basic necessity. Proceeds from the levy of cess on food grains should be exclusively used for setting up producers' processing.

QUOTATION BOX

The question has to be faced squarely as to whether we do not have too many authorities in Government without whose approval even simple decisions cannot be taken.

—Prime Minister Shastri

I took him (Sheikh Abdullah) to King Kothi where he had an audience with the Nizam. A few days later I asked H.E.H. what he thought of Abdullah. H. E. H.—no mean judge of men—smiled and said: "An amusing fellow".

—Mr. M. K. Vellodi

You see, after V. K. Krishna Menon, Satyajit Ray is the only Indian alive discussed avidly the world over.....The two have a very dominant trait in common—an impulse to annoy you the moment you meet them. They achieve this by different methods—Krishna Menon by talking to you and Satyajit Ray by not talking.

—The Editor of "The Illustrated Weekly of India"

When the Press Commission conducted a survey of the reading habits of the people of the country, it discovered that editorials were taken seriously by the people.

—Mr A.D. Mani, M.P.

Neither in Great Britain nor in America is politics a profession for the careerless as it has come to be in India.

—From the journal of the Gokhale Institute of Public Affairs, Bangalore

Asked whether "India created an emergency on the borders to disrupt Pakistan's economic plans just as China did in 1962 to make India divert her economic resources for defence purposes", Mr. Shoaib (Pakistan's Finance Minister) said, "Indians are capable of doing anything to harm Pakistan."

—A United News of India report

Many of them (our diplomats) acquired a preference for the chandeliered elegance of Western drawing rooms to an extent which made them regard a posting in Europe as a recognition of seniority in the service.

—"The Hindustan Times"

Some 1,104 children are born every hour in our country. It means that, to cope with the requirements of the increase in population, we have to build two new schools and 100 new houses every hour.

—Mr Mathuradas Mathur, Rajasthan Minister

Importance of Family Planning Stressed

Change in Eating Habits Necessary

—Headlines of a State Government press note

The buffalo is even a greater mother of the Hindus than the cow, for the supply of milk in Northern India comes more from that animal than cows. But nobody worships the poor buffalo.

—Mr Nirad C. Chaudhuri

It has become a fashion to criticise the deficiencies in the nation's life and progress. It seems as if we are following the example of the Spanish Jesuits who believe in self-flagellation as the path to redemption.

—Mr Morarji Desai

The average Indian male offender has more chance of becoming a wiser man during his prison sentence and, when it is over, of being welcomed home wholeheartedly by the family he has helped to support, than the average British one.....

—In an article "Lessons from India's Prisons" in "The Daily Telegraph", London

Indian traders prefer to sell Chinese goods, according to Indian officials who returned here from Africa recently.

—A United News of India report

To the jaundiced eye of the outsider, the entire purpose of our foreign exchange regulations seems to be to conserve the nation's reserves for official travel.

—"The Statesman"

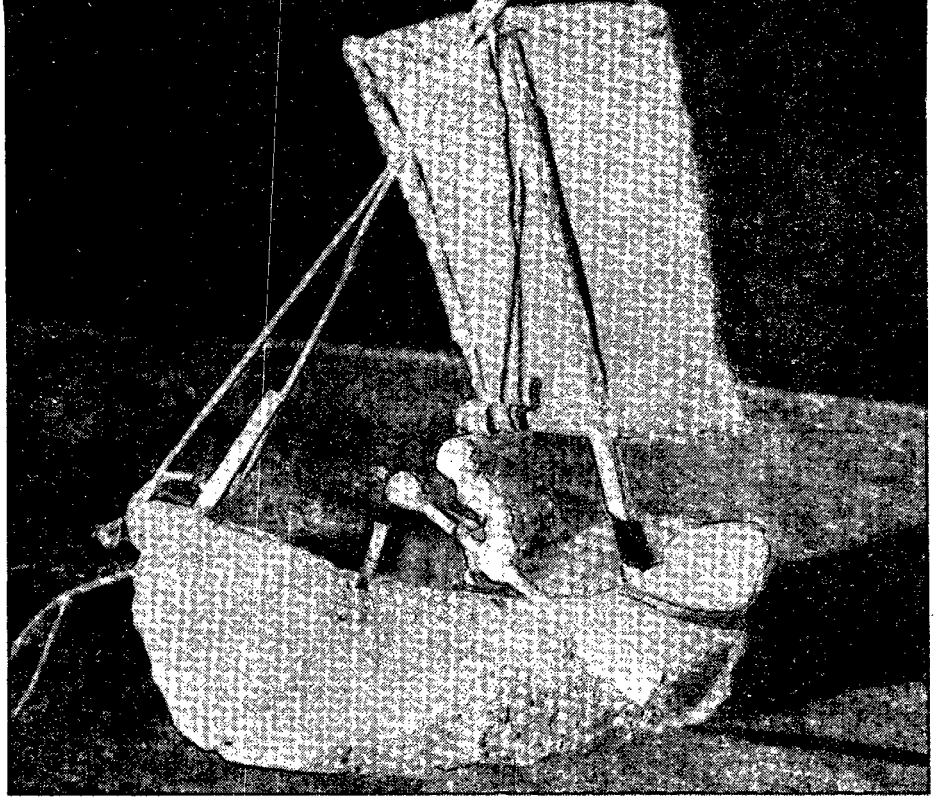
There is no reason why we should be or become Englishmen. Of course we need not become Americans either or Russians.

—From a letter in "Swarajya"

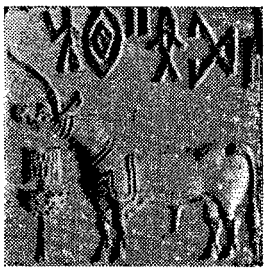
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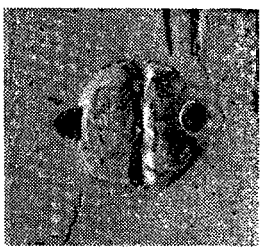
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Left : Clay model of a ship found in Lothal. The mast and sail have been restored. Below : Soapstone seals from Lothal.





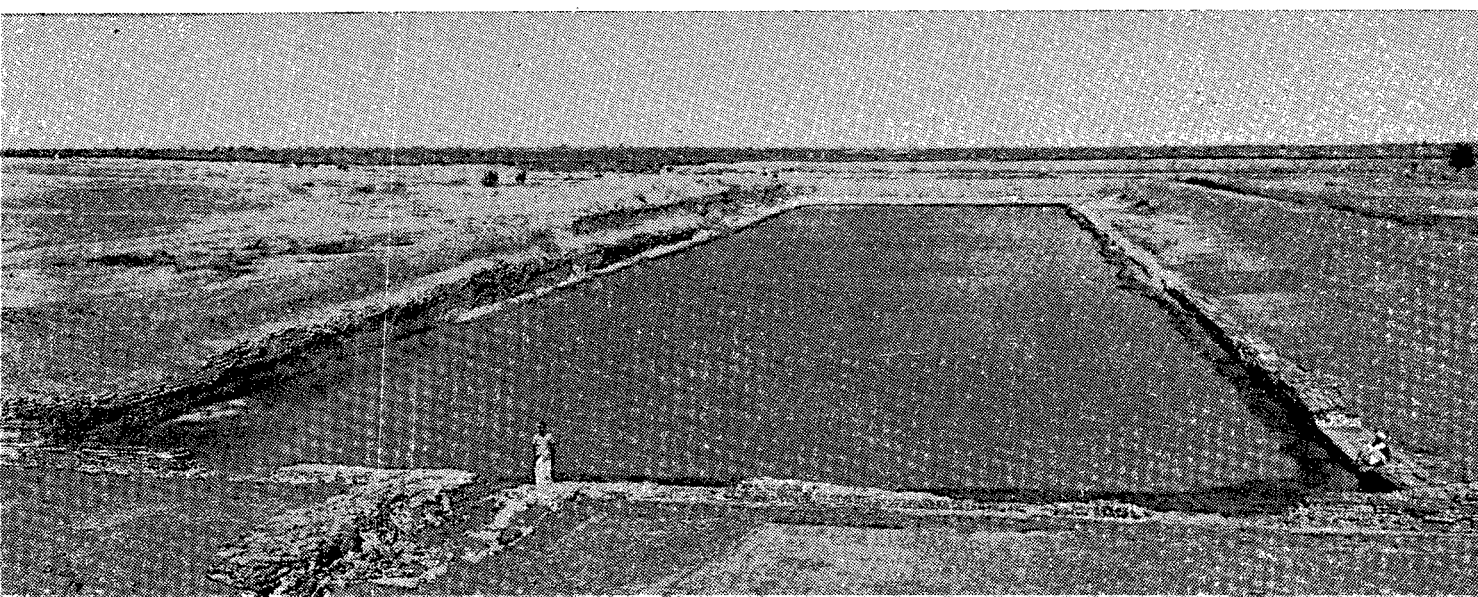
PORT AND PLANNED TOWN OF 4,000 YEARS AGO

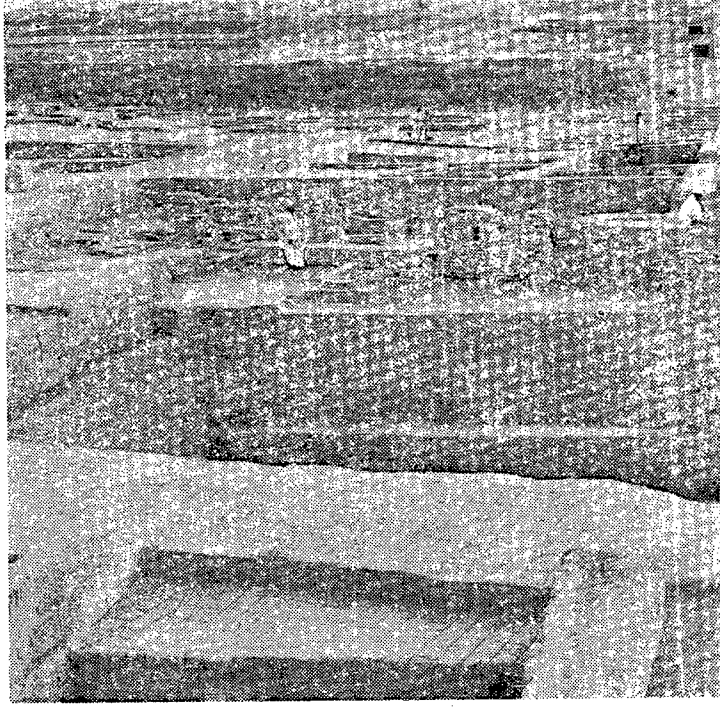
By S.R. RAO
Deputy Director-General
Archaeological Survey

Lothal Excavations Reveal a New Province of Indus Civilisation

ARTICLE OVERLEAF

Artificial dock, with inlet and spillway found at Lothal. The dock is 219 metres long and 37 metres wide. Ships up to 60 tonnes could be berthed there.





General view of the excavations in the elevated part (acropolis) of Lothal

THE discovery of Harappa and Mohenjo-daro and the subsequent excavations from 1921 onwards have established that India was the cradle of one of the most ancient civilisations of the world.

What distinguishes the Indus Valley civilisation from the Egyptian and Sumerian civilisations is its urban character. By 2500 B.C. the Indus Valley people had been able to build large cities commanding an excellent system of roads and drains. They had a public bath at Mohenjo-daro and a granary for storing grains in a very scientific manner. They were highly literate and their writing consisted of hieroglyphs and pictographs. Trade was well regulated and a uniform system of weights was in vogue throughout the Indus Valley.

The twin cities of Harappa and Mohenjo-daro were planned more or less on similar lines. The absolute uniformity in the pottery shapes, painted designs, lithic and metal tools, jewellery, seals, and even toys and gamesmen over the vast area covered by the civilisation is what catches the eye of everyone. In spite of the fact that the Indus Valley people had established firm trade links with the Sumerians they maintained their distinctive features in art and architecture, religious and social customs, and trade and commerce.

How such a well-ordered civilisation disappeared suddenly is still a mystery. In fact there are no clues even as to its origin.

DISCOVERY OF LOTHAL

THERE is a vast gap in Indian history between the supposed end of the Indus civilisation about 1500 B.C. and the beginning of the Buddhist period in the sixth century B.C. The Indus civilisation was discovered over forty years ago, and before an attempt could be made to throw light on the 'dark age' by tracing the survival of the main elements of the Indus civilisation in the later Indian culture, the country was partitioned in 1947.

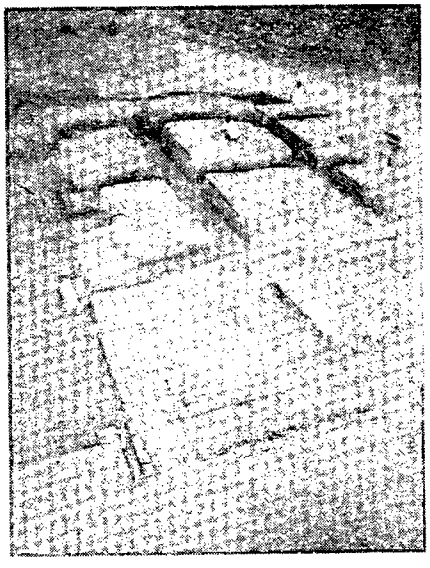
As a result of the partition, Harappa, Mohenjo-daro and all other Indus sites went to Pakistan. The Archaeological Department of the Union Government decided thereupon to survey the Ghaggar and Chautang Valleys (ancient Sarasvati and Drishadvati) to locate Harappan sites, if any, within the present-day borders of India. (It might be noted that the term 'Harappa Culture' will be used henceforth to suggest the urban culture of the Indus Valley noticed at Harappa and Mohenjo-daro as distinct from other cultures.)

The survey of the Ghaggar Valley resulted in the discovery of 20 Harappan sites among which Kalibangan is very important. As far as Saurashtra was concerned the renewed excavations by the writer in 1954 confirmed its Harappan affinities, but the absence of typical Indus seals necessitated looking for more positive Harappan sites. The port town of Lothal was discovered in 1954 in the course of a survey of the corridor connecting the Kathiawar peninsula with the mainland. The excavations conducted there from 1955 to 1961 have brought to light several new features of the Harappa culture which had penetrated deep into Gujarat. So far, as many as 80 sites belonging to the various phases of the Harappa culture have been located.

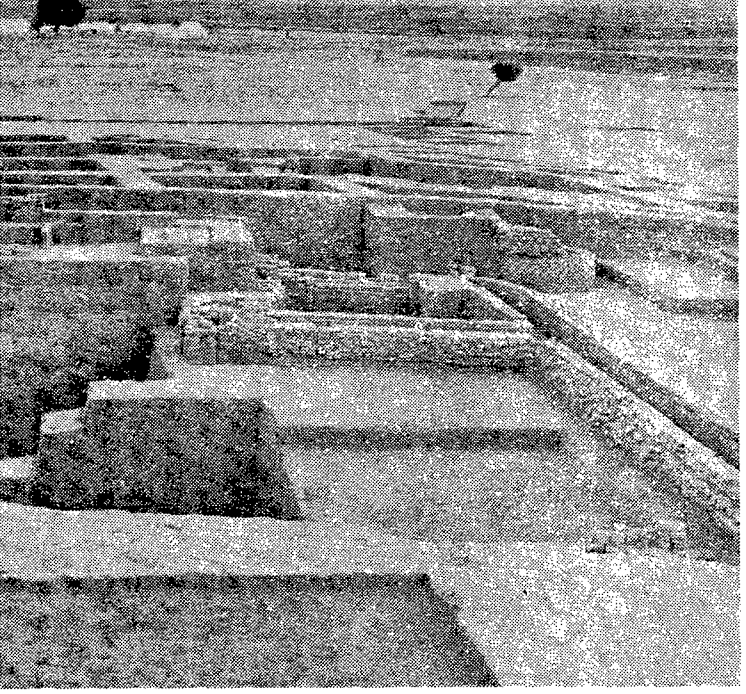
A terracotta bull

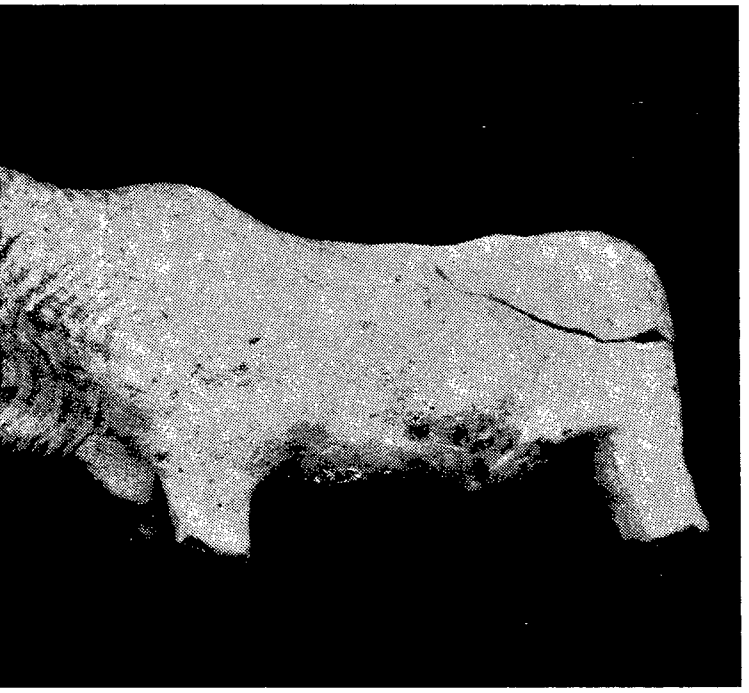


The foundation of the warehouse



LOTHAL in Gujarati conveys the same meaning as Mohenjo-daro in Sindhi, namely the 'mound of the dead'. The mound is situated at the head of the Gulf of Cambay at a distance of 75 km from Ahmedabad. The earliest settlement, *circa* 2450 B.C., was a small village of mud and mud-brick houses enclosed by a mud bund to protect it against recurring floods in the river. The inhabitants must have been a simple folk who depended on agriculture, fishing and trade. They manufactured beautiful beads of semi-precious stones, worked ivory and shell and produced earthenware of a micaceous red surface. The shape of the vessels and decoration differed from those of the typical Harappan pottery.





Photographs : Archaeological Survey of India

ATTRACTED by the sheltered harbour and rich hinterland growing cotton, wheat and rice the seafaring Harappans moved down from the Indus estuary to Lothal and further south up to Bhagatrav in the Kim estuary. Their arrival meant some change in the way of life of the indigenous population ; but both lived together peacefully as attested by the co-occurrence of the material equipment of both the groups for several centuries at Lothal. As was to be expected, the superior equipment of the Harappans, namely beautifully painted earthenware, long blades of chert, tools and weapons such as daggers, arrowheads, celts, chisels, drills and nails of copper and bronze, cubical weights of stone and square seals of steatite became increas-



Jar found at Lothal

ingly popular. The newcomers built drains and roads too.

TOWN-PLANNING

ABOUT a century after their arrival a severe flood destroyed the village; but the co-operative effort of the residents, evidently organised by a leader-genius, brought greater security and material prosperity. The damaged peripheral walls were strengthened and enlarged, and the houses within were built on two- or four-metre-high platforms of mud-bricks as a precaution against floods. The town was well-planned by separating the acropolis (citadel or elevated part) from the lower town both of which were served by a network of broad roads.

The sanitary arrangements were excellent. Public drains, both underground and surface, were connected with bathrooms by private drains. Periodical clearance of soakage jars, which also helped to keep the town clean, was ensured. Municipal regulations were so strict that no encroachment on streets was permitted and the houses had to be built in straight rows flanking the streets according to a pre-determined plan. Manholes and inspection chambers were introduced to prevent choking of public drains.

INDUSTRIAL ESTABLISHMENTS

THE surplus food produced in the fertile plains flanking the rivers could sustain a highly specialised class of metal-workers, bead-makers, shell-and ivory-workers,

shipwrights, sailors and merchants. The most important industry of Lothal was bead-making. Semi-precious stones imported from the Narmada Valley were processed in the large bead-factory the remains of which have been found at Lothal. Besides a central working platform the factory had several living rooms for the workers. A circular kiln was used for heating the raw material and finished products. It is interesting to note that the present-day lapidaries of Cambay obtain agate and other semi-precious stones from the same source from which the Lothal lapidaries obtained them. Moreover, the processes of manufacture are identical.

Beads of carnelian, agate, jasper, opal, crystal and steatite were exported from Lothal to the Sumerian cities. Workshops of shell-bangle-makers and coppersmiths are also laid bare in the bazaar street of the Lower Town. On the northern margin of the town a smithy with at least six brick-paved 'sinks' each with a pot-furnace has been traced. Copper implements and terracotta muffles were also recovered here. Several smiths appear to have worked under a single roof.

In another small workshop of a coppersmith, a brick-enclosed furnace, a stone anvil, terracotta crucibles etc. were found. The coppersmiths imported ingots of pure copper and mixed tin to produce bronze. Celts, chisels, blade-axes, engravers and drills required by carpenters, seal-engravers and shipwrights were produced locally.

THE DOCK

THE most important contribution made by the Lothal folk is the construction of a large dock for berthing ships and handling cargo. *This is the earliest evidence of an artificial dock built by the Bronze Age people in the world.* After excavating a basin measuring 219 x 37 metres the inhabitants enclosed it in metre-high walls of kiln-burnt bricks. The construction shows that the problems of erosion and thrust were taken into account.

An inlet nearly 13 metres wide was provided in the northern embankment to sluice ships at high tide through a *nullah* which joined the siver flowing on the western margin of the town. The ingenuity of the Lothal engineers consists not only in taking precautions against erosion and thrust but also in ensuring floatation of the boats at low water by providing sluice gates in the spillway built in the southern embankment. Thus, water-locking arrangements were introduced here. The port-holes in the embankment walls and the anchor-stones found in the basin establish that boats were berthed here. A terracotta model of a boat found at Lothal has a sharp keel and provision for the mast.

In circa 2000 B.C. a great flood damaged the dock and the river itself changed its course. But the inhabitants cut a channel connecting the river with the dock and provided a new inlet in the eastern embankment.

A massive mud-brick platform was built adjoining the western wall to serve as a wharf. Several ships with a tonnage of 60 could be easily berthed in the dock.

WAREHOUSE

WHILE planning the town, the need to provide warehousing facilities at a busy international port like Lothal was foreseen. Hence a warehouse measuring 48.5 x 42.5 metres was built on a 3.5 metre-high podium of mud-bricks in the southeast corner of the Acropolis. But unfortunately the floods have washed away about all except twelve mud-brick bases over which a wooden canopy must have been erected to cover the cargo. Some scholars have called it a granary. Among the imported finds from this structure are 75 terracotta sealings which bear positive impressions of Indus seals on the obverse and marks of packing material such as matting, cloth and strings, used on bales, on the other. For the first time Lothal has yielded unmistakable evidence of having actually used Indus seals for sealing packages, which disproves the theory of the seals being used as amulets.

TRADE AND COMMERCE

THE scarcity of stone and metals necessitated the import of semi-precious stones, copper, gold, tin etc. from outside. The lapidaries of Lothal obtained their supply of agate and other semi-precious stones from the Rajpipla mines through Bhagatrav, an early Harappan port in the Kim estuary. At present also the bead-makers of Cambay obtain their supply from the same source. Lothal exported a large variety of beads to the Sumerian cities through Bahrain islands. Both etched and non-etched beads of Indian origin have been found along with Indus seals at Ur, Brak, Hamma, Kish, Lagash etc. in Mesopotamia (Iraq) and at Susa in Elam (Iran). Circular seals with Indus script have been reported recently from Bahrain islands. Cubical stone weights of Indus type occur in Brak and Kish.

Several positive proofs of trade between Lothal on the one hand and Susa, Ur, Kish and Bahrain islands on the other are provided by the following antiquities found at Lothal : (i) a circular steatite seal of Bahrain origin; (ii) terracotta figure with Sumerian features; (iii) copper amulet with a couchant bulls figure of the type found at Susa, Ur etc.; (iv) double-slipped pottery known as the Reserved Slip Ware common in Ur, Brak, etc. in 2300 B.C. and earlier levels; and (v) bun-shaped ingot of copper similar to those found at Susa.

Steatite (soapstone) and gold needed for making seals, beads and other ornaments must have come from the Deccan and Mysore, while chert needed for making blades and weights was imported from Sukkur-Rohri in Sind.

Apparently, sea-borne trade must have been well organised, and merchants must have been financing the artisans and shippers. In one of the houses of the merchants engaged in foreign trade two seals, eight gold pendants simulating those from Ur and painted pottery of Sumerian authorship were found. There are also indications of partnerships in trade as indicated by clay sealings bearing impressions of more than one seal.

RELIGION

RELIGION does not appear to have dominated the life of the Lothal people nor did the ruler derive his authority from religious sanctions. Had it been so, the fire-altars and other structures attributable to religious beliefs should have been found in the Acropolis during the heyday of Lothal.

This is not so, but there is enough evidence to show that the inhabitants practised some form of ritualistic

(*Continued on Page 22*)

Wanted

A PEACE CORPS OF OUR OWN

By RAM K VEPA

THE recent news announcement of a "Shanti Dal" (Peace Corps) to be formed in India to provide an avenue for constructive social work by the youth of the country is to be widely welcomed as overdue. The fact that such notables as Mrs Pandit and other well-known personages are to be associated with the programme ensures for it a public acceptance which would make it easier to function effectively.

One of the most depressing features of our national life today is the "apparent" lack of faith and idealism in most of the younger generation born or brought up in the post-Independence era. The word "apparent" is used advisedly, since youth cannot live long without faith and the lack of it is perhaps a measure of the failure of an older generation to provide the right kind of inspiration. Whereas, a decade or two ago, a Gandhi or a Nehru could fire the imagination of youth by his thought and deed or by his very presence, there seems to be no one today on the Indian political horizon who can similarly quicken young blood and weave a magic spell around them.

One remembers wistfully the stormy days through which the freedom struggle passed; while the great non-violent fights of the twenties and thirties are only memories, one remembers well the stirring episodes of the 'August Revolt' of 1942 as a treasured experience. Those were, indeed, days to remember : a vision, an ideal, animated young India. There was a cause to fight for, and even to die for.

Need for Idealism

But with Independence, a strange torpor came to seize the youth of the country. The momentum of the Great Revolution has by now petered out. There were flashes of the old fire in some of the utterances of Jawaharlal Nehru but with his passing away last year, the light of faith and idealism seems to have finally been put out. Where there was faith, there is now, cynicism; where there was idealism, there is, in the words of Mr Asoka Mehta, an "obsessive preoccupation with monetary values".

But one ought not to blame the young alone; there is still a vast reservoir of energy and idealism in the youth which, if channelled, can be productive of much good to the community and to themselves. Perhaps, it is we that have failed to live up in a full measure to the ideals we had in our youth; there is need too for a concrete organisational framework which would provide opportunities to the youth to demonstrate in practice their desire to serve the country.

WHEN John F. Kennedy became President of the United States in 1961 he told the youth of America: *Ask not what your country can do for you; ask what you can do for your country.* He did not rest content however with making the call; he established the Peace Corps to provide young Americans opportunities to work in other lands and the programme today counts more than 10,000 persons spread over fifty countries and earning good-will for their country on a person-to-person basis.

More recently, the National Service Corps has been set up in the USA—an idea conceived by Kennedy himself before his tragic death—to enable the young people to work in the *backward sections of their own country*—Negro slums, tribal reservations, centres for the aged, handicapped and juvenile delinquent.

So compelling has been the attraction of the Peace Corps to the young that two other prosperous countries, Canada and West Germany, emulated the example and set up service organisations of the youth. It is now being suggested that a "counter" Peace Corps programme may be set up by which the youth of other countries may work in the United States on community service projects.

Two Years for Country

If such a programme is needed in a prosperous country like the United States, how much greater is the need in India when the tremendous challenge of building a new nation is being faced! In this vital task, there is work enough for thousands of young men and women with zeal and enthusiasm. As the Deputy Chairman of Planning Commission said at the Convocation of the Vallabh Vidyapeeth in December, 1964:

Something for Youth to Live for and a Fitting Nehru Memorial

"Is it difficult to find 5,000 or 10,000 young persons from amongst the university-trained, who would want to enlist for a period of two years to further the course of development at grass-roots?" He suggested the formation of a "Vikas Dal" which would make the tasks of our time "exciting and meaningful" and which would provide the youth "opportunities for their own distinctive and unique 'Discovery of India' ".

Worthwhile Expense

If one were to assume a period of service of even one year for each volunteer, the 'stipend' paid to them need not exceed Rs. 1,000 a year which would be adequate for them to live in modest comfort in a village. Assuming 2000 volunteers a year, the cost to the nation (including overheads) would not exceed Rs 25 lakh per year or about Rs 1.25 crore in the Plan period—which is almost one half of one-hundredth of one per cent of the proposed outlay in the Fourth Plan—a small price to pay for a programme with such immense potentialities. If the service period is two years, the cost would be Rs 3.75 crore over the Fourth Plan period.

Recruitment to the service corps can be done through State agencies and a volunteer may be required to possess a university degree, normally in arts and basic sciences, since those embarking on professional careers in medicine or engineering can ill afford to spare an additional year to their already over-burdened schedule. A degree, however, is helpful to ensure a maturity of mind which can absorb and appreciate the full impact of the rural experience. Volunteers can be assigned at the rate of four or five per district to work in recognised private institutions or Government agencies in whatever field interests them. The bulk of them will go to teaching or work at the primary health centres or participate in special programmes such as family planning, malaria eradication, etc.

Knowing the Villages

Even apart from the utility of the specific jobs they would be doing, the intangible benefits of such a programme are most impressive. By providing to 2,000 young men and women on the threshold of life the rich experience of rural life, "bridges of understanding" would be built between the urban areas and the countryside, between whom the gulf seems to be widening in recent years. Mere idealism is not adequate unless tempered with realism, and a close understanding of the problems of the village can be an invaluable asset to those who have to run the country in the decades to come.

National Integration

By a judicious location of volunteers, it is possible to serve the cause of national integration, which has always been, and still remains, the country's Number One problem. Nothing brings home the essential unity of the country as the kinship of the common people facing the same problems and sharing the same aspirations. A young man from Kerala working in Kashmir and a girl from Bombay working in Bengal can become powerful forces to bring the country together and weave invisible bonds of unity between different parts of the country.

Is it indeed too much to expect that out of the tens of thousands that stream out of our colleges every year, there are not to be found 2,000 youths who would answer the call of the service corps for a year of service in rural areas with pride and joy ? Theirs will be certainly no Sunday picnic but, at times, hard and even depressing work; but, on the other hand, they would have the glow of satisfaction of participating in the great and exciting adventures of nation-building in which our late Prime Minister used to invite all to take part. Perhaps there can be no greater memorial to Jawaharlal Nehru than a National Service Corps for the Youth which could well bear his name and certainly his spirit of joyful dedication to the cause of the country.

TOURISM

(*Continued from Page 10*)

modern sanitation and decent food at a reasonable price, say between Rs 15 and Rs 30 per day. These facilities are needed both in the large cities and in the smaller towns, hill stations and historical sites. They should be constructed with Government assistance, or even by the Government if required.

5. TRAVEL SHOULD BE MADE EASIER. Reduce the number of forms that must be filled in by the tourist by providing him with a single, compact *Tourist Introduction Card* that would serve for priority railroad reservations and discounts, hotel reservations, cheque cashing privileges, liquor purchases, etc.

6. IMPROVED METHODS FOR MEETING THE PEOPLE. Many European countries have visitor reception bureaux at major airports and railway stations which have lists of residents of the country who are interested in meeting and entertaining foreign visitors. These lists are classified by occupation and interests, so that, for instance, a school-teacher who wants to meet other school-teachers can easily be placed. Traditional Indian hospitality could be well expressed through such a plan.

7. PUBLICISE THE IMPROVEMENTS: Air India already does a very effective publicity job abroad, but the activities of the Government of India tourist offices abroad should be increased, with better trained staff and more funds.

India's potential earnings from tourism are almost unlimited.

In 1962 the U.S. Department of Commerce estimated that expenditure on international tourism exceeded $ 7,500 million (Rs 3,700 crore) per year. India last year received less than 1 per cent of that expenditure.

With the current ease of international travel via 550 M.P.H. jets, and the exciting promise of the supersonic jets of the 1970s, India's effective distance from the homes of most of the world's tourists can be measured in hours. Greater affluence in the West and growing vacation time mean that more and more individuals will have the time and money for major travel in the coming years. The average Western tourist in India spends about Rs 1,500 during his stay, *exclusive* of international travel costs. An increase in the number of tourists coming to India could, therefore, have a major impact on India's balance of payments deficit (estimated at over Rs. 300 crore last year).

If India prepares a proper welcome for these new travellers, it should be possible to attract even 1,009,000 persons a year in the 1970s. The expenditure of this number of tourists would total well over Rs 100 crore.

Books

PLANNING IN FRANCE

Economic Planning in France by John Hackett. Asia Publishing House. 55 pages. Rs. 3.

R.G. Nayak

THE book under review consists of three lectures delivered by Dr John Hackett, Principal Administrator, the Organisation of Economic Co-operation and Development, in December 1964 on the subject 'Economic Planning in Developed Countries of the West' under the auspices of the Council for Economic Education, Bombay.

France is the first country in Western Europe to have followed planned economic development. Though before the Second World War planning was regarded as an attribute of a socialist society, the planning mechanism set up in post-war France was not notably socialistic in inspiration. The realisation that the economy of France had suffered damage during the war, that the Government would have to play an important role in the post-war reconstruction of the economy, and that France had lagged sadly behind other progressive countries, favoured the adoption of planned economic development without tying it up with political ideology.

The approach adopted in French planning is somewhat interesting. They call it "indicative planning", as opposed to planning practised in communist countries. But the role of planning in France is much more active than the term suggests. Broadly about 40 per cent of the gross fixed investment expenditure in the French economy is controlled by the State in the light of planned targets.

Immediately after the war, when there were widespread shortages, the plans formulated were deliberately unbalanced. As conditions improved, it became possible for the French authorities to look at the economy in the proper perspective and encourage the public and private sectors to work out their plans as part of future national development.

The second lecture in the book is devoted to the French planning experiment. By now France has implemented four Plans and the fifth one for the period 1966 to 1970 is under formulation.

The French Plan passes through two important stages in the process of drafting. At the first stage the normative objectives of the Plan are fixed which provide the framework for the second stage of detailed drafting of the Plan. The French Plans have persistently set ambitious annual growth targets of about 5 per cent G.D.P. or nearly 4 per cent per head of population. Objectives like a certain rate of growth of private consumption, increase in the incomes of the lowest paid workers, growth of less developed areas etc. are also set in the Plans.

There is an Economic and Social Council group consisting of representatives of employers, farmers and workers together with a number of independent experts. The Council tenders advice to the Government but the Government is not bound to follow the advice, though it is given the most careful consideration. The draft Plan is submitted to Parliament for approval and finally adopted. It is important to note that the Plan is not voted as law. Strictly speaking, the Plan is not an obligation but a combination of objectives, options and goals which the Government undertakes to do everything possible to implement or to attain.

The role of the public sector in the execution of the Plan is to maintain the overall balance in the Plan and to facilitate the achievement of specified targets. The achievement of targets for indirectly productive investments (e.g. social services) and directly productive investments (mainly public utilities) are facilitated by a permanent arrangement under which the amounts of investment required are financed as and when required. The principle of balanced regional development receives high priority.

For the implementation of the programmes included in the private sector, the Plan provides general environmental facilities like adequate supply of trained manpower, the expansion of scientific and technical research, the improvement of financial mechanism, etc.; specific stimuli like the purchase policy of the public sector, the taxation policy, monetary and credit policy, etc.; and interdictions like the conditions for access to long-term funds through the capital market, price controls and building licences and such.

In the opinion of the author the degree of conformity of achievement with the Plan targets in French planning has been quite close on the whole if considered in highly aggregative terms like increase in G.D.P.

On the other hand, private consumption, after a lag during the Third Plan compared with Plan targets, is now tending to grow faster than the target. Since 1963 signs of developing imbalance—too rapid growth of private consumption and a deterioration in current account position of the balance of payments—have called for measures to restrain the growth of internal demand and to correct a disquieting rise in prices. The French Plans have been more successful in achieving growth than in maintaining price stability.

In the last lecture the author has studied the problems of short and the medium-term plans, of planning in an open ecoonomy, of sharing the fruits of plan expansion, and of reliability of long-term forecasts and the importance of having perspective long-term studies of the requirements of the economy. He concludes that there is a trend towards convergence in the public and the private sectors. "The idea that planning and market mechanisms are mutually exclusive alternatives appears non-acceptable. Rather the plan and the market reinforce each other."

The main emphasis in the three lectures has been on the descriptive

aspect of the planning process in France. An equal emphasis on the techniques of planning adopted in formulating French Plans would have been useful to the Indian readers. Probably this would not have been possible within three lectures.

C.D. IN ALIPORE

Community Development, Co-operation and Panchayati Raj in Alipore—A Pilot Survey. Ranjit Singh Gupta. Indian Co-operative Union, New Delhi. 30 pages. Rs. 2.

R.K. Parashar

THIS study has been carried out in one of the most widely known Community Development blocks of the country in the Union Territory of Delhi. According to the author, however, "No attempt has been made by the block to implement or even formulate village development plans. There has not been any (*a*) planning of land use, (*b*) determination of targets, long-term or short-term, (*c*) linking of development programmes and government assistance to production targets and land use, including allocation of seeds, fertilisers, etc., according to plan, and (*d*) attempt to formulate any appropriate price policy."

The author traces the causes of poor performance to the formulation of plans "without any regard to conditions prevailing in the block, including its resources, needs and requirements". In his view the pace of development activities, especially in the field of agriculture, has "considerably slackened" over a period of eleven years from 1952 to 1963. The proportion of overheads to total outlay has considerably increased. There seems to have been no improvement, as a result of C.D. activities in the block, in employment, production, self-help, self-reliance, utilisation of local potential, etc. Nearly two-thirds of the respondents approached say they have not come in contact with any C.D. worker ever since the programme was introduced. In short the block has not achieved the objective of developing into a permanent unit of planning. Concludes the author: "The programme cannot, therefore, be said to have followed a course commensurate with its stated goals."

Writing of Panchayati Raj the author feels that there has been no genuine transfer of power and responsibility to the panchayats. The resources made available to them have been inadequate. No concrete efforts have been made to canalise the development programme through them. Far from being an organ of local government the panchayats are merely functioning as an agency for the execution of local development works. The introduction of Panchayati Raj has only added to factional quarrels in the villages.

In the field of agricultural co-operation, however, there has been "a spectacular rise" of about 236 per cent in the amount of credit or loans advanced to the members as also the progress in terms of per society or per member. An examination of the societies covered shows that the contention that small cultivators have generally been excluded is not valid. On the other hand the method of advancing loans has not been found to be linked with either production plan or marketing or credit-worthiness of cultivators. And the use of loans advanced has not been subjected to any technical supervision.

From the foregoing survey, it would seem that while several shortcomings in the programmes of Community Development, Co-operation and Panchayati Raj have been brought out by the author, he has not listed any outstanding achievements on their part. A programme attempting to bring about organic and structural changes in a society has to be judged not by the shortfalls in its execution but by the degree of change brought about by it. One has to look at the programme in the longer time span and with an objective eye, instead of taking the partisan and limited view of the present. On the Indian horizon, Community Development, Co-operation and Panchayati Raj are the three aspects of a programme striving to change the outlook of the rural masses from supine resignation to active discontentment. This change in outlook, thinking and values counts for far more than the mere physical targets fulfilled or left unfulfilled.

Students of the Indian scene know that the present-day rural masses are not what they were in the early 'fifties at the start of the C.D. movement. Their agricultural techniques are catching up with modern practice. There are more tractors, disc-harrows, trolleys, iron ploughs, and so on. More rural masses are literate. Every village has a primary school within four or five miles. Almost all the villages are now connected by approach roads. There are now primary health centres in the countryside where none existed earlier. Panchayati Raj, moreover, has accelerated the process of political enlightenment and provided training ground for political aspirants. A few failings of the agricultural co-operatives programme pointed out by the author are administrative rather than fundamental in character. Co-operatives are in fact taking root in the countryside, and this is no mean ahcievement.

If the author had objectively listed the pluses and minuses in Alipore and seen whether the achievements, if any, had been brought about by Community Development, Co-operation and Panchayati Raj, and pointed out whether the drawbacks were also due to faulty policies, his effort would not have been in vain. In the absence of such an analysis his opinions give the impression of being lopsided.

Secondly, the shortcomings pointed out by the author are already widely known in the broader national context. However, inasmuch as his findings are based on a field survey they cannot be treated as off-the-cuff statements. They are of added importance at this juncture when many of the earlier blocks in the country, as for example the Alipore block itself, have completed their Stage II and have now embarked or are entering the post-stage II of their career.

The author has made no effort to relate the three parts of the monograph to one another, and treat them as parts of one organic programme. An analysis of the interrelationship and interaction of one programme on the other would have been very useful and illuminating. Another drawback is that he has nowhere explained the methodology followed by him in carrying out the survey, with the result that the reader cannot judge for himself how scientifically valid the conclusions are. All this, however, does not detract from the general usefulness of the findings.

Our Farmers Need Doctors for Their Fields

By Jwala Prasad Jyotishi, M.P.

GREATER production through intensive cultivation is one of the methods by which we can tackle the food problem. The productivity of our lands is among the lowest in the world. There is ample scope for raising it. This low productivity can be attributed to our primitive methods of cultivation. The age-old plough is plodding the age-old furrows. India has progressed in other realms. But in agriculture the traditional methods are preserved as a sacred heritage. Science and technology have seldom been applied in the fields.

Among the millions engaged in agriculture very few know about soil classification, the needs of a crop or the scientific advances made by other countries in regard to these. Our cultivator does not know what chemicals his soil lacks. He does not know what ingredients are needed for the healthy growth of a crop that he is growing. He is completely dependent on nature's whims. A drought may push him and the whole nation to famine. A frost may kill not only his crops but also affect the fate of a whole region.

The cultivator loves his field all right. He fondles it like an ignorant father completely oblivious of the fact that a malignant disease is eating the vitals of his child. He is not aware of the pests that attack his crops. Like an old mother, who shies away from a doctor's injection needle, the farmer hides his field from the scientists, who will suggest that the field should be injected with fertilisers or sprayed with insecticides.

I remember something that took place in my own village. We had a neighbour whose wife presented him with a child every alternate year. There used to be a lot of rejoicing at every birth—singing and feasting and Satya Narayan Katha and *havan*. In spite of immense care and affection the new-born child would invariably have a very stunted growth and would ultimately die. By and by the young couple began to be sullen and crestfallen at the birth of each new child. Gone was the rejoicing. My wife suggested to the mother that she should be medically examined. It came to us as a surprise that the simple folk did not believe that deficiency in the mother could be the cause of the children's death. Ultimately they were persuaded to consult a good doctor who administered the right drugs to set right the deficiency. Our next-door neighbours are now the proud parents of two happy children.

So also, Mother Earth is sometimes deficient in certain things. She has grown weak due to centuries of suckling and rearing. In this case also only a doctor can diagnose the ills and suggest remedies. The doctor for the land is the agricultural scientist.

The Community Development Department is trying to spread scientific knowledge among farmers. But when we consider the magnitude of ignorance and superstition that have to be tackled, the present efforts seem to be very meagre. The cultivator, who is extremely conservative, looks with derision at Community Development workers. He says that these people who wear pants and suits cannot work on the fields. He says that they cannot distinguish between a gram plant and a wheat sapling.

If there is a farmer who knows what needs to be done, most often he is too poor to afford the remedy. Because of acute poverty, he cannot build bunds when and where needed, conserve soil and water, attempt the Japanese method of cultivation.

Even if the cultivator is converted to scientific techniques, have we enough agricultural scientists to examine the soil and suggest remedies ? How many are there who can tell our people the malady the Mother is suffering from ? And have we enough medicines ?

Water is another major problem. Neither man nor land can grow without water. We have built irrigation canals. But are the cultivators using them ? Have we built enough feeder canals to the farmer's fields ?

These are some of the problems of Indian farmers and they are colossal. The poor peasant should get to know his problems first. Then he will take to the scientific methods suggested to him.

BRIGHT SPOT

The production of the Khamaria ordnance factory near Jabalpur has gone up by 250 per cent since the declaration of emergency. The factory, which was set up in 1942, has a vital position among ordnance factories in India. It has a 33 mm aircraft ammunition plant which started production last year.

Lothal : New Province of Old Culture

(*Continued from Page 16*)

worship of fire. In several houses in the Lower Town, rectangular or circular enclosures of mud-brick or mud containing ash, potsherds, triangular terracttoa cokes, were noticed. At two places in street 9 similar altars built of burnt bricks were encountered. One of them has a porthole and semi-circular groove in the walls. A beautifully painted jar was placed near it.

The Lothal folk also practised animal scarifice. A rectangular altar in a house in street 1 was found to contain charred bones of a bovine, a gold pendant, painted potsherds, a carnelian bead and a small quantity of ash. Thus the religious practices of the Lothal folk differed considerably from those of their brethren in the Indus Valley. The cult of the Mother Goddess was hardly known at Lothal, nor is there any trace of the so-called phallus worship. The seals from Lothal do not depict any human or divine figure. Hence the question of identifying the figures with the horned deity of the Indus Valley does not arise.

It may be added here that the cult of the Mother-Goddess and the worship of the so-called horned deity or Pasupati were not at all popular in the Ghaggar and Sutlej Valleys at Kalibangan and Rupar. On the other hand, fire-altars are found at Kalibangan also. Thus there is increasing evidence of the religion in the provinces being divergent from that of the Metropolitan centres.

The cosmopolitan character of the population of Harappa, Mohenjo-daro, Lothal and Rupar should be remembered in this connection. Perhaps in the Indus Valley too, there might have been evidence of widely differing religious practices which might have escaped the notice of the early excavators. Lothal and Rangpur, another Harappan site in Saurashtra, have yielded evidences to show that the Harappan had full knowledge of rice and horse. In the light of the evidence it is necessary to exercise caution before asserting that the religion of the Indus people was wholly Dravidian.

DISPOSAL OF THE DEAD

As in Harappa, Rupar and Kalibangan, in Lothal also, the people buried the dead, but a unique feature of the funerary practice at Lothal was joint-burial. In each of the three out of five graves of the mature Harappan phase two bodies were found buried together. An anthropologist has identified four females, two of which must have come from the joint burials in which case a form of *Sati* (self-immolation by the wife on the death of her husband) appears to have been in vogue. This practice seems to have been given up later on. Both dolichocephals and brachycephals have been found among the skeletons examined. The cosmopolitan character of the Lothal population is beyond dispute.

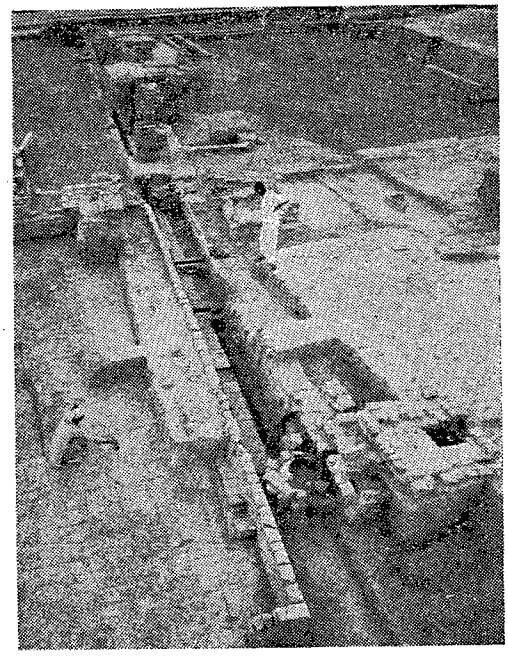
In the field of arts Lothal made a substantial contribution to enrich the Harappa culture. It developed a provincial style of painting earthenware with 'animals in their natural environment' as the theme. They are highly realistic and deviod of the conventional motifs and overcrowding. In metal-casting and modelling the Lothal artists were in no way inferior to the metropolitan artists. The copper figures of a dog and a hare and the terracotta figures of a bull, a rhinoceros and a ram bear testimony to their skill.

The recent excavations at Kalibangan have thrown some light on the existence of a pre-Harappan culture. It is widely distributed in the Ghaggar Valley and bears affinity with the Kot-diji culture in the Indus Valley. In Saurashtra too the indigenous culture represented by the Micaceous Red Ware people forms a substratum of the Harappa culture. It is however too early to say whether the Harappa culture was derived from these local cultures.

As regards the end of the Harappa culture, there is ample evidence of the destruction of the Harappa settlements in Gujarat by frequent floods in *circa* 1900 B.C. and the consequent degeneration of the culture. In the course of a few centuries the effete Harappa culture transformed itself into the Lustrous Red Ware Culture, named after the pottery found in Rangpur and survived almost up to 800 B.C. In the Indus Valley too there is ample evidence to show that Harappa and Mohenjo-daro were frequently threatened by floods. The final destruction might have been due to several causes, the most important being flood as in Lothal, Rangpur etc.

The theory of destruction by the invading Aryans advanced by certain western scholars is now being discarded in view of the substantial evidence to the contrary at the Indus cities. The invaded (Harappans) did not exist at Harappa when the invaders (cemetery

(*Continued on Page 24*)

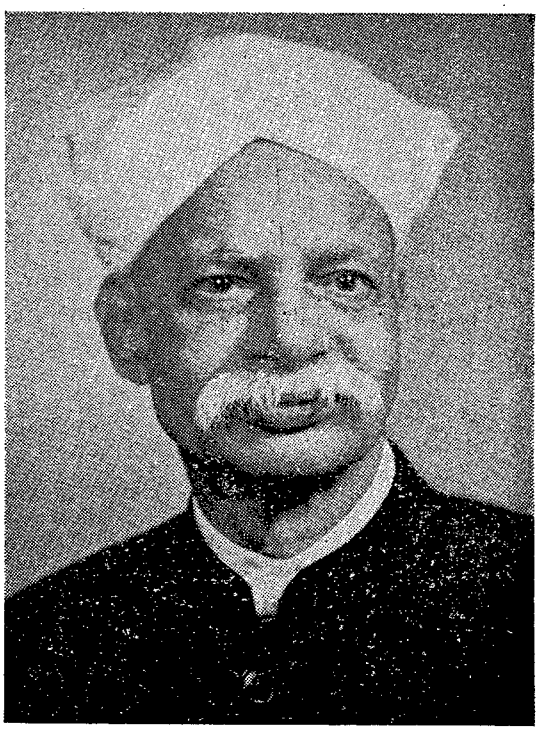


Well-laid drains at Lothal

K. Venkatappa

Painter, Musician and Fiery Recluse

V. SITARAMIAH



Courtesy : Lalit Kala Akademi

K. VENKATAPPA was a dedicated soul, fiercely independent in matters connected with the dignity and calling of an artist.

To some he appeared a trifle extreme; but the lack of courtesy to which artists are exposed by patrons, critics and the public needed a person of his type to keep them sane. If a Tahsildar or an office executive can insist on hours and conditions of visiting, an artist has at least as good a claim, when his work needs more intense meditation and care to get done; any interruption or disturbance is sure to affect his *samadhi* and ruin the piece of work on hand.

So Venkatappa insisted on formal permission, and did not allow all and sundry to visit him. When any work was completed, he would notify that it could be seen on certain days and at certain hours. Anyone could get in then to see it. He would accompany those who were interested in understanding the delicacy or point in a piece of composition and aid them in appreciation. A pretender would get short shrift; neither status nor other trappings of power nor secular eminence would save him.

He fixed his rates for the sale of his pictures or sculpture pieces and stuck to them. He would not loan his paintings to exhibitions except under conditions which guaranteed their proper display and return in proper condition. Normally he would not let them be used as illustrations in books and journals for it was his belief—and in those days it was true—that colour-printing in India was not fine enough to bring out the subtleties of colour and tone. If anyone could not afford to pay for block-making and printing in a foreign country, he would volunteer to finance the printing when he agreed to lend his work.

All this was misconstrued and a legend grew up round him that he was difficult, rude and inaccessible. This did not hurt his art, but it hurt his reputation and the reception of his work. Not being bothered with praise and blame he kept out of the din and dust of controversy and the world's strife.

Yet when a controversy bore substantively on some aspect of art near his heart he was quick to join issue in the fight, as for example about the number of *srutis* in music in the early years of this century. Actually he even made a *sruti-veena* to demonstrate that the number was 22. The name of each *sruti* is inscribed on it in beautiful Devanagari script.

His Place in the Tradition

He did water-colour painting primarily, *bas-reliefs* and figure motifs in plaster of Paris and ivory miniature and in each the work was finished to its uttermost. Shoddy or temperamental work never commended itself to him; for he took art as the finest embodiment of what a vision presses an artist to present. Time and labour needed for that task were never grudged. Whether one saw it from near or far, with bare eyes or with a lens, tone and line, light and shade and the balance of the composition could be felt in every grain of his work. There was no thick daub, no wash or sweep, no fluff or flourish not part of the subject. When he was asked why so much detail was laboured at, he said he was presenting a richness; why should others expect him to give, and he give less, than what the subject demanded?

This exposed him to the charge that he was more a craftsman than an artist. But to any eye that was conversant with the classical tradition and the art practices

of two thousand years, it was consummate articulation; vision matching design to yield the beauty of a thing which lived and spoke. His fingers were steady and skilled to execute any tone, shade or nuance, the finest line was a child of the brush and shown up against a tonal lining in his Ardhanarishwara picture which he did in the early years of this century and which, to his sorrow and anger, somebody walked away with. One of his bird-studies is as exquisite as the finest extant bits of Persian or Moghul schools.

It was works like that that made Rothenstein say that he would be happy if he could persuade Venkatappa to succeed him. Venkatappa was not after any office of profit or honour for he wanted to be free to pursue his own inclination or purpose. When the principalship of Calcutta School of Art fell vacant, it is said that only if Appa refused it, it would be offered to another. He seems to have declined it.

Early he took a vow of no gifts received, and kept to it till he was physically helpless. When he became an invalid and realised that he would be good no longer for art he allowed his sister and nephew to look after him. Rejecting all medical treatment he prepared in his manly way for the exit.

In Mysore, Madras and Calcutta he had received all the training that schools and teachers could give, copied the finest specimens of Indian art when he accompanied Lady Herringham to the caves at Ajanta and had shaped his own style. But landscape and portraiture are not fashionable today and even when they are taken up, post-impressionistic technique and international modes affect practice and taste and judgement in a way which make his work *de mode*.

Venkatappa may be considered one of the last great masters of the Classical tradition in India which combined the best elements of the Rajput and the Moghul schools. His landscape studies at Kodaikanal and Ooty are marvels of colour, composition and design, presenting moods of nature which for rank, refinement and subtlety of tone are unique by any standards. His ivory miniature of Abanindranath Tagore and the Maharajas of Mysore and Cooch Behar are masterpieces in their kind.

The plaster of Paris reliefs are equally vital and dramatic. Sakuntala, Ekalavya, Hanuman and Siddhartha can adorn the best halls even as the friezes and the Gandabherunda can. His bust studies of Rabindranath Tagore, Veena Seshanna and the hotel *mani* are vibrant with life, sensitiveness and character. If all his work could be gathered in a place as a gallery, in commemoration of his name, we should be having a treasurehouse of Indian art of one of the truest practitioners of the Indian tradition.

Music and Mellowness

Till the last he practised *brahmacharya* and was austere in his devotion to his art. I remember how, when I conveyed to him a message from his master Abanindranath Tagore that he should marry and leave some young Venkatappa behind, he said: "Did the old one say that now ? He was the one who enjoined on us the *mantra* that art is mother and father, wife and child, master and God, aspiration and ideal; that one may live in service to his art."

Venkatappa was equally accomplished on the Veena, where his accomplishment is all too hidden. Once I provoked him to a small demonstration by observing that our Chakravaka was more mechanical than Saurashtra and a glory of exposition was vouchsafed to me the next day when I listened to him giving not merely the two but a *varna* and a *daru*. Another day he was good enough to give me a comparative account of tonal ranges and subtleties when the same was played on two Veenas, one the old instrument on which he was practising for thirty years and the other which he made of special size and quality. That day he gave me a *pallavi* exposition preceded by the *ghana raga tanas* which play magnificently on the Veena.

For some time he had neglected painting and in answer to a query from his master 'Abanin' he painted a picture called "Mad after the Veena" which as self-portraiture is a great piece of work; the brushwork showing him in that lost condition is powerful and expressive in a way he had never used before.

The death of Venkatappa at the age of 89 removes from the Indian scene an artist of a rare quality of soul, of resoluteness, courage and love of independence. He was jealous of the name and status of an artist and uncompromising in the pursuit of it.

Otherwise as a person he was amiable and affectionate. He would feed, teach and render aid liberally. But all his love was for art alone. It behoves the Lalit Kala Akademi which honoured him recently and the lovers of art and friends to persuade the Government of India and the Government of Mysore to see that a suitable monument or institution is created to show up and perpetuate his work and to bring into existence a school where artists are trained in the highest traditions of Indian art.

All Venkatappa's compeers have more or less gone from the scene and their period deserves to be cherished and propagated. Not that the old was right and the new is wrong, but the alter side is as legitimate as the one in vogue and both sides of the picture need to be placed before young minds to get a view of the whole.

LOTHAL EXCAVATIONS

(*Continued from Page 22*)

'H' people—Aryans?) came. Further there is a time-lag between the two. At Mohenjo-daro also the so-called massacre does not belong to the final phase, nor is there any substantial evidence left by any invaders at the site. Hence the destruction of Harappa and Mohenjo-daro by the invading Aryans is more imaginary than real.

After the destruction of the Indus Valley cities the Harappans moved into the Ghaggar and Ganga Valleys. They survived for a long time in Saurshatra and elsewhere even as other chalcolithic cultures with an inferior material equipment held ground. Some welcome light is thrown on the dark age of India by the excavations conducted by various organisations including the Archaeological Survey at Rangpur (Saurashtra), Hastinapur (Uttar Pradesh), Maheswar (Madhya Pradesh) Ahar (Rajasthan) and Nevasa (Maharashtra).

Small River, Big Power

THE second of the ten turbo-generators of the Sharavathi power project in Mysore has been commissioned. This project which generates power at the cheapest rate in India will, when completed, be the largest in South Asia.

Sharavathi, one of India's smallest rivers, will help to generate annually 4,700 million kwh of electricity—more than twice the output of Bhakra Nangal.

The benefits of its power production are gradually being extended to the entire South Indian region.



DURGAPUR EXPANSION

More than half of the Durgapur steel plant's expansion work has been completed. The capacity of the plant is being raised from 1 million to 1.6 million tonnes. This expansion involves the addition of 34 units.

Out of 60,000 tonnes of plant and equipment, refractories and structural steel received at the site, 20,000 tonnes have already been erected. The coke ovens, the by-products plant and the rolling mill are expected to start operation by October. The fourth blast furnace is likely to be commissioned by the end of the year.

TEST WATER LET IN CHAMBAL CANAL

Nearly 80 per cent of the works on the Chambal right main canal has been completed. By way of testing, water has been allowed to flow through the upper canal which has been completed up to 180 kilometers. Also, 735 kilometres of distributaries and minor canals have been dug.

The Madhya Pradesh Government has prepared a scheme to reclaim six lakh acres of the dacoit-infested Chambal ravines and to resettle displaced persons from East Pakistan on nearly 2.2 lakh acres. The scheme will cost Rs 7.66 crore.

The earnings from nationalised road transport in Madhya Pradesh will be used to create a 'Road Development Fund'.

SNIPPETS

THE net premium income in general insurance business in 1963 was Rs 30.01 crore—an increase of Rs 3.5 crore over the previous year.... Bangalore will soon have one of the biggest factories in India to manufacture electrical transformers, motors and switchgears. The Mysore State Government is establishing it in collaboration with a West German firm....Scheduled Caste and Tribe trainees in Industrial Training Centres will get Rs 45 a month instead of Rs 25, and also hostel accommodation....About 80,000 people working in the industrial area of Delhi will have a new 924-bed hospital by next year. It will cost Rs 2.2 crore.... Twenty eight new Central higher secondary schools will start working from this month. With this the number of such Central schools will be 82....The Central Electronics Engineering Research Institute has developed an industrial type counting machine which has a speed of about 300 counts per second. This will be useful for counting freight wagons in a marshalling yard, tablets and phials in the pharmaceutical industry, etc.....The first consignment of cross bar telephone exchange equipment from Belgium to be installed at Bombay automatic trunk exchange has arrived.....A spinning mill with 25,000 spindles is being set up at Jagdalpur in Dandakarnya.

NEW FINDS IN OIL

There is likelihood of even more oil in Gujarat. If the findings of a survey prove productive, there will be a new oilfield, one of the biggest in India.

There are prospects of finding rich deposits of oil and gas in the Noagam area near Srinagar.

Off-shore drilling will soon be started in the Gulf of Cambay by E.N.I. an Italian concern.,

Crude Oil : More than 1.4 million tonnes of crude oil were sold in 1964 by Oil India Limited to the refineries at Gauhati, Barauni and Digboi. This has resulted in the saving of Rs. 10 crore of foreign exchange. Oil India, a partly government owned concern, has made a profit of Rs. 3.36 crore in 1964.

Barauni Output Up

Refining : The Barauni refinery, Bihar, has begun production at the rated capacity of 1 million tonnes a year.

The Noonmati refinery in Assam processed more than 81,000 tonnes of oil in May.

Oil Imports : India's imports of oil products from the Soviet Union will be double last year's. This year 1,215,000 tonnes of Soviet oil products including 325,000 tonnes of diesel fuel will be shipped to India.

N.C.C. BEING DOUBLED

The National Cadet Corps will have 30 lakh cadets in the Fourth Plan. This will be double its present strength. Now the senior division of the N.C.C. has 10,53,200 cadets and the junior division 5,78,600. It is proposed to raise their strength to 15 lakhs each.

Nearly 2,400 senior division cadets and 100 officers of the N.C.C. will hereafter stay for four weeks every year during the summer vacation with regular army units and will be given more intensive training.

Working for Welfare

PRODUCTION MUST BE FIRST GOAL

Virendra Agarwala

OUR planners claim to build a society which promises the minimum needs to the neglected section of our people, namely the landless of the countryside and the urban destitute, as also the large masses of the small-holders and urban groups with a family income of less than Rs 100 a month. A planner recently confessed that there are certain sections of people who have not derived much benefit from economic development and among these are the tribal classes, agricultural labour, some members of the scheduled castes, the lower middle class and the fixed income groups earning salaries up to Rs 400 a month. A national leader who claims to represent these classes has asserted that there is not a single project in the series of plans which is meant to provide direct material assistance to the backward communities.

A welfare state means nothing but that the mass of the people must have such incomes and assets as can reasonably guarantee them a decent standard of living. There cannot be two opinions about the need for raising the living standards of the lowest income groups at the earliest. This is more urgent if social transformation and cultural change have to be brought about through parliamentary democracy. It is unfortunate that after thirteen years of planning, the basic problems of poverty and unemployment have remained unsolved.

The Mahalanobis Committee has made a study of the problem in respect of what has been the additional national income between 1950-51 and 1960-61 and where it has gone to. The national income increased from Rs 88.5 billion in 1950-51 to Rs 127.5 billion in 1960-61 with a rise of about 44 per cent over the decade. Government expenditure rose from Rs 5.2 billion to Rs 10.3 billion. Savings rose from Rs 5.0 billion to Rs 10.4 billion showing an increase of 108 per cent. This was brought about by curbing private consumption which had increased by only 36 per cent over the decade against a rise of 44 per cent in income.

The total additional income earned during the ten-year period was Rs 190 billion of which a part, Rs 25.5 billion, was used to increase Government expenditure over the decade. Another part, Rs 25.2 billion, represented the additional domestic savings in ten years. The sum of these two parts, namely Rs. 50.7 billion, may be considered to have been used for purposes of development and expansion of investment to promote future economic growth.

The balance available for increase in private consumption was Rs 150.3 billion for the ten-year period. Simple calculation would show that Rs 85.6 billion were absorbed to provide the new entrants into the population during the decade with a per capita consumer expenditure at 1950-51 level. The balance of Rs 53.7 billion was the net amount available for increasing the average per capita consumption of the whole population. Distributing this amount over the average number of persons over the decade we get Rs 2.5 as the share of each person in the increase in consumer expenditure. With Rs 219 as the consumer expenditure per person in the base period 1950-51 the rate of increase was about 1.1 per cent per person per year.

The expenditure on various social services and Community Development included in the two Plans amounted to Rs 1,370 crore, which included Rs 115 crore on backward classes and Rs 305 crore on Community Development. These figures are enough to show that while the poor might not have become poorer no significant benefit had been derived by the lowest income group.

The two basic factors responsible for the unfavourable conditions prevailing in the country may now be summed up. First, the rate of growth has been so low, particularly in comparison with the rate of population growth. Secondly, the return on investments made during the decade is inadequate. The inefficiency of the public sector has contributed to the hardship of the poorest classes.

There are many who believe that Indian planning has considerably helped in concentration of economic power in a few hands. A recent study by the Tax Research Unit of the Finance Ministry shows that income concentration is on the decline and that there is a distinct shift of income in favour of lower and middle classes. It is true that we have a highly progressive tax system and we have taxes which even advanced countries with better administrative systems have not attempted. The estate duty, gift tax, wealth tax, capital gains tax and income tax will, over a period of time, ensure dispersion of property and income. Any attempt to make these taxes still steeper in the name of socialism would have disastrous consequences on productive effort and make the administrative system more prone to corruption. The corporate sector is subjected to State regulation in so many ways through control of production, prices and distribution. An economy that functions through controls, restrictions and watertight sectors cannot expect its 'produce more' slogans to make an impression on producers.

As pointed by the Mahalanobis Committee, industrialisation has its own logic and neither economies of scale nor full utilisation of scarce talent can be ignored with impunity. Modern industrial technology, in the way it has been evolved, requires large-sized production units. The

optimum size of a unit is so large that a developing economy, with a limited market to begin with, cannot accommodate many such units if the industry is to become economical. There is no doubt that the spread effect of progress will be best secured from using the best admixture of large-scale and small-scale business, but it is the capacity of large enterprise rather than that of small industry that leads to higher growth and higher degree of managerial skill and worker-efficiency.

The justification for private sector is that it can attract the most advantageous collaboration from abroad in building modern industry, and also leads to efficiency. To cry against big business would mean that we prefer to be inefficient. Concentration has no doubt to be discouraged, but it is vital that India should possess large-scale organisations so long as they fit into a pattern of live and let live, in which the national interest endures above all.

Monopoly is generally taken to connote the private sector. It is well to remind ourselves that the public sector has also an overpowering trend in the direction of monopoly. This is not only because the public sector without competition will remain inefficient (and raise prices for the consumer) but also because the process of decision-making here is controlled by political considerations which override economic ends. Concentration of both economic and political power in the State might prove a serious danger to parliamentary democracy. Hence the need for actively fostering small and medium industries to compete with large-scale industries. That is the pragmatic cure for the evils of concentration.

It is believed that the most effective way to check concentration of economic power in the private sector is to build up countervailing economic power and this is done by enlarging the public sector, especially industry. The contribution of the public sector is expected to increase the 1950-51 level of less than 2 per cent to nearly a fourth (by the end of the Third Plan) in organised manufacturing industries and from less than a tenth to over a third in mineral production. Investment in public sector industry and minerals during the Third Plan alone is expected to be Rs 1,530 crore as against only Rs 1,050 crore in the private sector. Mr Asoka Mehta, Deputy Chairman of the Planning Commission, has predicted that by 1975-76 nearly two-thirds of the produced tangible wealth would be owned by the State sector.

Such large investments ought to be reflected in increased national income. But a mere increase in aggregate national wealth is not enough, there is the aspect of distribution of this additional income. Economic growth must make a difference to the level at which the people at large live —which in our country is one of bare subsistence. There is a widespread belief that wrong priorities are making it certain that the people will remain poor for all time to come, and that Indian economic development is held back by ideology.

We have two long-term objectives: to lessen economic inequalities and to promote economic growth. But a little thought should show us that production should be the immediate priority and any attempt to hamper or lessen production amounts to injuring the national interest. In particular, public undertakings need better administration so that they are able to show adequate profits to be ploughed back into further investments. Also, we have to go slow on policies of restriction if the living standards of the lowest income groups are to be raised. For if poverty is allowed to continue, it will be difficult for India to survive as a nation.

PROJECT PLANNING

Fifty Technical Officers Take Part in Courses

THE Management and Administration Division of the Committee on Plan Projects, Planning Commission, recently organised, in collaboration with the Indian Institute of Public Administration, two four-day courses on 'Project Planning and Scheduling.'

These courses were intended to impart knowledge in some of the latest techniques of Planning and Scheduling, namely, PERT (Programme Evaluation and Review Technique) and CPM (Critical Path Method). Fifty senior technical officers drawn from fifteen public and four private sector enterprises attended them.

Mr S.G. Barve, Member (Industry), Planning Commission, who inaugurated the first course, stressed the need for better planning and control in public sector projects. He said, "Large sums of money have and are being invested in the public sector projects and it is vitally important in the economic development and industrialisation of the country that these projects be executed with utmost speed, economy and efficiency. In the past some of our projects have been delayed and have incurred overruns of cost due to lack of proper planning in the pre-construction phases. This state of affairs makes the particular project not only uneconomical but affects many other projects which are dependent on it and thereby upsets our overall economic plans. Hence it is very essential that we employ better techniques and tools of planning and execute projects in time and with the least possible cost."

The course in Project Planning and Scheduling, the first of its kind in the country, emphasised the practical application of the PERT/CPM technique in the planning and control of construction projects. The mode of instruction used in the course was "The Case Method of Teaching", originally developed by the Harvard School of Business Administration. This method lays emphasis on learning by working the problem and class discussions. The participants, after having learnt the theory of this new technique, were given a case problem (developed by the Management and Adminis-

tration Division on the basis of the experience derived during study of several public sector projects) in planning and construction of a fertiliser project.

PERT and CPM, commonly known as the networking technique, has made considerable impact all over the world as a technique of planning and scheduling and construction, research and development and maintenance projects. It was evolved only a few years ago in 1957, in the United States. Its first major application was in Polaris Missile project where it helped U.S. Defence authorities to reduce the schedule by two years. This has gained much popularity and is now widely used by industrial and commercial establishments.

The Management and Administration Division has, with the help of four foreign consultants obtained through USAID, formed a nucleus of staff trained in the application of these techniques and the Division has made a beginning in installing this system in the Fertiliser Corporation's Durgapur plant and FACT's Alwaye plant.

After the first two courses, the participants were of the unanimous opinion that knowledge of the technique would help in their job of planning and scheduling the work on new projects that their corporations might undertake.

Following the success of these two courses, the Management and Administration Division is considering organising a few more courses throughout the country to train larger number of personnel in the use of this new technique.

NEW LOANS

Two loans adding up to Rs 250 crore were issued by the Union Government on July 1.

The United States will give us two loans totalling Rs 92.3 crore. The larger, for Rs 90.5 crore, will be used for a wide range of vital industrial and agricultural imports.

Another agreement providing a loan of Rs 6.6 crore to India as the first instalment of Britain's aid in 1965-66 for our Third Five Year Plan has been concluded.

a man with a rose

We saw him from the ridge where we sat watching the sunset—a sunset as beautiful as you see only in Aurangabad. He pedalled furiously up the road that skirted the hill, flung his bicycle down at the foot of the slope and started walking up.

His shirt was a deep blue; his *dhoti* caught the light of the sun and fluttered pale gold in the evening breeze. Attractive, and very unusual, we thought as we watched him climb up and then turn in our direction although he was some distance away.

Time to go home, we decided reluctantly, and scrambled up, brushing off the burrs that stuck determinedly to our clothes, the little wisps of dry grass that clung to hands and elbows. We picked our way down the other side of the hill to meet the newly laid road which climbed up and around the back. The baby fell and her father picked her up to comfort her with funny faces and strange noises. Between her sobs we heard a voice hail us cheerfully. We looked up, and there, looking down at us over the edge of the wall that rounded into a turret at that point was the man in the blue shirt. Twinkling eyes in a merry face smiled at us in disarming friendliness. He called out that he too had come a long way to this beautiful spot just for the sunset. A kindred spirit. We waved, grateful for his appearance as it had distracted the baby and stilled her sobs.

Still carrying her we got to the road and hastened our steps homeward. A little further and we saw him waiting for us at the far end; a fine sprinter he must be, we said admiringly, he covered that distance fast, didn't he ?

As we drew near we both noticed that his *dhoti* was yellow—it wasn't just the sun after all. But, really, how unusual! A rich blue shirt and a yellow *dhoti*, so colourful it seemed to suit the cheery, bright-faced young man.

Suddenly, as we walked past, he sprang down, opened the navy blue handkerchief he held in his hand, drew out a rose and said he would like to give it to the child. Meena took the proffered rose graciously. Thank you, her father smiled.

Could you give me five annas, said the man in blue.

Meena's father looked crestfallen and apologetic. I have no money on me, he said. Nothing, he tapped his pockets and drew out his keys.

Just five annas, the young man pleaded.

Five ? But why not four, I thought idly. Or two, or eight? Was he, perhaps, addicted to the metric system even though he had obviously not got the hang of the paise routine?

I ask you as one human being to another, only....

Come with us, I interrupted. We live near by; come to our place and we will give you the money.

He looked dubious. Hesitated. Then made up his mind. "No," he said. "But give me back my rose," and took it back.

Please come with us, I urged again, as Meena's mouth began to droop alarmingly. But he cut me short.

"It is not that I don't have any money," he said. Look, I have plenty, and shook his side pockets which jingled reassuringly. "A sudden desire —the evening was so beautiful— I felt I would like to have five annas. And offered you a rose instead of just demanding the money; that was a fair exchange, wasn't it? Well, never mind," he said, as I started to speak again. "Be on your way— *khuda hafiz*."

And with that he bounded up and over the mound and out of sight. As we rounded the corner of the road we caught a glimpse of him again, cycling. He came to a stop, dismounted, carefully picked up some bricks that had been carelessly left on the road and piled them neatly on the side. Then he jumped on his iron steed again and as he sped away into the distance, scattering rose petals on the evening air, a snatch of his song drifted back to us.

NEELA D'SOUZA

Merry Mixture

OUTSIDE Eastern Court, the big post office of New Delhi, there are four post-boxes in a row: a red cylindrical pillar box and three double barrelled boxes in three different colours: a green one for local letters, a blue one for foreign letters and a red one for outstation Indian letters.

A *Yojana* man recently walked up to the battery of these boxes with three letters to post; it happened that one was for Bombay, another was for London and the third was for an address within Delhi. He carefully dropped the right one in the right box.

Hardly had he done so than a postman came from within Eastern Court. He opened the locks of each of these boxes and pushed the contents into the same single bag he had brought.

Our man was non-plussed. Why separate boxes if the letters after all are to be mixed up ? He asked the postman. "Sorters kis ke liye hote hain ji?" ("What are sorters for ?") he was told coolly.

Our Bird

WHENEVER we see a good egg we think it must have come from a Rhode Island Red or a White leghorn.

How many of us know that hens are original inhabitants of India and travelled to other countries of the world from here ?

Poultry Keeping in India, a publication of the Indian Council of Agricultural Research, gives this and other facts. The chicken moved from India to lands in the north and the west until it reached Greece in 525 B.C. Iranians carried it to Israel.

All the breeds of poultry known at present, according to the book, are descended from the wild jungle fowl inhabiting Central and South India, Ceylon, Assam, Burma and other South Asian countries. The book also observes that cock-fighting was as much responsible for the domestication of fowls as the demand for food. An Indian breed of fighting cock, the Aseel, is said to have been in great demand all over the world.

So it is not only the peacock !

Falling Standard

EIGHT hundred sixty British boys were recently asked how they would set about getting a job after school. Most of them knew that they had to approach an empolyment bureau; but when they wrote down the answers very few knew how to spell "'bureau". Believe it, the 860 lads managed to spell the word in 109 different ways: from beareo to bruro to burow.

The Daily Telegraph, which reported this, had an article on spelling. The author has tried to analyse why schools are no longer so fastidious as before on spelling. One reason for giving up the three-times-a-week dictation period, according to him, is the feeling that in a democracy it is not right to dictate.

The man who acquires a foreign tongue always tries to speak it more "methodically"; therefore English spelling is more important to us than it might be to Britons. Anyway, in India competence in any field is still measured in terms of a man's familiarity with English grammar and spelling. Go to any secretariat in our country, you can in a few minutes collect a bagful of the derisive remarks that senior officials make about the English of their superiors, the ministers, and of their clerical subordinates.

Elderly Wisdom

SO much dust has the language problem raised that it has prevented clear thinking. In this disturbed atmosphere, it is refreshing to know that the subject was considered more thoughtfully and dispassionately sixty years ago, long before it acquired the sharp edges of current controversy.

As early as in 1907, *The Indian Review*, that pioneer journal of a pioneer educator, G.A. Natesan published an article by M. Rangacharya, Professor of Sanskrit, Presidency College, Madras, making a case for Hindi "as a common vernacular for India". The basic argument which this member of the old Indian Education Service put forth holds water even in the changed circumstances of today, although one may differ on certain points. About English he says: "Like French in England after the Norman conquest, English will surely continue for many centuries to be the language of Western thought and Western culture in India; it will be the language of law and politics and will serve as a strong binding link between India and the British throne. Nevertheless, the conditions seem to be such as will not enable the English language to do more than touch the higher peaks of thought and life in our land. English cannot descend into the lower valleys".

Mr Rangacharya continued : "There is such a thing as a naturally ordered agreement between what is called the genius of a people and the genius of their language; and to those who see the underlying unity of Indian civilisation, the idea that Hindi may well be encouraged to become, as far as possible, the common vernacular of India can never appear to be so strange or unpractical as not to deserve attention. Hindi is already a language of the valleys in Indian life and can, therefore, flow readily from valley".



IGNORAMAN
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Reg. No. D-876

MASTER CRAFTSMEN-II



by Usha Chettur

PARAMESHWARACHAR

C. Parameshwarachar has grown up amidst the influence of the temple sculpture of South India. He comes from a family well versed in all aspects of temple construction over the centuries. There is little to be surprised at in the fact that he has won the national award for master craftsmanship in wood carving.

Parameswarachar had his first lessons from his grandfather. Linganacharya, who was a great sculptor in his time. A strict taskmaster of the old school, Linganacharya made his young pupil pass the rigours and the racking tedium of construction of stone temples. Parameshwarachar had to show his proficiency in the laborious construction processes before he was allowed to take up the stylised carving of stone or wood. He had to learn restraint and maturity before becoming an artist on his own.

In time, when his keen perception and agility were recognised, Parameshwarachar was singled out for an initial phase of training in wood-carving. In South Indian sculpture, the two media, stone and wood, are closely linked and are often used in temple construction to complement each other.

Some fine examples of wood panels and friezes depicting mythical themes were an early evidence of the young sculptor's skill. The unrelenting Linganacharya, however, drilled him for some more years in seemingly undramatic subjects like chariots and small idols and images. The handling of stone, which every prospective sculptor has to do, came almost naturally to Parameshwarachar. In fact, in a few years' time he was seen to handle both wood and stone with the same remarkable ease.

Parameshwarachar's grandfather then placed him under the famous art teacher Shilpi Siddhanthi Siddhalinga Swamy of Mysore. It is in the decade spent under the guidance of this master that Parameshwarachar developed into an exponent of the classical sculptural tradition of South India.

Parameshwarachar was commissioned soon after by the Maharaja of Mysore to model two new temples in that city. He carried out these early assignments with strict adherence to traditional methods of temple-building as well as image-making in stone and wood. In 1957, when he was barely 30, he was appointed as the master craftsman in stone and wood carving at the Regional Design Centre of the All-India Handicrafts Board, Bangalore.

Today Parameshwarachar is an unusual combination of traditional knowledge and youthful innovational ability. He sees a future for traditional handicrafts in South India, thanks to the role played by the Handicrafts Board.



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