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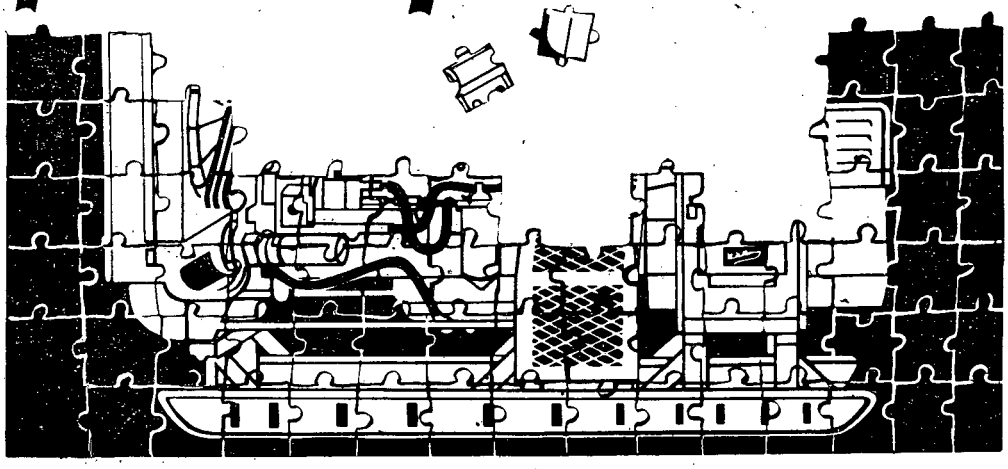
yojana

Rs. 1.50

* The Indian Woman
* Satellite Television
* Indian Archaeology

a second trombay power plant



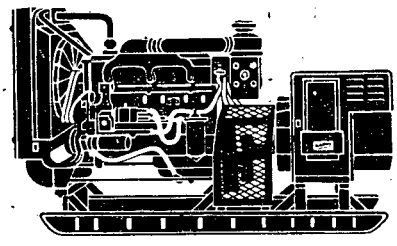
in 2080 pieces

2080 Generating Sets, using CUMMINS engines,
supplied so far, produce power equal to Trombay.

In 1972 the Government granted licences, (worth millions of rupees)
for generating sets imports.

But few generating sets have arrived . . .
while our engines for Generating sets have come out in force,
saving over Rs. 100 millions in foreign exchange.

That's a Second Trombay . . .
in 2080 different places . . . so you can lick power shortages.



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IN THIS ISSUE

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INAUGURATION OF SATELLITE TV

Excited viewers in 2,400 villages distributed over six States in India experienced for the first time, the hand-shake between their mother planet and space. It carried with it a concrete hope of peace, of knowledge and education. The event occurred on 1 August as Prime Minister Indira Gandhi inaugurated from New Delhi the satellite television programme which is given the name Satellite Instructional Television Experiment (SITE).

Television programmes specially prepared for the rural audiences began to be beamed from that day to thousands of villages situated in Rajasthan, Bihar, Orissa, Madhya Pradesh, Andhra Pradesh and Karnataka. Shrimati Gandhi said that this new vehicle of communication would bring within the reach of millions of people in India ideas which will make their life happier and at the same time make available to the city dwellers the immense vitality of the people living in the countryside as manifest in their day-to-day life.

Television experts who watched the first pictures beamed to TV sets on the ground via the American ATS-6 Satellite, parked 35,000 Km above the Indian Ocean, had one cryptic comment to make — SUPERB. The telecasts received from the satellite were very clear and without distortions.

What is this new 'Experiment' like, and how exactly does it function? What are its potentialities as an instrument of communication, and how can it transform the life of ordinary people living in remote areas without the benefits of formal education or mass media? These and related questions are being answered in this issue in articles written by men who are behind the SITE programme.

THE INDIAN WOMAN— A CHANGING PROFILE

The dynamism of a new age confronts a hoary heritage.

It is not a question of what she *demands*, but of what she *deserves*.

GENERALISATIONS about Indian women, like almost everything else that passes for Indian, can be frivolous, and even misleading. From mythology to history to contemporary times, we can draw, with great authenticity, on an utterly confusing picture of the status of women. Anyone can quote any example to demonstrate any view point or to justify any stand right from the most explosively progressive to the most abhorrently primitive.

We have Madri, for instance, King Pandu's queen who ascended her husband's funeral pyre to commit the first ever recorded 'sati', and on the other, the story of Chitrangadha who refused to be put on a pedestal to be worshipped and sought self-expression as a perfect equal to Arjuna in council and in war. Kaikeyi, King Dasaratha's queen demanded the banishment of a favourite son from her husband even if it caused his untimely death. We also have Sita, the archetype of the wronged but loyal wife, contrasted with Draupadi, polyandrous and almost amazonian. In fact, the Indian woman of mythology can be drawn from a very broad spectrum of infinite variety, and generalisations on her can lead us to very confrary conclusions.

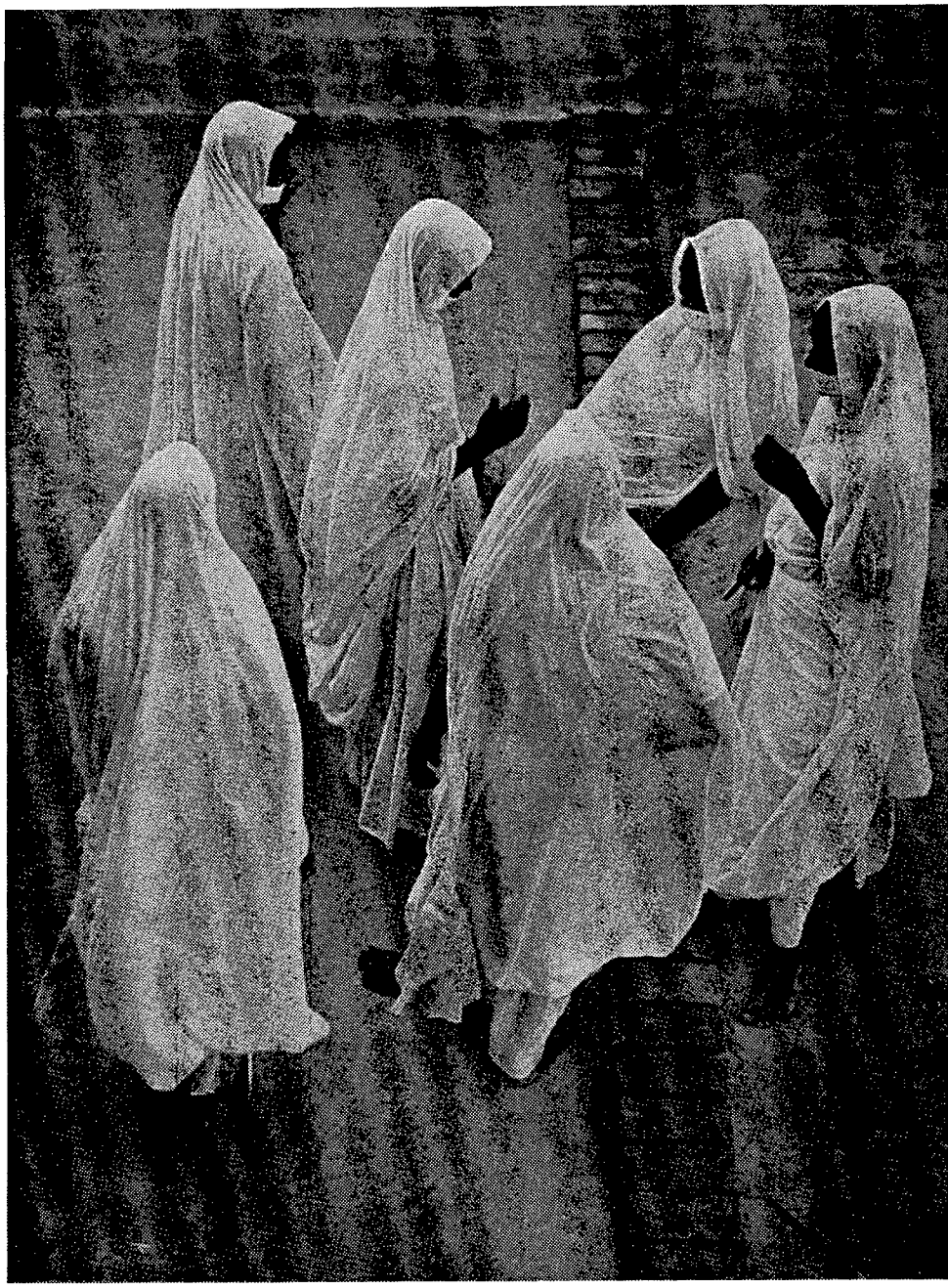
The woman of Indian mythology is nothing if not human, but her creators made certain demands on her on the score of an almost superhuman conception of loyalty. Such a woman is eulogised in Sanskrit literature as a ***pativrata*** and the Hindu mind refuses to think of an ideal woman except in terms of her ***pativratyam.*** Damayanti, Kannaki, Savitri and dozens of others are ardent conceptualizations of the wife to whom the husband is everything even if he happens to be silly, unattractive, unvirtuous or unchivalrous.

But if we look at these mythical creatures as personifications of types, there stands revealed the

(Photo on facing page : P.K. De)

psychological pressures behind an uncompromising attitude towards conjugal or personal loyalty,—loyalty at its most basic level. With all the insularity that has been attributed to it, Indian culture has been remarkably resilient in the past and in smaller or greater measure foreign influences coming in the wake of invasions—the Aryans, the Greeks, the Bactrians, the Parthians, the Kushans, the Sakas, the Huns, the Arabs, the Mongols, the Iranians and lastly the Europeans, have influenced its evolution in many unremembered ways. Insular and receptive at the same time, the forces of history may have spared

To be virtuous was woman's first duty, even more than man's. Fallen from virtue, she lost everything.



Jain Nuns
Photo S. Paul

India xenophobia, but they certainly taught India to be vary of the foreigner and things foreign.

This view of Indian society from the big end of the telescope may be complemented by a view through the small end. In the enlarged microcosm we find the individual units, the man and the woman, concerned with it all. But their peace with one another in the valley of their mutual happiness is often disturbed by a vague fear of the intruder, and the notable truth about this apprehension is that he habitually leaves his woman back home, and takes with him only the horse and the unsheathed sword. We find this true not only of India, but of Britain during the early invasions, much of Europe following the great Nordic migrations, of South America following the Spanish conquests, of Japan following the Chinese and Western occupations, and of every other culture that underwent subjugation and/or assimilation.

When assailed by a more robust if less refined alien culture, all native cultures undergo involution and synthesis. In Western European history, the Etruscan gave way to the Greek,the Greek gave way to the Roman, the Roman gave way to the Gothic and the Gothic itself gave way to the Semitic Christian which became in course of time Western Christianity. And in each case the by-product was more vigorous, having welded together the more lasting values from both the cultures, and it so happens that woman played an important role, though she sometimes paid a heavy price in the synthesis.

When racial and social purposes of security became supreme, women lost much of their freedoms too. It was easier to subjugate them than to keep them on the losing side with sermons and tales with morals. As compensation, the virtuous was often worshipped. Orthodoxy made her the citadel around which the bastions of vanishing value systems could be built. One way of holding fast to social and moral values based on racial purity and sanctified tradition was to lock up the woman and make her their passionate guardian.

Thus, Manu and his mixed injunctions : A woman has to be under her father during childhood, under her husband during youth and under her son during old age. At no stage shall she deserve freedom : *"Na stree swatantryamarhati"*. He balanced this, though, with the statement

that a society in which the woman was not honoured would be condemned to damnation.

Not only is the woman told to accept a second position, but to accept the partner chosen for her as a gift of the heavens. In several mythological tales of wifely loyalty, it is no accident that the husband is a gambler, a rake, a tyrant or a leper. But the woman, endowed with virtue supreme, keeps her eye closed to his faults. Kovalan could be a rake, but Kannaki's power derived from ***pativratyam*** was such that she could destroy the city of Madurai with her wrath of righteousness. Damayanti, deserted by Nala in his hour of shame, with one look could smash the Rakshasa who approached her with intent to molest. And in another story, the hero, a leper, could demand of his wife that she carry him on a

The winds now move freely, and women inhale them as much as men.

Girls in a polytechnic
Photo : T.S. Nagarajan

shoulder-sling to another woman whom he loved; on the way when his feet accidentally touched a rishi who thereupon cursed him with death at daybreak, his wife could, by the power of her grace accruing by virtue of her single-minded loyalty, stop day-break itself and bring all of creation to their bended knees. Indeed, not even the gods could measure their power with the power of a woman's ***pativratyam***. Oppressed by the possibility of woman's disloyalty and all its consequences to social and ethnic relations, the creators of the myths destroyed these women as individuals but placed them on pedestals besides their gods.

But times have changed, as indeed they must, invalidating these models of traditional virtue. India is part of the global village and social sanction by itself cannot keep the foreigner and his alien values out of the system. Whether we like it or not, the winds move freely and women inhale them as much as men. Indeed, recognising this even at the height of the nationalist fever when 'swadeshi' was a cult not to be challenged, Gandhi wanted his 'house' to be open on all sides so that every window would admit fresh air. And as Raj Kapoor has it in his popular song, a footwear of the Japanese design is no longer a bar to the truly Indian heart.

The morbid model of the mindless, all-suffering woman is no longer acceptable. Nay, models diametrically opposed to this medieval concept are now available in popular literature and also in mass entertainment. India may not have created advocates of free love on the lines of Bertrand Russel, but there are certainly counterparts of Hollywood's ***Ryan's Daughter*** (who marries a priest for the goodness of his heart but sleeps with another man for other reasons). In the past few years we have witnessed such literary and cinematic creations as ***Phir Bhi*** (in which a daughter's father-fixation prevents the mother, a widow, from finding fulfilment in love). ***Rajni Gandha*** (in which the female protagonist is simultaneously in love with two young men), and ***Duvidha*** (in which the husband accepts the wife when she has lived with, and borne a child to, another being, albeit his 'double'). If popular literature and mass entertainment can visualise themes like these, it could certainly mean that the mass mind is not closed to new suggestions on the role of the woman as a human being with human impulses, irrespective of what die-hard traditions might say.

Today, international cultural intercourse is no longer a matter of sword-carrying horsemen, plundering, looting and possessing by force. Subtler ways of universalising culture are available with us. And culture itself is fast becoming international, and the global man or woman is emerging. How grotesque or how beautiful, we cannot yet say.

Although vast sections of women are still denied the benefits of a more liberal outlook, there exist elite sections who can take advantage of our present stage of

cultural evolution and civilization to enlarge the scope of their lives far beyond the ken of wife, mother or housewife. A civilization becomes meaningful only when its members are freed from basic or biological functions and can express themselves as individuals, giving full play to their faculties and possibilities. If social purpose is against the individual's purpose, then society must certainly provide for some form of protest from the individual. The problem, both for the individual and society, is to achieve a compromise without necessarily wrecking the values cherished by either.

And that precisely was what they wanted to do at Mexico. Of course, men everywhere tried to put up a brave front, treated the whole thing as a huge joke but were uneasy, nevertheless. There was that report from Sweden, the most liberated of nations, which said that a study had revealed that threats to man's supremacy affected his physical performance as lover and that woman herself was the loser when he was brought down to her level. Other cocktail party psychologisms suggested that any erosion of man's authority as head of the family would result in delinquent children, youngsters finding it difficult to come to terms with authority. But love-making and child-rearing on a master-slave basis may have had its validity in man's (and woman's) colonial state of evolution, and cannot be true in his (and her) free state.

The point of all the arguments should be complimentarity, and not necessarily equality. Physiologically and psychologically the female of the species is quite different from the male and this difference is built-in because of a difference in natural and biological functions. The question of equality, therefore may not be sustainable from purely functional postulates of a basic nature. For one thing, the female organism is far more complex than that of the male, with quite a few extra organs thrown in, designed for child bearing and rearing. And this certainly adds to her responsibilities and burdens in both physiological and psychological terms.

Solitude and anxiety add to the burdens of old age, while youth faces frustration in poverty and dependence.

Photo Left: Jogendra Chawla
Right: T.S. Nagarajan

But the special thing about *homo sapiens* as a species is that after millions of years of evolution and adapting nature to his special purpose, he has now gone far beyond the rudimentary purposes of nature. And if today he is capable of stepping out of the confining space of his womb, the earth and its atmosphere, and cutting the umbilical chord altogether in the not distant future, should half of the species still be tied irrevocably to rudimentary natural functions? The demand of women for equality must be seen in perspective. It is simply a demand for an equal share in the benefits that accrue from civilized living both in terms of rights and responsibilities. We now have the grand sum total of science, technology and all the inventive abilities of mankind to act as the moderator of nature.

But high philosophy cannot be pitched in the heavens; it should have some relevance to earthy things. A simple instance of the denials of benefits to non-elite sections of women in backward places is identified by women libbers : Take the case of rural women walking miles upon miles and spending hours upon hours for the simple chore of collecting drinking water, for instance. Now the absence of a reliable water supply system can keep a community at less than the primitive level, and the burden can fall mainly, almost entirely, upon women. If our technology, organizational abilities, civilization itself, cannot release women from

such woes, civilization cannot have any relevance to anyone. The absence of a water supply system is simply an instance where technology has failed to come to man's (or woman's ?) assistance.

Our civilization's failure to impart a scientific temper to large numbers of women is yet another instance of unconscious injustice. Science, the dictionary informs us, is but a Latin word for knowledge. A mother who ties a charm on her child to ward off bacteria or the unfortunate results of malnutrition is a natural victim of non-science, ignorance. And if science can release her from fear and superstition the gain is for humanity and not for woman alone.

Man, romanticists tell us, is a logical creature, as opposed to

The benefits of Science and Employment can release her latent power for society's betterment, not woman's alone.

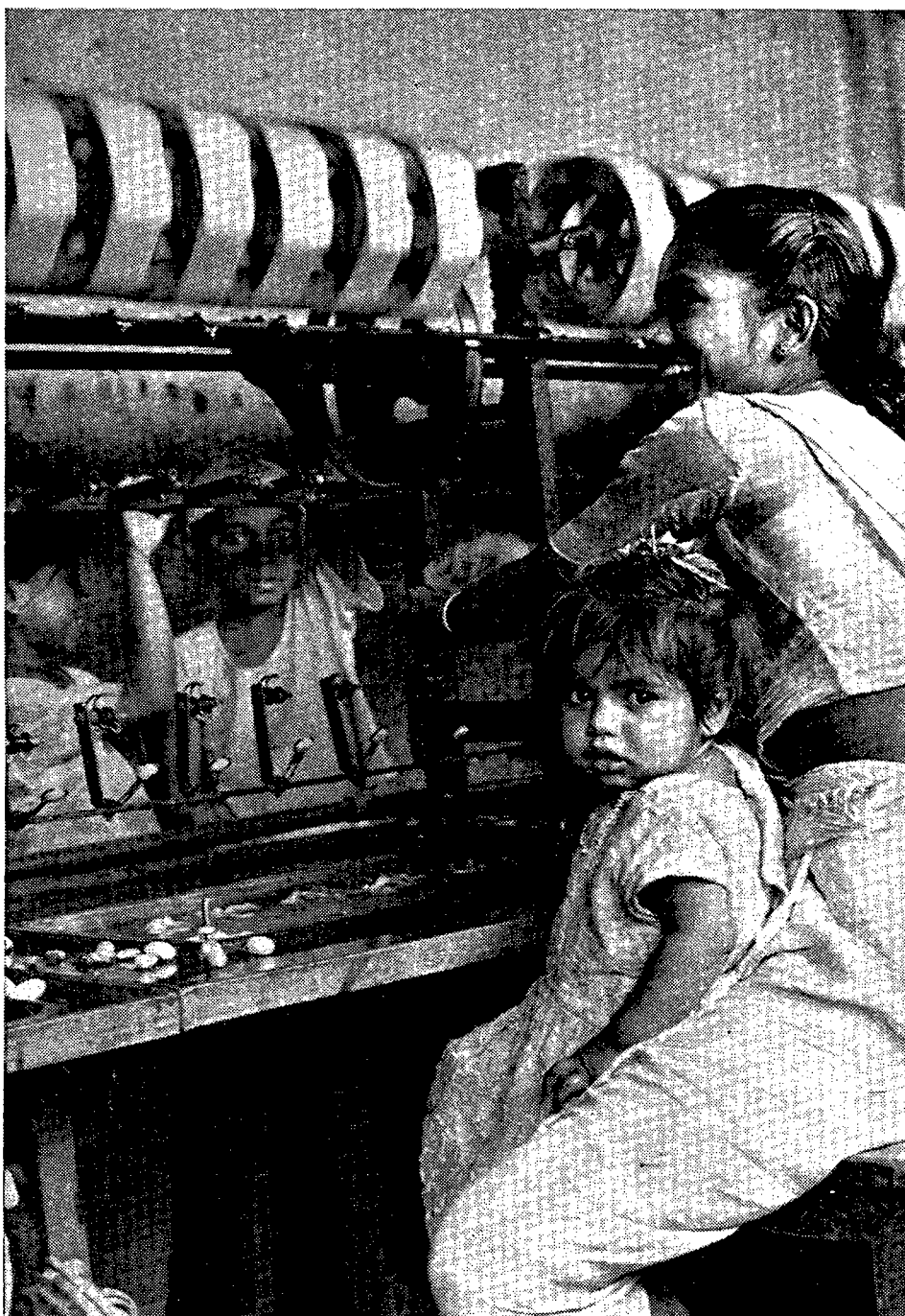


Photo Right: WHO/A.S. Kochar

woman, who is a creature of instincts. This supposedly extra-intellectual capability, it may turn out on analysis, is nothing but a property of underdeveloped intellects. If women are still to be treated by and large as being outside the pale of decision-making processes, then what follow as natural sequences are denial of education, equality of status, initiative and leadership opportunities. We now know that even in a country like India with its tremendous overburden of the past and a large woman population imprisoned by attitudes that could be as archaic as the oldest tradition, thousands of them have come up to grace a vast variety of professions and fields of creative endeavour.

But it would appear that the over-cautious morality preached by the orthodoxy affected only the middle classes, as everywhere else. The Indian aristocracy as well as the large mass of peasants were of course as free of middle class morality as their counterparts elsewhere. Not only Hindu kingdoms, even Muslim dynasties produced memorable women rulers and sex by itself was no bar, then as now, to political power. And when it came to sharing power, even puritan rulers were amenable to court ladies. Shah Jehan's two

Photos: T.S. Nagarajan

daughters influenced him so much that they insisted on sitting beside him when he held court. In the Vijayanagar empire, the court ladies included a vast horde of entertainers who alone enjoyed the privilege of being seated before the king and chewing *pan*. Queen Ahalya of Indore, Rani Lakshmi Bai of Jhansi and Sultana Razia are the better known names, but there were others too. Chennamma, Rudrama Devi, Chand Bibi etc.

In modern times, a notable facet of Indian reform movements was that the men who gave leadership to the movements championed the cause of women as an integral part of their campaign. Starting with Rammohan Roy, they all worked for the removal of the disabilities

Art provides a natural channel for self-expression and when trained, the woman excels herself.

of women. Men like Maharishi Karve were prepared to work in fields where the working was hardest, in the field of education.

The educational backwardness of Indian women was, as it is now, only a symptom of the general backwardness of the country as a whole. Here too, particular facts stand out against too facile generalisations. Against a Bharata (the author of the *Natyashastram*) bracketing women, children and fools in one category as people incapable of discrimination, and against an injunction against women learning the scriptures, we can juxtapose an Upanishidic Rishi who prays to the gods for the gift of a female child who will become a *pandita*, a learned lady. And then there were the learned women of lore who could hold their own against their male adversaries. Gargi, Agastya's wife Lopamudra, Gaudapada's wife Ubhayabharati, Varahamihira's wife Kshana, and Vishakha who persuaded the Buddha to accept women into the fold.

In medieval times, too, despite unfavourable factors, there occur names of women who distinguished themselves in many fields. And the most distinguished of them all may well be Jija Bai, Shivaji's mother, a woman who did obviously belong to the

aristocracy, and who groomed her boy to become a challenger to an imperial power. History is not very complete in giving us a satisfactory profile of this most uncommon woman, but she must certainly have possessed extraordinary strength of character both as a mother and as a patriot.

The freedom movement marked the beginning of an era when middle class Indian women dared to come out of their shells, not in singletons but in significant numbers. Madame Cama, Annie Besant, Sarojini Naidu, Kamala Nehru, Captain Lakshmi, Indira Gandhi and other women are names that evoke a new kind of respect in the hearts of men. Under Gandhiji's flag of renaissance ordinary women from ordinary homes came out into the streets to fight it out along with their menfolk. The fight on the social front was peculiarly of the middle classes because the problems were mainly of the middle classes.

The generation of freedom fighters gave birth to the new class of self-confident middle class women and today we have them holding their own as statesmen at the helm of affairs, as politicians in power, as judges and administrators presiding over benches and government departments, as police officers and engineers overseeing the rule of law and the construction of bridges. Mrs Poonen Lukose became a surgeon-general and the first head of a Government Department anywhere in the world. In medicine, journalism, mountaineering, meteorology,

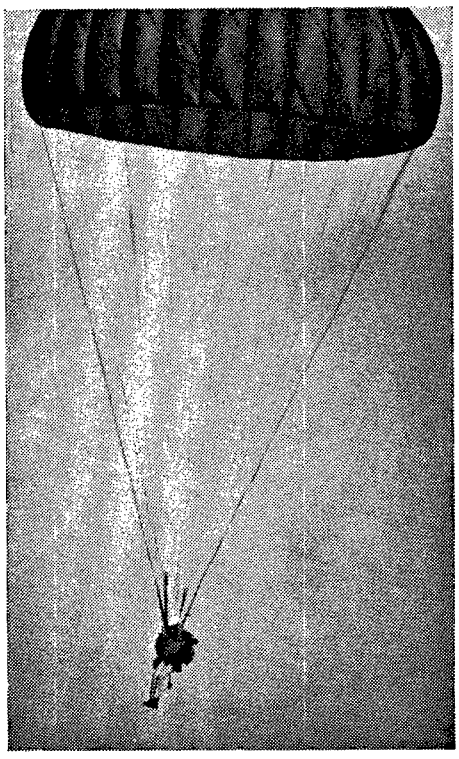
The woman, even more than man, needs a tradition in which to root her faith. But she now needs a second look at tradition to enrich it as an equal partner with man.

Photo left above: WHO/P. Alamsy
Above and below: T.S. Nagarajan

advertising or banking, the cry now is not for mere admittance but for equality of opportunity. Although diehard conservatism clings to moribund values there is no holding back the swift-flowing currents of social change.

But on the homefront, things are slower. For some reason, the Indian woman herself clings to custom, and to her the home is still af ar more secure place. Going to college may be the done thing for girls of urban middle class upbringing, but a college education is still cynically considered to be an additional bait for a better husband. University education by itself has succeeded in freeing only a small fraction of women from their customary shackles. Their spokesmen may blame lack of opportunities, but there is a large enough number of cases where opportunities are bypassed on grounds which relegate opportunity itself to a secondary place.

These instances show that mundane things matter. Preparing meals for the family and children for the school early in the morning,



A Woman Parachutist
Photo: P.K. Kapoor

getting into crowded public transports in cities, constantly being rubbed against the grain in a man's world, the office, and all the time clinging precariously to one's precious femininity, can wear a working woman out faster than they do a man, opportunities or no opportunities. No wonder, when given the choice to ride in two boats simultaneously, some of them

1. Mary Clubwala Jadhav 2. Mother Teresa 3. Durgabai Deshmukh 4. Dhanwanti Rama Rao 5. Dr. Soundaram Ramachandran 6. Hannah Sen 7. Bhikaji Cama 8. Sarojini Naidu 9. Raj Kumari Amrit Kaur 10. Padmaja Naidu 11. Violet Alva 12. Laxmi N. Menon 13. Indira Gandhi 14. Nandini Satpathy 15. Aruna Asaf Ali 16. Vijaya Laxmi Pandit 17. Dr. Sushila Nayyar 18. Vijaya Raje Scindia 19. Hansa Mehta 20. Kamala Devi Chattopadhyaya 21. Anna Chandi, the first Indian Woman Judge of a High Court 22. Sumatiben Morarji 23. Maa Ananda mayee 24. M.S. Subbulakshmi 25. Begum Akhtar (Rani Laxmibai of Jhansi and Meera Bai) 26. Mahadevi Verma 27. Amrita Shergil

Panel Courtesy: Exhibition Division, DAVP

prefer to give up the dubious advantage, unless financial and other reasons press them.

It could be that a society does not grant freedom or equality to its women because it cannot afford to do so, both in a material sense as well as in a psychological sense. When a society is poor, what it shares in equal measure is poverty; and in a working class family the freedom a woman gets to work shoulder to shoulder with her man is no freedom, only the equal

Photo above: A woman from Haryana. T.S. Nagarajan

Right: Girls at a Dog Show. Photo: S. Kumar

Below: An air-hostess prepares for duty. Photo: Kulwant Singh

sharing of a burden. When the financial status of the family goes up, the man may earn enough for the whole family, but other social considerations keep the woman subservient. The middle classes acquire other values which can be kept intact only when women sacrifice some of their freedoms, or when they are made to do so. And since the freedoms are exchanged for certain convenienc and advantages, she acquiesces i the restrictions.

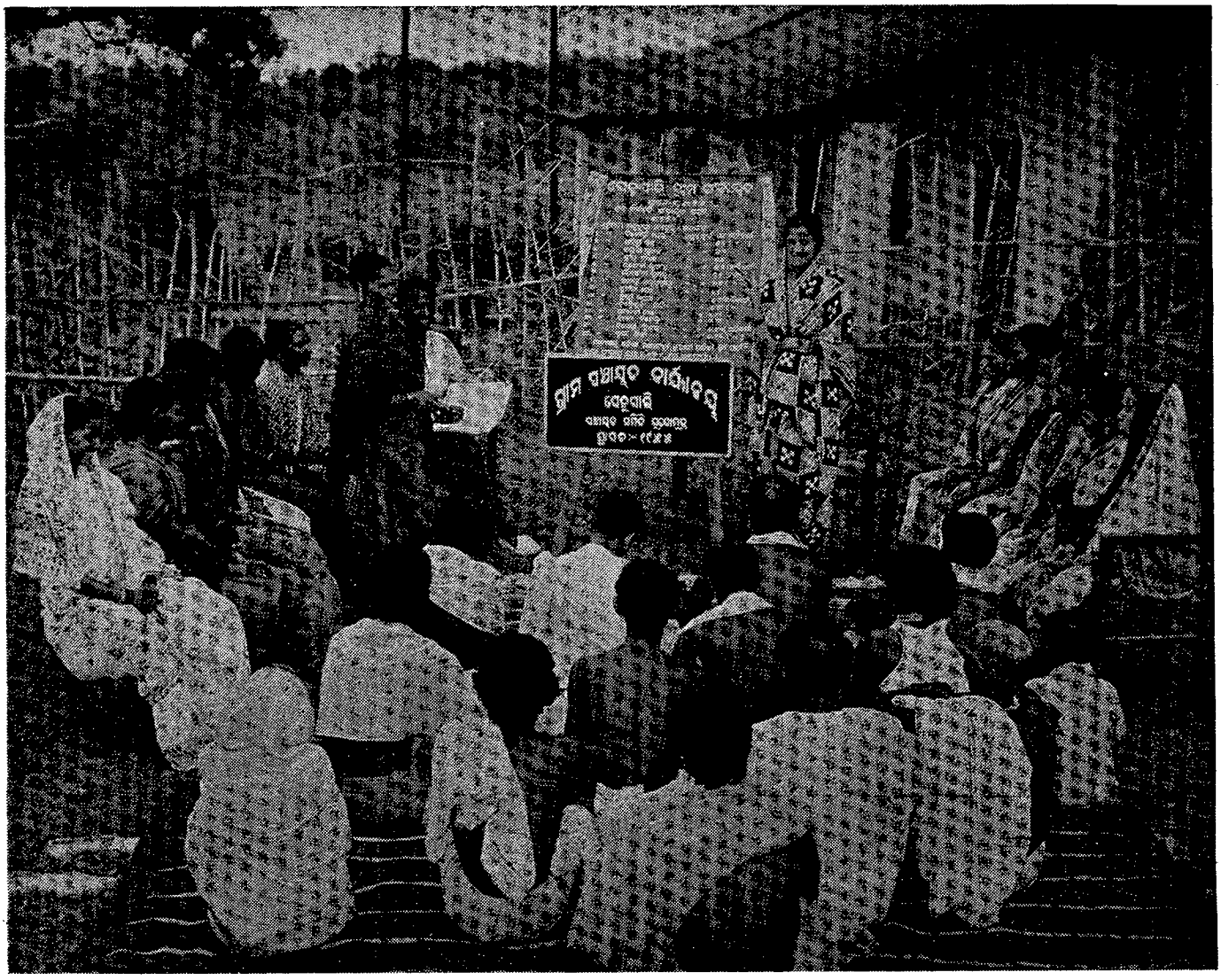
In the upper affluent reaches o society, both equality, and freed are possible to the woman with

paying much of a price. And this we find true of individual families, whole communities as well as of nations.

A corollary to this analysis could be that equal freedom to women is largely a matter of economic possibilities. A society will find its women free and equal when its economic encumbrances are over. Apart from poverty, the second crucial thing that keeps women relegated to a secondary position is war and conflicts. Whether it is a fullfledged war or a street brawl, women have to withdraw from the situation. Peace on national

The woman power can draw an ox-cart (left) Guard civic peace (below), carry pitchers as she has been doing for ages, or deliberate on the future programme of village uplift. The truth is she has been doing all these with considerable skill and devotion.

Photo left: T.S. Nagarajan
Below left: R.D. Luthra
Below centre: A Gupta terracotta by P.K. Kapoor.
Facing page: An all-women Panchayat Council in a village in Orissa by S. Saha.



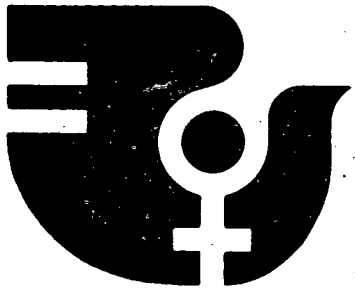
frontiers and on public highways therefore is an essential condition of feminine freedom. In other words, the demand for women's liberation is a demand for prosperity, safer living conditions, and all round peace. No man can find fault with that.

What do all these things add up to in a society like ours where not only the women but the overwhelming majority of men have to grapple with the challenge of the changing times?

The picture can be very confused and intriguing to one who is unable to shake himself free from the overburden of the past. To the forward-looking, however, it provides at worst the challenge of a confrontation which has to be faced not so much because the woman *demands* a better deal but because she *deserves* one.

This is not to question the importance of the woman's role as a wife or as a mother. These roles are her exclusive preserves. To the upanishidic injunction that the mother and not the father or teacher deserves the first worship we may have to add quite a few injunctions of our own to make her a fuller human being and, even more, to make life more meaningful. We would have been a lot poorer without her ungrudging contribution as a worker and a housewife; but the process of living would be a lot more cheering if men were to give her the feeling that she is an equal with them—in law and in life.

Come to think of it, it is the woman who contributes what little of grace and dignity is left in the life of the poorest of the poor. What has made this possible is her superhuman capacity for forbearance and sacrifice. Neither education nor equality can deprive her of these natural traits which belong to her very physical being as a woman. The question is not whether, as equal to man, woman can be a good general or a police officer. She can perhaps be both occasionally to prove the belief to the contrary. Nor has she contested the legitimate role of her sex in the life of man or society. What the woman seeks to contest in the Indian situation—without any intent of belligerancy—is the psychology that pervades an ancient attitude that has lost much of its relevance in the fast changing society of which she is clearly the one half if not the better half. The malady in India is not that the woman has not been promised her due share; she finds it difficult to exercise it. □



International Women's Year 1975

Laws on Women and Society's Response

PADMINI SEN GUPTA

The woman is fully protected in our Statute Book. Many of the laws that have been passed in recent decades to bring dignity and justice to the women of India still await full implementation. In practice many of the laws are being side-stepped and bringing the guilty parties to book involves elaborate, time-consuming legal processes and heavy expenditure.

India was fortunate in that the freedom struggle of its people was also a struggle of women for their legitimate place in society as equals. Mahatma Gandhi was a great champion of the cause of women. On the attainment of freedom the Government passed into the hands of enlightened leaders who had been in the vanguard of the freedom movement. The result was that a number of laws have been passed to reform old practices and give to the woman conjugal, economic and social rights that legitimately belong to her. What we need today is re-dedication to the cause of women who constitute one-half of the country's population and are the backbone of domestic life and social harmony.

EVERY law that has been passed in the country in connection with the emancipation and protection of women since the days of Raja Rammohan Roy a hundred and fifty years ago, has had its opponents among the people. Latterly however, especially after Independence, the orthodox elements who were the chief opponents of liberal laws, have greatly dwindled in number. The raising of the social and working status of women is encouraged in Parliament and outside it, especially as our Constitution stresses that no discriminations shall be made between the sexes.

A stumbling block has been the indifference and scorn, largely born out of ignorance—with which men and women regard the social laws of the country. Added to this reaction is the tardy Government machinery which has not implemented even the necessary and useful laws which have been enacted. Many of the laws concerning women, therefore, lie idle in the statute book and are often ignored. The public conscience to a certain extent revolts; but many of the laws which are side-stepped by guilty parties have to be set right only through elaborate and time-consuming legal processes involving heavy expenditure. Such evil practices as child marriages and the giving of large dowries still persist, though not the same degree as before.

A survey of the laws themselves and social reaction towards them may help to portray a clearer picture of the social status of women as it

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stands at present on paper at least.

In the distant past, women in the Vedic age settled under patriarchal chiefs who allowed them every freedom. But with the coming of the law givers in Shastriac times, masculine and priestly dominance began to take root and prevail. The ordeals that women in the Epic and Puranic times had to go through is clearly depicted in our mythology and religious literature. These heroines have been presented as noble, long suffering characters and this ideal became the standards by which women for centuries were adjudged. Even today it can be said that the images presented by Sita, Savitri and others make up our concept of an ideal woman and these values influence even those who are part of the very women's lib movement.

Moslem rule in medieval India only helped to reinforce the traditional outlook on women as subordinate and even subservient to man. Partly this could have been due to their anxiety to protect the honour of women. Such awesome practices as Suttee, child marriages purdah and the suppression of widows came to be accepted as the norm of woman's behaviour.

With the coming of the British, the old laws continued to have their sway, as the new rulers had no wish to antagonise the people by interfering with their traditional practices. It was left for the enlightened few among the Indians themselves to bestir themselves and seek to emancipate women. Raja Rammohan Roy, the Father of modern India, set the ball rolling with his loud and persistent protest against Suttee and he had the support of Lord William Bentick. A legal ban was clamped on the practice of Suttee by the enactment of the Abolition of Suttee Act in 1829.

Needless to say there was a violent reaction among the orthodox sections of the Hindu society; but the strong voice of a spate of reformers prevailed in the 19th century and gradually women came to be regarded as human beings needing the protection of society. But the emancipation of women more or less stopped with this and women continued to suffer many inequities. The battle had to continue and it did. Eminent men of the 19th century had freed their minds from the stranglehold of barren tradition. We remember many of them now for the service they have done to the women of India—the Tagores, Vidyasagar, K.C. Sen, Sri Ramakrishna, Vivekananda, Pandita Ramabai, the Ranades both husband and wife, Gokhale, Sarojini Naidu and countless others fought tooth and nail, but always without violence for raising the status of women. Sporadic laws were enacted. Following the Abolition of Suttee Act 1829 came the Widow Remarriage Act 1856, legalising the marriage of widows and recognising their children. Nevertheless, widows themselves were so tradition-bound that few ventured to remarry. Men were also nervous to flout social customs and it needed staunch reformers like Bharat Ratna Karve to marry a widow from Pandita Ramabai's home and set an example. Other laws passed during the British Raj were the Special Marriage Act 1872 sponsored by Keshub Chandra Sen, and of course the Child Marriage Restraint Act (Sarda Act) which met with violent opposition from the orthodox sections. It nevertheless raised the age of the marriage of boys to 18 and girls to 15 but even today this law is ignored in many villages and it was found quite recently that 30 to 40 per cent of children in villages and slums are still married below the prescribed age.

The freedom struggle also proved to be, incidentally, a struggle for the emancipation of women. Gandhiji's enlightened leadership broke many of the bonds that claimed women to docility and subjugation. The Indian Constitution now provides to the woman a place equal to that of man.

It then became necessary to enact laws to back the reformers' clamour for more reforms, for, there were still large sections of people who believed wrongly that the submission of women to masculine monopoly was necessary. They did not realise that the philosophy of Hindu Dharma at its very source conceded far more freedom to women than they had come to enjoy over the centuries.

The leaders of free India felt that reform through laws was essential even to bring about a reformed mind. To begin with, the need to unify the Hindu Code was strongly expressed by leaders who had visualised it even before Independence. The Rau Committee in 1941 had been asked to examine the Hindu Women's Rights to Property Act 1937 and suggest measures to remove all injustice to daughters in matters of inheritence. The entire codification of Hindu law relating to marriage and succession and removal of all evils was recommended and accepted by Government though the Hindu Code Bill still remained to be enacted. The evils still prevailing were polygamy, child marriage and dowry. No divorce had been allowed. Women could not inherit property. If property was left by husband or son, the widow had a right to use it, but not to sell or alienate it. No adoptions by women were allowed. Female children could not be adopted under any conditions. Strict or rules of conduct guided Hindu law. Masculine chauvinism remained unquestioned. The British retained old laws which they could not understand and sought Pundits' or Kazis' help to interpret Hindu or Moslem laws. The birth of Independence however, saw the death of legal stagnation.

The four Hindu Laws which now more or less unify the Hindu Code are: (1) 1954—*Special Marriage Act* —to legalise intercaste and intercreed marriages. The age of men must be over 21 and of girls over 18. A Special Marriage Amendment Bill was put forward in 1970. Easier divorce conditions were sought. No marriage is allowed within prohibited degrees of relationship. Divorce was allowed by mutual consent and a wife need not pay maintenance. The clause for women having to wait for 3 years has been asked to be modified.

While orthodox reactions to this law were and are still not favourable, divorces have become quite common and we are told that long queues await the law courts' decisions and that divorce cases which have been filed are quite numerous.

(2) *1955 Hindu Marriage Act.* Past restrictions have been eased. Monogamy is essential. Separation on grounds of idiocy, leprosy etc. are allowed. Parents are prosecuted if the bride and bridegroom are married before 15 and 18 though the marriage is held valid. Divorce is also allowed if a man has a co-wife, or accused of rape, sodomy and bestiality. Bigamists are fined. Alimony and maintenance of the wife have to be provided for. After two years the aggrieved parties can sue for separation or divorce. Divorce can be sought on grounds of adultery, conversion to another religion, unsound mind for 3 years, renunciation of the world, not being heard of as living for 7 years, and failure to resume cohabitation after 2 years after the passing of the decree for divorce.

Divorced persons cannot marry until a year has expired after the decree of divorce.

Bigamy is punished by 7 years' imprisonment.

Now, the Law Commission has suggested that the minimum period of 3 years be lessened on special enumeration, and that premarital pregnancy should not be treated as a

ground for divorce. This, we are told, is being put forward as the *Marriage Laws Amendment Bill*. Legal separation is recommended rather than divorce.

Hindu Succession Act
Stridhana

Hitherto Hindu women had no right to inherit property but were allowed a life interest in it with no power of alienation. A uniform law of succession was now passed granting right of inheritance to daughters.

The three forms of law relating to women and property were hitherto the matriachal system of Kerala and Kharis, the Dayabagh practised in Bengal and Assam when sons share property equally after the death of the father and no woman can inherit, and the Mitakshara when a son has a right to property by birth as soon as he is born and all male members of a family form co-parcenary unit. Women were excluded from the privilege though they share automatically the fortunes of their husbands.

Now under the *Hindu Succession Act 1956* widows and mothers are all included in Dayabagh and have equal shares. But with co-parcenary property the sons still take their share and this will only be renewed when the Dayabagh system becomes the rule for all Hindus.

Women will hold property with full rights of disposal etc. But a female heir cannot get her share until the male heirs divide it.

The Act guides succession when a man dies without a will or intereste. If he makes a will he can dispose of his property in Mitakshara and his own self-earned property.

Hindu Adoption & Maintenance Bill, 1956

No woman could adopt a child under the old system. Only a son could conduct the *pinda-dan Sradh* and so a man could adopt a son. A female child could not be adopted Now daughters can be adopted. Married women cannot adopt but the unmarried or a widow or a deserted wife can. Any child up to 15 years can be adopted. A woman can draw maintenance even if separated unless she is unchaste or changes her religion. The father-in-law is responsible for a daughter-in-law if he has means under co-parcenary; but for the first time a woman is given the right to maintain her children and parents. Women now have joint responsibility.

In 1961 *the Abolition of Dowry Act* was passed but little notice has been taken of this important Act and much is being said of its implementation in the International Women's Year. The dowry habit is pernicious and has a crippling effect though parents still continue to give, often to placate the bridgeroom's parents' demand or to show off their affection or affluence and often, as a prestige symbol. Only recently, the women of Bengal staged a protest march against the dowry system. No efforts, seem to have yet been made, as far as I know, to implement this all important law. Mahatma Gandhi was vociferous in his demand for inexpensive simple weddings. In villages and slums, poverty-stricken families usually fall into the clutches of money-lenders in order to meet the dowry and marriage expenses.

As for the minority communities, the Christian Marriage Act of 1972 allows a Christian to marry a non-Christian if the boy and girl were, at first above 13 and 16 years, but now revised to 15 and 18 as the said Act applies to Christians also. The Catholic Church does not allow divorce but Protestants do concede it though the Church is not too pleased about it. The Parsis sill follow the Marriage & Divorce Act of 1936 by which marriages can be dissolved on reasonable grounds.

Muslim Law

Marriage is an unconditional contract between the two persons. Women can have only one husband but a man is entitled, by religious law to four wives with the injunction that all of them have to be treated equally. Muslim women cannot marry non-Muslims but a man can marry a Kitabia woman (Christian or Jew). A wife can get *mahr* or a sum of money at the time of marriage, payable in case of desertion or divorce.

Industrial laws are based on I.L.O. Conventions and Recommendations. A list of I.L.O. Conventions and Recommendations is given below, which India has ratified:

Conventions

1. Maternity Protection (1919)
2. Night Work (Women)(1919)
3. Night Work Women (Revised) (1934)
4. Underground work (Women) (1938)
5. Night Work Women(Revised) (1948)
6. Equal Remuneration (1951)
7. Maternity Protection (Revised) (1952)

Recommendations

1. Lead poisoning (Women & Children) (1919)
2. Materinty Protection (Agriculture) (1921)
3. Night Work of Women (Agriculture) (1921)
4. Migration (Protection of Females at Sea) (1920)
5. Equal Remunerations.

India has ratified all seven of the Conventions and necessary provisions have been made in the various Labour Acts.

A Paradox

The implementation of these Acts are far more satisfactory than social laws but protective laws for women such as women not being allowed to work in Night Shifts or Underground in Mines and the insistence on women workers being provided with crechs for their children when more then 50 women are employed in an industrial set-up and, last but not least, Maternity Benefits for women are causing employers slowly to keep out women from the older industries such as Jute and Textile. Gradually, however, more opportunities are being opened for women elsewhere. Many factories seem to be reluctant to give women maternity benefits. A letter published in the Statesman (5.7.75) states that women in the pharmaceutical and chemical industry are denied maternity leave and that recently the All India Chemical and Pharmaceutical Employee's Federation organised a demonstration in front of Parliament in this connection. The writer feels this discrimination is a paradox of International Women's Year, as women are being consistently denied their rights. There is also a great reluctance on the part of employers and contractors to pay equal wages to women. The promulgation of the Contract Labour (Abolition and Regulation) Act 1971 strives to abolish contract work in perennial factories by converting the contract workers into parmanent workers. Contract workers in temporary jobs will be allowed to continue and therefore, women who work as temporary workers will not suffer.

Social and industrial laws have been worked out on a sound basis; but due largely to ignorance, illiteracy, die-hard traditions and customs and superstitions, poverty and obstinancy and indifference on the part of the people and lack of official implementation, the laws have not been satisfactorily implemented. A five year plan to bring all the existing laws under working conditions is required. Villages and slums especially have to be visited by officials and voluntary workers and the people should be made aware of the laws. □

MYTH OR REALITY?

PROMILLA KAPUR

DESPITE progressive legislation, and despite improved educational and professional opportunities, a big gap remains between the status that the Indian woman enjoys in theory and what she has in practice.

During the Vedic period of the country's history, from 2,500 to 1500 B.C., equality for women was a fact. They were accorded the same status as men and discriminatory or preferential attitudes did not exist. The deterioration in their status was gradual, and was hastened by various political and socio-economic factors from 300 B.C. onwards until by the end of the 18th century the situation was reached of superior status for men and almost no status at all for women.

ACCELERATED PACE

At that time, infanticide was common, there was no education for female children, and such customs as child-marriage, *purdah* and *sati*—the burning of widows on the funeral pyre of their husbands—prevailed.

Through the efforts of social reformers and of progressive-minded men and women in India and abroad, who were greatly disturbed by the injustices they saw, social reforms and legislation were introduced during the British period, and women's status began to improve.

The pace accelerated greatly after independence. The Indian Constitution and various acts and statutes brought about modifications and provided for legal as well as political equality of the sexes. Today in India a woman has in law an equal right to education, employment, franchise, inheritance, divorce, and remarriage as a widow or divorce, as well as the right to be her husband's only legal wife. Theoretically the principle of equal rights for women has been established. But does she really enjoy equality, or is it a myth?

For those women who belong to educated, progressive and well-to-do urban families, equality is close to reality. They have almost the same privileges and opportunities as men from birth onwards. But these women amount to a mere handful in this large country. And even for them, equality is not absolute; discrimination and a double standard of morality still continue. In spite of the changes for the better, India continues to be essentially a man's world.

The male is still regarded as more desirable than and qualitatively superior to the female. This is due mainly to considerations of tradition, custom, belief and ritual. For example, in the patrilineal Hindu society, the dominant section of Indian society, only a son can perform the essential rites, including the funeral rites absolutely necessary for the attainment of salvation, which occupies a place of great importance in the traditional scheme of life of a Hindu. Apart from this, traditionally a son is the potential wage-earner, the support in old age and the builder of family prestige and prosperity, for he brings a dowry into the home and continues to be a member of the family after marriage. The daughter has to be protected more, and at marriage has to be sent off with a dowry; she becomes part of another family and cannot be depended upon for support. Obviously all these considerations make male offspring more desirable than female. The inequality can be seen in the life of any female from a traditional Hindu family and in the way she is treated as compared with the male from birth onwards.

Even today in a large number of Hindu households the birth of a female child is not rejoiced over but is rather a cause of sorrow and anxiety, whereas the birth of a male child is an occasion of much delight and rejoicing. And with the birth begins preferential treatment for a son as regards career, diet, education and so on. This observation is supported by a recent statistical study of the position of women in India which points to a declining female ratio. According to one demographer, the decline is a sign of the neglect of females at all ages, from birth to death, which is a persistent phenomenon in Indian society. Unlike the case in the developed countries, the death rates in India among females in younger age groups (5-35) are higher than among males, although the rate for infants is considered to be higher for male than for female babies and rates for over 35-years-olds are higher for men than for women. Inadequate nutrition and health care no doubt contribute, but equaly important is the unequal and differential treatment given to girls and women in traditional families, where female children and females generally tend to be more neglected than male children and males.

BARE BODY, CLOSED MIND

Doctors, social workers and researchers who have visited the villages point out that there are fixed priorities with regard to the share of food. The male who works gets most of the food, while among the children the boys get a bigger and better share than the girls. Female adults have the last priority. In conservative Hindu families, even when they can afford to feed a good diet to both male and female children, only the boys are given the rich diet, and girls a much poorer one. This is mainly because of the conviction that a girl given rich food comes of age and starts menstruation earlier. Since at that time she needs a lot of vigilance and protection, Hindus still believe that girls must be married either before or at puberty, and since getting her married is a great psychological as well as a financial burden, the other family members make conscious and unconscious efforts to prevent her having good food and growing fast.

When the time for schooling comes it is always the son who gets preference, and in spite of outwardly equal opportunities the gaps are considerable between enrolment rates for boys and girls, and between male and female literacy rates—39.5 per cent for males and 18.7 per cent for females (13.2 per cent in rural areas) according to 1971 census data. This is mainly because of ignorance and a deep-rooted belief that since a girl's primary and exclusive role are those of wife and mother she does not require any formal education.

While still young, the Indian girl is suddenly shut away from all play and from further sight of male outsiders. She may get little fresh air and sunshine and, usually with immature and weak body and closed mind, is married off early by her parents to a stranger. In spite of the Child Marriage Restraint Act 1929, and the Hindu Marriage Act of 1955, prescribing 14 and 15 years respectively as the minimum ages for a girl to be married the 1971 census

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showed that there were 3.7 million married, 20,000 widowed and 11,000 divorced or separated girls in the 10-14 years age group. Such marriages before puberty or at too young an age, also have a bad effect on their health.

After marriage a woman is ascribed a number of duties and responsibilities with almost no privileges. She is expected to look after her husband and other members of the family, to take her meals only after all male and elderly female members of the family have eaten, and to eat only whatever is left. She is neglected, and rarely is any attention given to her diet or health. There is hardly any companionship with her husband and their relationship is more or less biological. She is expected to be always ready to give her husband physical pleasure, whenever he wants it, with no consideration of the absence of desire on her part or of her physical exhaution.

A married woman has low status in the household until she becomes pregnant, which is considered being honourable and lucky. If she fails to bear children it is never her husband but she who is despised and blamed for being sterile. Her status improves considerably the moment she becomes a mother of sons. Her position is lowered and she is criticised as well as neglected if she happens to bear only daughters. Her status, sense of security, power, success and satisfaction are intimately linked with her procreative function especially with producing sons. And since she is often ignorant of of the fact that the rate of infant and child mortality has come down and is not convinced that her and her children's health is being cared for, she continues to repeat her "fertility performance and produce large numbers of children just to ensure the survival of a few male children into adulthood. Women in India have an average of 5 to 6 children, and this is another factor responsible for their and their children's ill-health and malnutrition. Experience all over the world has shown that too many births at short intervals present a serious health risk to both mother and child.

DEEP-ROOTED PREJUDICE

As compared to the economically developed countries, in India large numbers of women still die through childbirth, miscarriages and abortions. This is another indication of the neglect of young women's health and life, which is not taken very seriously by the men or elderly women of the family. In villages and in traditional families it is still customary to give birth at home and to have the child delivered by the semi-skilled or inadequately trained indigenous nurses called *dais*. Studies have also shown that because of ignorance and society's deeprooted prejudice, about 40 per cent of Indian women seeking abortions still get them done by unauthorised and untrained people, which is very dangerous.

Reasons other than ignorance and superstition also cause the women to depend upon *dais*—among them lack of health staff, an inadequate supply of medical equipment and lack of available health services. For in India as in many other developing countries only 20 per cent of the population—those living in urban areas and around the primary health centres—have access to health services and health care.

In traditaonal Hindu families, inequalities between a man and a woman are very great in situations where either of them divorces or losses a life-partner. While a widow or a divorced woman is in a very inferior position, faced with social ostracism and able only nominally to utilize the privilege of remarriage, a widower or divorced man is once again in demand in the marriage market, and utilizes extensively the privilege of marrying again without criticism. Also the neglect and maltreatment of women by society, in laws or husbands after marriage affects their emotional and mental health. This is indicated by the increasing percentage of suicides among married women attributed to marital tensions.

In a society like India, where the hold of tradition is still quite strong, where customs, rituals, beliefs and social norms continue to perpetuate the dictum of the male's superiority and desirability, and where attitudes and life for the masses have under gone little transformation, it is not easy to make equality of women felt or practised in reality. No doubt legal and political equality even in theory is no small achievement and has brought about considerable improvements over past years in women's status. Yet by and large, women have not been able to enjoy equality with men at home, at work or in society as a whole. For masses of women it is still a myth. The situation, with minor variations, is more or less the same in most of the Asian countries, such as Indonesia, Sri Lanka, Burma, Laos, Malaysia and the Philippines, where in spite of legal equality there is still no true equality between men and women.

Studies as well as observations have shown that it is women more than men who perpetuate the traditions; that mothers are the most important socializing agents and are responsible for looking after the diet and health of children; that ignorance on the part of women is equally responsible for malnutrition among children; that women's lack of a motivation in life other than that of bearing children proves harmful for their own and their children's physical and mental health; and that the brunt of the work of delivery of health services in rural India, for 80 per cent of the population, is borne by women—midwives and *dais*. Therefore it is of prime importance that girls be given education in literacy as well as in health and nutrition and be better motivated; that mothers be taught proper child care and how to use locally available food and traditional diets more effectively; and that indigenous health workers or *dias* be properly trained to attend to health needs and rural health services, including family planning.

Legal equality is not enough; social equality is no less essential. Millions of Indians need to be convinced that the world for them too is a place where existence other than at subsistence level is feasible; where health and nutrition levels have risen so that children have greater chances of survival and are no longer the only source of security; where motherhood is not the only means of achieving status; where health and education can eradicate ignorance, superstition, prejudices and those outdated rituals, social customs, values, processes and attitudes that make women appear inferior; and where men and women should be treated as equals from birth to death, and should have equal opportunities for education, employment and developing their own personalities and interests.

CASE FOR HELP

For a country like India, with a large peasant population, to bring about such a change through its own efforts and resources is very difficult. Unless helped by the international community, including WHO, which for the emerging countries stands for all that is good, sensible, scientific and modern in public health and development, it is not feasible for India and similar developing countries to achieve rapid economic, health and social development in the near future. And until this transformation takes place, in traditional societies such as India equality for women will continue to be more or less a myth and not a reality. □

Woman In A Man's World

Though they are as many as men, their Contribution to the sum total of Life is Either Ignored or not Encouraged

MALATI BEDEKAR

A FOREIGNER on a visit to some of our big cities like Bombay, will find quite a few educated women occupying responsible positions in various walks of life. However, in the rural area, he will find our womenfolk most ignorant, poor, illiterate, unaware of normal rules of health and having no idea of child care. In India, upliftment of women was one of the planks of several reform movements and agitations, started by our leaders during the British Raj to liberate the country from political, religious, economic and social bondage. It is a truism that in India, the destinies of women belonging to the castes and communities to which national leaders belonged, generally improved. This logically led to the upliftment of women belonging to these upper castes and communities only.

Women in India never launched any movement to free themselves from the hold of tradition or social bondage on their own. Englightened men on their own strove to free her from that slavery. They educated her, led her to the way of economic freedom, gave her voting rights and prepared her mentally for political, social and economic equality. Unfortunately, women belonging to high castes and communities alone were benefitted by all these efforts. A majority of women in India did not derive any benefit from these efforts of our social pioneers.

In developed countries, women had to struggle hard to free themselves from the domination of men. It must be noted that women in India were spared the ordeal of launching suffragette movements. There never was any dearth of men who were ready to fight for the rights of women and on behalf of them. One is compelled to think of the identity of women in India from a multiplicity of viewpoints—different communities, religions, languages, dresses and culture. Because of this multiplicity, women belonging to privileged castes and communities are found to be as progressive as those in other developed countries and yet there are countless women belonging to the so-called lower castes who are most backward, primitive and nomadic. It is therefore difficult to draw a full size compact picture of a representative Indian woman. However, one thing is common in this diversity: Working for the hearth and home and taking care of children are even now considered as primary duties of an Indian woman. She still strives hard to preserve a close-knit family life in the home. She is prepared for any sacrifice and accepts the supremacy and domination of man to achieve domestic harmony.

Though it is the woman who bears the pains of child birth,

she is still not free to decide on how big a family she should rear. This is decided by the man. Educated men and women are however an exception. This class is yet in a minority. Yet another example concerns the right to vote. Though women have the right to vote, in this country, majority of them, barring those from the educated class, have to vote as per the dictates of the menfolk in their homes. These two examples clearly show that though the Indian Constitution has specifically laid down equality among man and woman, it still has not yet come into actual practice.

Women in the Developed World

In progressive countries, women are not required to vote as per the dictates of men. She also decides how many children she would bear. But even there, home making and child-care are still considered to be the main functions of women. Neither in developed nor in undeveloped countries is any value attached to the labours put in by women in these fields of activity. Her labour is considered of less consequence. Once, it was decided in U.S. to evaluate the labour put in by women in the home. However, when the actual evaluation started (or when women started talking about equality) dirty jokes came out. They said, "woman does the household chores at home. She rears children; satisfies the sexual desire of man. All right, let us evaluate her work. We shall pay so many dollars for household work, so many for child care etc, but we do not want sexual satisfaction from our wives. We shall have it elsewhere!"

The freedom of women has thus always been a matter of ridicule or joke. If a man is under the domination of his wife, he is ridiculed as henpecked; on the other hand, a cockpecked wife is admired. She is considered an ideal woman all over the world!

In India, the woman has to change her maiden name after marriage. Similar is the case in other developed countries too. Even under such circumstances, where the husband is unable to earn, or when after his death, the woman has to bear the dual responsibility of the father and a mother, the children are known by their father's name and not by their mother's. This custom is common all over the world, the only exception being socialist countries like Soviet Russia. In that country, the equality of man and woman has been accepted so scrupulously that the woman is free to adopt any name she prefers. The man can also change his name after marriage if he so desires. If both of them decide to adopt a third name, it is also allowed. Similar freedom is there about the names of children. In the Soviet Union, household work and work involved in child-care are not considered thankless jobs. It is respected by the citizen and the State as a national duty of the mother. There are no two different sets of standards for men and women. In all other countries, including the developed ones, double standards are applied. In socialist countries, if a man and his wife are earning members, their earnings are pooled and spent in the house collectively. If they divorce afterwards, the woman gets the share of her earned money legally. It is not so elsewhere. In France, as recently as, 10 to 15 years ago, women were not even alllowed to open a bank account. There, the mother or the father were not allowed to christen their children with names of their choice.

In directing its member nations to celebrate 1975 as the International Womens Year, the United Nations wants to create a sense of awareness in the minds of men to treat women on equal terms. The fact is that although the United Nations have declared equality between men and women, in actual practice, few countries (except socialist countries) have given equal status to women. In India, 80 per cent of the women do agricultural work. In addition to this, they have to look after household duties and have also to take care of the children. And yet in census registers, they are not registered as earning members of their families. Their labour, which they put in their household work, are given no value. Ironically, if the same woman toils in another farmer's fields and earns money, she is registered as an earning member. On the contrary, a man working in his own field is registered as an earning member.

After the industrial age, money earned in productive work ecquired importance. But as the wife does not get any return in cash for her household work and her duty towards children, she is supposed to be a non earning member.

To undervalue or not to value at all the labour put in by the woman has been an important feature of society dominated by men and this is observed almost everywhere expect in socialist countries. The woman naturally feels that her labour should get due recognition and she should be allowed to lead her life with respect. But unfortunately, women even in developed countries, are as unhappy as Indian women, in this respect.

If this is the plight of women in developed countries, who are not only literate but even well educated, one can imagine the plight of Indian women, a majority of whom are illiterate. How is it that only 10 per cent of the women in India are recorded literate even after 27 years of freedom?

Education & Politics

There is also reason to believe that statistics regarding womens' literacy are not fully reliable. Only recently, the Prime Minister observed that while taking the census of literacy, children right from the new born to six years old, were also taken into account. In no other country are children taken into account while enumerating the number of literates. Considering this fact, it is difficult to accept that about 90 per cent the Indian women are literate. But even so, one has to agree that spread of education has not spread widely amongst Indian women.

There is yet another fact about which few are surprised. Even in the highly developed countries, no woman has yet been appointed to the highest office of the nation. But in Asia, women like Smt. Golda Meir, Smt. Indira Gandhi and Smt. Bandaranayake are holding, or once held, the highest offices in their countries. On the contrary, in the more affluent and developed countries like the USA, only recently, a woman was appointed Governor for the first time. Even in the U.K., Mrs. Margaret Thacher was elected the conservative party chief in place of Mr. Heath for the first time. That the name of a woman was suggested for the post of party chief in U.K. for the first time only recently speaks volumes about the women of that country.

It will be worthwhile to examine the mentality of men in the developed countries in this regard. When Smt. Gandhi was selected as the Prime Minister, many men in the developed countries expressed surprise over the event. Many even asked as to how men would like to work under a lady. Man's tendency being what it is, though the right to vote has been given to women in many countries, very few women members are elected to parliaments, senates and congresses. Having been accustomed to work in the home only for centuries, it is possible that women all over the world may not be taking much interest in politics. Besides, because

of the peculiar tendency of man, men do not give them (women) even a chance to stand for elections. The number of men and women voters in India is nearly equal. But few ladies are members of state legislatures, parliament, *gram sabhas* etc. This being the case, equality among men and women in the political and administrative fields is only nominal the world over. In India, many women in villages are illiterate and orthodox.

Many have not still realised the importance of voting in a democracy and therefore, even in our country, democratic institutions elected by informed voters are still not developed. Naturally, the desired effects of democracy are also not in evidence. As 50 per cent of the voters in India are women, they have a responsibility in the proper functioning of democracy in our country. In developed countries, women, though they take less interest in administration directly, vote with conviction. This sort of awareness has come about due to technological and industrial development in those countries. Because of this, women in these countries have acquired a sense of enlightened citizenship in them. The atmosphere and the nature of work in the house is also different from what it is in Indian homes. Women in the developed countries know much more about health and hygiene while the Indian woman has very little or no knowledge about it.

Similar is the case about child care. Technological and industrial development and employment will alone do away with poverty, ignorance and orthodoxy among our women. If this happens, it will improve not only our women's lives but also family life in India.

Though women in developed countries are more progressive than the Indian women, due to industrial and technological development, they are not yet treated on par with men in political, economic and social fields. Similar is the case in our country. However, comparison is difficult. Advertisers and publicity men in developed countries exploit women for their financial benefit. Her looks are exploited for the entertainment of the masses. In films, dramas and in advertisements a woman's body is exposed to make money. But every educated woman must feel ashamed of this kind of exploitation. It only proves that this world belongs to men. In India, also, women are exploited for entertainment and enjoyment in immitation of the practice in developed countries. Our womenfolk must raise their voice against it. Of late, women in U.S. who have realised that womanhood is used only as a means of entertainment have raised the banner of revolt and it is no wonder, this liberation movement of the U.S. women is ridiculed in this world of men.

If this year, which is observed as an International Women's Year, they should not exploit women, it will definitely help in creating equality in the world. □

Women in Employment

LOW IN PROFILE, HIGH IN DISCRIMINATION

The very absence of adequate statistical data which would give a picture the true status of women regarding employment indicates a discouraging and unsatisfactory state of affairs. This paper puts together such official data as would provide a clue, and the profile, however low, is high when it comes to lack of opportunities and discrimination even where opportunities exist

K. SARADAMONI

WOMEN'S "participation" in productive activities outside the home is not a new phenomenon. In all primitive societies women have worked along with their menfolk in cultivation, cattle rearing and even in hunting. The predominance of women as agricultural labour force in India even today can be a remnant of this sense of equality in the division of labour. In course of time, there has taken place changes in the nature and scope of women's work, both inside and outside the home, making new demands on women themselves and on society of which they are a part.

Unfortunately, like many other fields of enquiry, women's employment can also be studied only with "limited, unsatisfactory and non-comparable" data, full of loopholes and conceptual irregularities. This naturally adds to the responsibility of anyone attempting to work with data presently available, and cautions them against rushing to conclusions.

What is attempted here is an examination of the changes in the size and pattern of women's employment derived from the existing data. This data is confined to the "organised sector" of the economy. More than ninety percent of women working in small, unorganised units of production, ranging from handloom, khadi, handicrafts, pottery, etc., to perhaps a few sophisticated, modern products like radio, television and photographic equipments, are completely left out. Workers in the unorganised sector of the economy, men as well as women, are outside the scope of the Factories Act, 1948, by which data is collected for the organised sector. Although some efforts have been made recently to collect information about the unorganised sector, they have not produced information on women's employment. The Cetrally sponsored scheme undertaken in the Fourth Five Year Plan was an ambitions attempt to collect statistics on small scale industrial units below the factory level. This scheme implemented with the combined efforts of the Ministry of Idustrial Development, Central Statistical Organisation and the State level authorities have reached the stage of a draft report. Unfortunately, this survey also did not collect separate data on women employed in this sector.

Opportunities in Public and Private Sector

If the inreasing number of women taking to work outside the home by itself is something to be happy about, there is much to crow about in India. The Census and other sources provide figures to prove this. As shown in Table I, the number of women employed by both the public and private sector together increased from 13.7 lakhs in 1962 to 21.9 in 1974. By absolute numbers, women employed by the private sector exceeded those by the public sector in all the years between 1962 to 1974. For example, public sector employment of women in1962 was 4.8 lakh as compared to 8.9 lakhs under private sector. By 1970, the figures were 8.1 lakhs and 10.8 lakhs respectively in the public and private sector. In 1974, they became10.8 lakhs and 11.1 lakhs respectively. But public Sector employment of women has shown a steady rise over the decade, while the rise in the Private Sector was just nominal and at times even showed a fall. Even if we go by the Public Sector, we should be careful in arriving at conclusions from the relatively higher rate of growth of women's employment. The 1961 data had omitted employment in the plantations which was subsequently added. Similarly, the 1966 figures included women employed in scarcity relief work. Still, it cannot be ignored that Public Sector has been offering greater employment opportunities to women in the past decade.

The small growth in total employment and the almost unchanging man—woman ratio in total employment are two other features that cannot be neglected. Owing to differences in coverage and response in the different years, there can be minor deviations from the actual situation. But on the whole, the trend shown by the figures that lead to Table I is reliable, even if it cannot be tested for its accuracy.

However the increasing number of employed women cannot be a matter of rejoicing unless we know something about the nature of work they are engaged in, their earnings, living and working conditions, etc.

A good deal of data is available on these points. Part of such information is given by the Direct orate General of Employment and Training (DGET) which has been conducting studies on the occupational pattern of employees both in the Public and Private Sector since 1958-59. All establishments in the Public

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Sector were covered in that year. Similar data were collected for the Private Sector in 1961. Since then, these occupational studies are being undertaken by the Department in alternate years, in the Public and in the Private Sectors.

Table II gives the distribution of the employment—total as well as women—among the major occupational categories. The occupational pattern of women are somewhat different in the Public and the Private Sectors. But they remain almost unchanged over the years in both the sectors.

Teaching, Nursing & Midwifery

The teaching profession absorbs the biggest proportion of women employed in the Public Sector. The distribution of women teachers display a descending order if we categorise them as primary and middle school, secondary, nursery and kindergarten and University teachers. Under another occupational group, "Professional, Technical and Related Workers", there are large numbers of women working as nursing attendants and related workers, midwives and health visitors, nurses, physicians and surgeons. Other numerically strong white collar women workers are typists and stenos, ministerial assistants and clerks, telephone operators, *gram sevikas* and village level workers.

The Private Sector has a sizable section of women employed as teachers nurses, ministerial assistants and unskilled office workers. But nearly 60 per cent of the total women employed in this sector are 'unskilled' workers as against about 25 per cent in the Public Sector. The next biggest percentage falls under the occupational classification, "Craftsmen and Production Process Workers", who work in such industries as textiles, food canning and processing, match making, tobacco industries, etc. It is in these two categories that women workers became the victims of discriminate wage policies and retrenchment.

Unfortunately, the DGET does not furnish data regarding wages and earnings, or on working conditions and related matters. Neither is there any other source from which we can get uptodate data on employment and wages in a comprehensive manner for both sectors. A general idea of the "status" of women regarding employment and wages was provided by the First and Second Occupational Wage Surveys conducted in 1958-59 and 1963-65. Although the information in these surveys are backdated, there is no evidence to indicate that the situation has changed in any significant way for the better since then. A third Occupational Wage Survey has been launched recently. However, there is evidence from the Labour Ministry and other sources to show that women's employment is on the decline in the Private Sector, especially in most industries which were "traditional" absorbers of women workers.

Table III shows the distribution of workers by sex under the major industry heads as given in the First and Second occupational Wage Surveys. The most important fact that emerges from these surveys is that when there is a fall in employment, (as in textiles, artificial manures and soap), it is the women who are affected

TABLE I. EMPLOYMENT OF MEN AND WOMEN IN THE PUBLIC AND PRIVATE SECTORS

(Lakh)

Year	Female		Male		Both Sectors	
	Public	Private	Public	Private	Female	Male
1962	4.8	8.9	69.4	42.7	13.7	112.1
1963	5.5	9.4	74.0	45.2	14.9	119.2
1964	5.8	9.4	78.7	48.4	14.2	127.1
1965	6 4	10.4	83 2	50.0	16.8	133.2
1966	7.2	10.3	86.4	50.7	17.4	137.1
1967	7.2	11.0	89.1	65.7	18.2	154.8
1968	7.5	10.8	90.5	54.5	18.3	145.0
1969	7.7	10.7	92.6	55.3	18.4	147.9
1970	8.1	10.8	95.4	56.1	18.9	151 5
1971	8.6	10.6	98.5	56.8	19.2	155.3
1972	9.1	11.0	103.0	56.7	20.1	159.7
1973	10.1	11.3	109.7	57.2	21.4	166.9
1974	10.8	11.1	114.1	55.8	21.9	169.9

Source : Directorate-General of Employment and Training.

TABLE II. WOMEN'S EMPLOYMENT IN THE PUBLIC AND PRIVATE SECTOR - OCCUPATION WISE (%)

Major occupational groups	Women		Total		Women		Total	
	1962-1963		1962-1963		1968-1969		1969	1969
	P.S.	Pr.S.	P.S.	Pr.S.	P.S.	Pr.S.	P.S.	Pr S.
1. Professional, Technical and related workers (excl. primary and middle teachers)	52. 2	4. 5	10. 6	6. 0	21. 7	9. 7	12. 1	8. 6
2. Primary and middle school teachers		2. 3	10. 7	1. 7	35. 4	6. 8	15. 2	2. 6
3. Administrative, executive and Management workers	2. 4	0. 1	5. 1	1. 6	1. 6	0. 1	5. 4	1. 8
4. Clerical and related workers (excl. Agr. and Plantation labourers)	7. 5	1. 2	15. 2	7. 3	13. 2	1. 9	14. 4	7. 8
5. Sales workers			0. 1	1. 1		0. 1	0. 1	1. 2
6. Farmers, fishermen and related workers (excl. Agr. and plantation labourers)	0. 5	0. 4	1. 9	0. 7	0. 3	0. 6	2. 2	1. 1
7. Miners and quarrymen	1. 3	2. 0	1. 0	4. 6	0. 7	1. 0	0. 5	3. 5
8. Workers in transport and communication occupations	1. 3	0. 1	8. 3	1. 5	1. 1	0. 2	6. 8	1. 5
9. Craftsmen, production process workers (excl. loaders and unloaders, n.e.c.)	2. 4	27. 9	9. 8	36. 3	0. 8	23. 8	10. 0	33. 9
10. Services, sports and recreation workers (excl. watchmen, chowkidars, cleaners, sweepers, watermen)	2. 2	0. 6	8. 5	1. 9	2. 2	0. 8	7. 8	2. 1
11. Unskilled office workers	3. 4	1. 3	8. 2	2. 6	2. 6	0. 8	7. 8	2. 8
12. Unskilled workers—others	26. 8	59. 6	20. 7	34. 7	20. 4	54. 8	17. 7	33. 1
Total number in lakhs	3.89	8.50	57.72	50.46	6.03	9.01	71.10	51.71

Source : DGET

most. On the other hand, when there is a rise in employment opportunities, the proportion of women workers does not always go up. On the contrary, as in cloth manufacturing, their share falls. The notable exceptions to these are bidi manufacturing and coal and mica mining. When total employment fell steeply in bidi manufacturing and mica mining, women's employment howeds a marked rise.

These facts were observed by the Occupational Wage Survey. But the report failed to give any reason for this phenomenon. The most commonly known reasons are that women were retrenched wherever wages rose on account of technological changes or trade union demands and where protective legislations demanded such amenities as maternity benefits and creches to working women. As such treatment is not normally and opely possible in the government and related sectors, it is necessary to examine what categories of women labourers are affected by fall in employment, lower wages etc. Though incomplete, it is again the Occupational Wage Survey that gives us an idea of the type of occupations in different industries into which women are generally recruited. For example, according to the Second Occupational Survey, the cotton textile manufacturing industries employed women in 4 out of 28 occupations and in jute textiles, 6 out of 37. The occupations were winder, reeler, sweeper, etc. In metal extracting and refining, manufacture of bolts, nuts etc; machine tools and cement, women worked only in 1 out of 20, 21, 27 and 37 occupations respectively, and that too as mazdoor or packer. This situation was true of most industries.

In bidi industry, where women's employment was rather large, they worked in 4 out of 11 occupations, as tobacco and leaf processes; sweeper, and bidi roller. Another industry almost entirely filled by women workers, viz. cashew processing, also employed women only in 10 out of 20 occupations.

The situation was not different in the plantations and mines. In tea, coffee and rubber plantations they were mainly employed in two or three types of work, as field or casual laboure, mazdoor and in residual occupations, while the manangese mines took them to 12 out of 28 occupations, mica mines employed them in 2 out of 20.

That this situation has not improved was revealed by a study initiated by the Committee on the Status of Women in India in 1973-74, covering a sample of 200 undertakings in ten public and private sectors.

Another tragic aspect of women's employment is that the very same persons absorbed into the lower levels of the production process are also subject to wage discrimination. The difference in the average daily wage rates fixed for men and women in certain selected industries and occupations is shown in Table IV. Even if the same argument can be put forward to show the physical incapacity of a woman as mazdoor as against man, one fails to understand how a woman can be less "efficient" or "productive." as a button fixing machinist.

It has to emphasised that all that we have discussed above relate to women in the "organised" sector. If the practice of relegating women to limited and lower levels of employment, discriminatory wage payment and retrenchment is so pronounced in this sector which is covered by certain labour legislations, the experience of the vast majority of women working in the unorganised sector will certainly be beyond description.

Why do more and more women go to "work" despite the discouraging and discriminating treatment meted out to them? Our existing state of information is certainly not in a position to answer this question. And it certainly raises the question beyond the realm of an economist or a policy maker. But it is something which demands the immediate attention of all scientists interested in social well being.

TABLE III. ESTIMATED NUMBER OF WORKERS AND PERCENTAGE DISTRIBUTION BY SEX

Industry	Estimated number of workers employed		Percentage of adults Women		Men	
	I Survey	II Survey	I Survey	II Survey	I Survey	II Survey
A. Manufacturing Industries, electrical, light and power station	2453.3	2569.5	13.5	11.3	86.5	88.6
B. Plantations	874.1	896.4	50.3	49.2	44.3	44.2
Tea plantations—	766.5	788.6	51.3	49.9	43.2	43.3
Coffee plantations	95.7	87.3	45.7	47.8	48.6	46.1
Rubber plantations	11.9	20.6	25.6	28.3	74.4	71.2
C. Mines	505.0	465.5	17.0	19.2	83.0	80.8
Coal Mines	352.8	383.0	9 8	16.9	90.2	83.1
Manganese Mines	89.8	39.4	44.6	42.6	55.4	57.3
Mica	22.7	11.5	3.7	11.4	96.3	88.6
Iron Ore Mines	39 7	31.6	26.4	20.0	73.6	79.9

Percentage of children is not given in this table. Hence women+men always does not make 100.
Source : Second Occupational Wage Survey.

TABLE IV : AVERAGE DAILY WAGE RATE (Rs.) FOR MEN AND WOMEN IN SELECTED INDUSTRIES.

Industry	Occupation	Men	Women
Match	Mazdoor	3.69	0.72
	Operator, labelling machine	3.89	1.07
	Dipper	1.62	1.17
	Packer	3.22	2.10
Cashew	Maistry	2.52	2.41
	Head load worker	2.24	1.40
	Checker	2.20	1.88
Tobacco	Checker	6.06	1.87
	Head Maistry	5.81	2.28
	Packer	3.10	1.64
Clothing	Tailor (specialist)	3.68	2.52
	Tailor (all round)	3.74	1.35
	Cutter (Hand Meistry)	6.48	1.55
	Button fixing machinist	3.22	2.53

Source : Second Occupational Wage Survey.

The Unwed Mother

G. RAVINDRAN NAIR

SHE LOOKS at the ceiling blankly, feeling the wrench of isolation and stigmatisation; snuggling to her lies a pink human form, the fruition of her surrender to a fleeting moment's temptation. Once she is out of the labour room, she can't face the world with the baby whose father is known only to her; she could have attempted foeticide, but the urge to preserve a life born out of a sweet dream is irresistible. Social mores against girls conceiving out of wedlock and the children born outside the marriage are cruel; parents desert them for besmirching their name in society and the poor hapless mother leaves the baby on the footsteps of a foundling home. The mother's plight is pitiable for she is looked down upon by almost everyone; in most cases, the mistake committed once gives her the rash courage to repeat it with all fatalism. In the rare cases, where the girl is determined to take up the challenge of living in a socalled civilised society, her life would be one of ordeal by fire. What happened to the thousands of women who became the rape victims during the reign of terror before the libearation of Bangladesh could send shivers down the spine. A bleak future looms before children born of such children or their mothers to blame in a situation not of their own making.

The attitudes towards the unmarried mother is based on fragile, but unreasonable ethical mores. She could be a victim of rape or incest or temptation, but the faceless society would not condone any human frailties. The consequences are grim for both the mother and the child, with both flung outside the pale of normal life.

Trauma and fear

With the violent dent on social mores the world over, we can no longer afford to stick to the equivocal norm that requires women to be chaste, but grants greater latitude to men. While the unmarried mother has to look after the child and bear the brunt of social oatracism, the father goes scotfree. This socially tabooed motherhood arouses in her deep emotions and anxieties, all at a time when she is estranged from her family or afraid to confide in any member of the family. Suddenly she is confronted with the problem of many vital needs—practical help, medical care, legal assistance, admission to a home, psychological understanding and advice.

There are many imponderables which hedge in the life of the unwed mother during this period of excruciating agony. In case she marries, will her husband ever accept the child and will the child's position in the family be equal to that of his half brothers and half sisters? In most cases, with the scars of the ignominious past sticking on to her mind, she may not marry or no man might dare to marry her. In such circumstances, the child might miss the several elements that contribute to the growth of wholesome personality including the vital presence of a father.

The family to which the girl belongs also undergoes a shock therapy. It regards the affair as a severe blow of social disgrace. Birth is often a welcome event in a family, but the 'illegitimate' child is denied this privilege.

Few are the homes in India which solely take care of the unmarried mother and her child. In Andhra Pradesh there is the Radhakrishna Home and there is a similar Home in Pandharpur in Maharashtra, both exclusively meant for unwed mothers. These institutions maintain absolute secrecy on those admitted; the hapless victims make use of the maternity wards attached to the institutions and once everything is over, it is left to them to take the children with them or not. The babies thus abandoned are taken care of for a short period and given over in adoption subsequently.

Rescue Homes

There are several women's institutions, rescue homes and rescue shelters whose activities cover a wide spectrum; welfare and rehabilitation of fallen women, destitute women, girls in moral danger and even unmarried mothers. Such institutions are to be found in some leading cities and towns in India run by well-known voluntary organisations. Christian missionary organisations have done some pioneering work in the field. This apart, in Bombay, for example, the Shraddanand Mahila-ashram tries to see to the welfare of "the fallen women, the deserted wife, the despised widow, the betrayed virgin, the neglected orphan and the unclaimed infant." Since its inception in 1928 this institution has rehabilitated more than 4,000 women in distress and as many number of deprived children. The institution also admits for deilvery, widows and unmarried girls. The foundling home here takes care of the babies left at the municipal hospitals, deserted near the garbage cans or on the seashore. The unmarried girls who opt to stay here are vocationally trained and sent out to become economicaly independent; some of them are even helped to secure suitable spouses. Similarly, there are several rescue homes in India which serve as bastions of hope to unwed mothers. They rehabilitate them either through reconciliation with the family or by marriage or through proper training or job placement. The children born to unmarried mothers are given away to adoptive families.

In India, the law provides that the putative father, if and proved to be the father of the child should pay for the maintenance of the child according to his financial status. The provisions of Hindu Law relating to 'illegitimate children' apply to those such children born of Hindu parents; to illegitimate children where the father is a Christian and the mother a Hindu and the children brought up as Hindus; to Jains, Buddhists Sikhs etc.

Before 1956, the mother was the lawful guardian of the child born out of wedlock. Where the father was

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known, he, however, had a preferential right. The Hindu Minority and Guardianship Act of 1956 now lays down that the father has no preferential right. The law also provides that illegitimate children are entitled to maintenance under section 488 of the Criminal Procedure Code. Besides, this there are some additional provisions for Hindus; under the Hindu Adoption and Maintenance Act 1956, illegitimate children are entitled to maintenance during minority. An illeglimate daughter is, however, entitled to maintenance even if she is a major, provided that she is not married and cannot maintain herself.

There are several media available for the rehabilitation of children born out of wedlock in India. The most primitive method is sending them to orphanages, but this is not the ideal method of rehabilitation. Over the last several years the practice of adoption has come as a great boon to those socially handicapped children. Childless couples also prefer to adopt such children whose ties are virtually severed from the past. The children, in their turn, know no other parental love and his world revolves round their adoptive parents. The tie thus formed is as the blood bond.

In the course of the last decade a new service known as Children's Village has also been developed in such major metropolitan regions like Delhi, Ahmedabad, Bombay and other places. These villages planned after the pattern of the original Austrian S.O.S. Children's Villages try to provide the congenial homelike atmosphere for socially handicapped children including the illegitimate children. The Village is studded with several cottages and the children have their own 'mother', "brothers", and "sisters", who all come there driven by the quick of fate.

Despite the existence of such services, the problems of motherhood and childhood out of wedlock have to be tackled on long-term basis. While trying to augment the quality and quantity of such services, the real solution of the problem lies in its preventive aspects. Healthy sex education, a checkmate on the growing permissiveness, greater attention towards children based on a splended blending of love and discipline are some of countersteps against any potential aberrations.

Among the advanced countries, Britain has taken tremendous strides in helping the unwed mother. The National Council for the Unmarried Mother and Child co-ordinate the work of various organisations and provides them a common platform; it endeavours to reform public opinion so that the problems raised by illegitimacy are better understood. The Council presses for legislativ reform and provision for social servie ces to meet the needs of the illegitimate child and his parents.

When the Council was formed in the wake of the First World War, the attitude towards the unmarried mother was still harsh and punitive and the child had little status. The council's efforts were directed at helping the unmarried mother gain her self-respect and become an accepted member of the community and giving the child the maximum change of normal growth. It was an unenviable task considering the severe hardships faced by the mother. The mothers were kept with their children with the resultant the mother was unable to work and support her child. The children were sent to foster mothers and mothers to employment. The council thought that it should make every effort to see that the mother and the child remain together and are treated as a unit, wherever pssible. This resulted in the establishment of homes and hostels for pregnant girls and unmarried mothers keeping their children. The Council also strove to better the status of the mother and the child, particularly in the matter of social legislation and saw to it that illegitimate children are legitimated by the subsequent marriage of their parents. This objective was achieved through the Legitimacy Act of 1959.

Apart from fighting for the legal rights of the mother and the child, the Council also acts as a counselling agency. Whether a mother should be persuaded to keep her child or not is decided by the Council purely on merits. There is little value in exerting pressure on the responsible mother to keep her child when she feels he would be better adopted, or in encouraging distraught mother to do so. The Council in Britain also receives applications for help from pregnant girls, their parents and from unmarried mothers from the world over. Deserted wives and other married women who are having an extramarital pregnancy are also offered help. Putative fathers who wish to help mothers financially or claim their rights to apply for custody of or access to their child, also apply to the Council for advice.

Britain has also given great stress on residential welfare work in relation to unmarried mothers. Expectant unmarried mothers do not go to these homes just because they are without shelter or because their families want them out of the way. The brief stay in a home gives them the much-needed relaxed atmosphere where emotional stress is not so immediate and where she can talk, when inclined, to those incharge, more freely and fully perhaps than she could do with her own people. If she has been nervous and isolated, the company of others in the same predicament could be consoling.

In Sweden there are virtually no "illegitimate children". Children enjoy equal rights, whatever be the social background of their parentage. For the Swedish welfare society the term illegitimacy is an anachronism. This highly progressive stance by Sweden in born out of their greater candour and knowledge in regard to sexual questions; the citizens are open-minded and tolerant regarding sexual morals and behaviour.

Child Welfare Guardian

Every child born out of wedlock is assigned a child welfare guardian appointed by the Child Welfare Board who will try to safeguard the interests and rights of the mother and the child. Ths guardian sees to it that the father acknowledges his paternity and that he agrees to help the child financially. If no such financial assistance is forthcoming for the mother from the father, the Swedish Government would step in.

The Swedish society also provides the much needed care during pregnancy for the unwed mother; help is also offered during child-birth and the postnatal period. Even as early as 1950's hospitals in Sweden received instructions to address the unmarried mother by the title "Mrs". It is not very difficult for an unwed mother in Sweden to get married. But the general tendency is for the parents not to force a daughter into marriage because she is expecting a child. Instead, the daughter is encouraged to keep her child, complete her schooling or vocational training, and perhaps at some later date get married to a man whom she really loves.

Against the lengthening shadow of permissive society, the borderline between legitimacy and illegitimacy is being subtly erased. Some of the phenomena like motherhood and childhood outside marriage may become stark realities in a world moral structure are cracking at a fast pace. □

Women in Hindu Mythology

(*Sketchis by Pushpa Jain*)

LOPAMUDRA, AGASTYA'S WIFE

A THOUSAND YEARS AGO the citybred Indian, the Nagarika, was a man of the world and a sophisticate. And his woman was his most accomplished companion. We find evidence for this in the erotic sculptures of Khajuraho, Puri, Konarak and elsewhere, in the cave paintings of Ajanta and in the erotic classics like *Kamasutra*, *Kokasastra*, *Anangaranga*, etc.

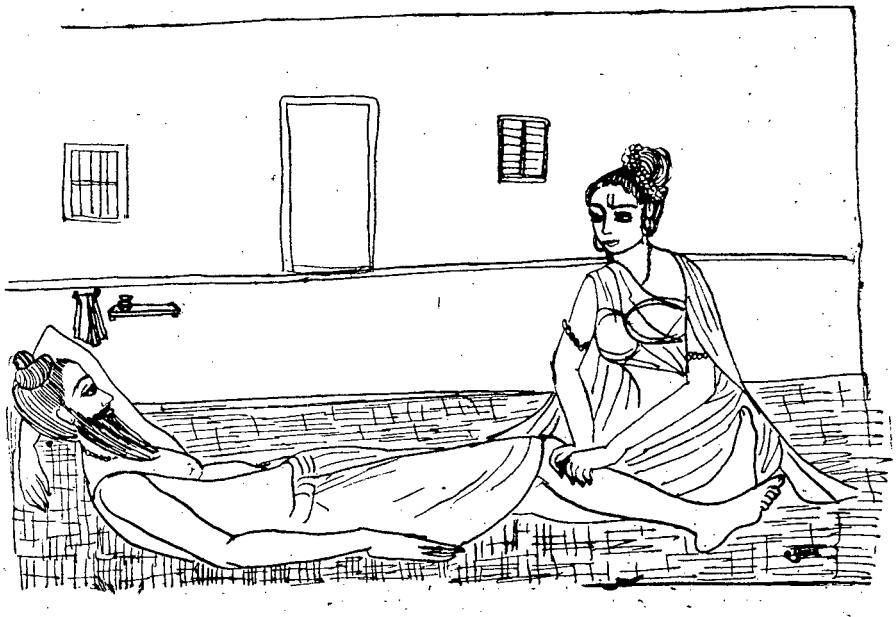
In deportment, personal adornment, in speech and action, the Nagarika reflected his breeding, wealth, cultivation, and a propensity for the natural enjoyment of the good things of life. Sex was certainly a part of the *dolce vita*. That sex was considered to be a part of normal life is borne out even from the Vedic times. We have the well-known story of Agastya and Lopamudra given in the fourth Adhyaya of the Second Ashtaka of the Rigveda.

Agastya, one of the seven principal rishis, was approached in sorrow by his dead forefathers to persuade him to take time off from his spiritual preoccupations and take a wife from whom he could beget a son, because without a male offspring they would be denied their salvation.

Agastya agrees, but in his eyes no woman appears suitable. He therefore, sets about creating a beautiful bride for himself, incorporating in her the finest and most desirable features from animals. He names her Lopamudra, meaning one who has appropriated from Nature the best qualities it can yield.

The Rishi smuggles the child into the palace of the King of Vidarbha so as to ensure her proper upbringing. When she comes of age, he claims her for his wife from the reluctant king.

But the Rishi loses himself again in meditation and finds no time for his beautiful wife. Lopamudra spends her time ministering to her husband's needs. Twelve years pass by and she continues to be a virgin. One night, Agastya is woken from his sleep by the scalding tears falling from his wife's eyes. He asks her the cause of her grief. Her answer, recorded for posterity by two of the Rishi's disciples who overheard it, (according to the ancient texts), is given below in Max in Mueller's translation:



"For many long years in the past,
both by day and night
And in the mornings, have I wearied
myself serving you;
Now decay impairs the beauty of
my limbs;
What then? Let husbands
approach their wives."

The ancient sages who attained
truth,
And talked of truth with the very
gods,
They did beget children but did not
Break their penance;
Therefore, should the wives be
approached by their husbands".

YAGNAVALKYA'S ADVICE TO MAITREYI

From the Brihadaranyaka Upanishad, Chapter II, Section 4

NOW when Yajnavalkya was going to enter upon another state, he said: "Maitreyi, verily I am going away from this, my house (into the forest). Forsooth, let me make a settlement between thee and that Katyayani (my other wife.)".

Maitreyi said: "My Lord, if this whole earth, full of wealth, belonged to me, tell me, should I be immortal by it?"

"No", replied Yajnavalkya: "like the life of rich people will be thy life. But there is no hope of immortality by wealth."

And Maitreyi said: "What should I do with that by which I do not become immortal? What my Lord knoweth (of immortality), tell that to me."

Yajnavalkya replied, "Thou who art truly dear to me, thou speakest dear words. Come, sit down, I will explain it to thee, and mark well what I say."

And he said: "Verily, a husband is not dear, that you may love the husband, but that you may love the Self, therefore a husband is dear.

"Verily, a wife is not dear, that you may love the wife; but that you may love the Self, therefore a wife is dear.

"Verily, sons are not dear, etc.....

"Verily, wealth is not dear, etc....

"Verily, the Brahmin-class is not dear etc.....

"Verily, the Kshatriya-class is not dear, etc.....

"Verily, the worlds are not dear, etc.....

.. "For when there is as it were duality, then one sees the other, one smells the other, one hears the other, one salutes the other, one perceives the other, one knows the other; but when the Self only is all this, how should he smell another, how should he see another, how should he hear another, how should he salute another, how should he perceive another, how should he know another? How should he know Him by whom he knows all this? How, O beloved, should he know (himself), the Knower?"

KALI, INCARNATION OF TIME

DURGA saved the gods from the asuras not once, not twice but many times. Once she had as an opponent a fierce asura general by the name of Rakta Beeja, or Blood Seed. Every drop of blood that fell out of Blood Seed's body gave birth to a thousand asuras as powerful as he. They were born mature and fully armed, and they began fighting the very second they were born. Durga's anger knew no bounds. Her brows darkened. And from within her forehead sprang a fierce goddess. She was Kali, the Black One, She was very dark, with long loose hair flying about her, and four arms. In one of her hands she had a giant sword, with the other she held the severed head of a man, she encouraged her worshippers with her other two hands. She wore earrings of two corpses, one for each ear. She had a necklace of severed heads of men. Her only garment was a skirt made of the severed hands of men. Her tongue hung out, her eyes were red.

With a frightening roar she leaped among the asuras. She was energy and speed and frenzy personified. She smote the demons with her giant sword. As soon as drops of blood fell, she drank them all and ate the asuras who were born. The blood ran down her face and breasts.

At last she killed Blood Seed himself and ate him. No asura was left alive. In the frenzy of her victory she began to dance. She danced and danced and danced. The more she danced the more she forgot herself. The earth quaked unceasingly. It appeared that the whole universe would be destroyed. At the request of the frightened gods her husband, Shiva, begged her to stop. But Kali paid no attention to him. Shiva then lay prostrate before her and put up his right hand, asking her to desist. She put a foot on one of his legs and the other on his breast. Thus she stood for a moment and then began to dance frenziedly on his body. It was the Dance of Time, for Kali is also Time. At last she realised what she was doing. She was ashamed and stopped her dance. The world became normal once more.

'DANCE OF SHIVA' : Oroon Ghosh

FROM ONE WIFE TO ANOTHER

ONCE Satyabhama said to Draupadi, "Tell me, how is it that your husbands always listen to you? I would like to know, for I would also like to keep Krishna always under my control."

Draupadi replied, "Satyabhama, you are your husband's favourite. So I don't understand your question. But I will tell you what I do. I always try to look after my husbands. I bathe, eat, and sleep after them. When they come home, I look after them personally and make them comfortable. I keep the home clean, give them tempting food, do not scold them, do not go out too much, or get angry with them too much. When I was queen at Indraprastha, I kept all the palace accounts and managed the servants. The Pandavas did not have to bother about such things. I got up the earliest, went to bed the last."

Then she came close to Satyabhama touched her cheek affectionately, and said, "Never go to your husband except after dressing yourself elegantly. Sit by his side, be friendly, be a companion to him. Give him the food that he likes, show him that you are always thinking of his welfare. If Krishna tells you something, don't tell it to others, even if it is not a secret. Be nice to his friends, cold to his enemies. When there are other men, be careful and think before you say anything."

Before the ladies could discuss further how to control their husbands the men came on the scene, for Krishna wanted to bid Draupadi good-bye. Satyabhama embraced Draupadi and said, "Your husbands will get back their kingdom again."

Krishna also consoled her and then left with Satyabhama.

—From the Mahabharata

VIRTUE, THE BEST CHASTITY BELT

"I consider that the strict seclusion of women is a mere social custom, or rather a folly, produced by jealousy. It is of no use whatever. Women of good family are guarded by their own virtue as by their chamberlain. Even God himself can scarcely guard the unchaste."

—Princess Ratnaprabha in "Kathasarit Sagara" (11th century)

JABALA, MOTHER OF SATYAKAMA, THE TRUTH SEEKER

ONCE UPON A TIME Satyakama, son of Jabala, addressed his mother and said: "Mother, I desire to acquire the knowledge of Brahman, of what family am I?"

She replied: "I do not know, my child, to what lineage you belong. In the days of my youth I worked as a servant in a number of places, and you were born to me. I cannot therefore say of what lineage you are. I am Jabala by name and your name is Satyakama. These are known facts and you may say that you are Satyakama Jabala.

Then the boy proceeded to Gautama Hamadrumata and pleaded before him thus: "Respected Sir, I have come to you in search of knowledge. Will you accept me as your pupil?"

Sage Gautama queried: 'Of what family are you, my dear?" and Satyakama replied. "I do not know, sir, of what family I am. I asked my mother and she told me thus: 'In my youth when I worked as a servant I begot you. So I do not know your lineage.' I am Jabala by name and you are Satyakama' I call myself Satyakama Jabala, Sir".

Gautama, greatly pleased, said to the boy: "You have spoken the truth and so you are a Brahman. Go and fetch fuel, my child, I shall initiate you....."

—Story from Chhandogya Upanishad

SITA UNDERGOES THE FIRE TEST

THEN, in the presence of the monkeys and the titans, he said to Sita, whose eyes were as large as lotus petals, her dark hair plaited, and who was endowed with faultless limbs—"What a man should do in order to wipe out an insult, I have done by slaying Ravana for I guard mine honour jealously! I was careful to wipe out the affront paid to me completely and to avenge the insult offered to mine illustrious House.

"A suspicion has arisen, however, with regard to thy conduct, and thy presence is as painful to me as a lamp to one whose eye is diseased. Henceforth go where it best pleaseth thee, I give thee leave, O Daughter of Janaka. O lovely One, the ten regions are at the disposal; I can have nothing more to do with thee! What man of honour would give rein to his passion so far as to permit himself to take back a woman who has dwelt in the house of another? Thou hast been taken into Ravana's lap and he has cast lustful glances on thee; how can I reclaim thee, I who boast of belonging to an illustrious house? Go where thou desirest!"

On this, that noble lady, worthy of being addressed in sweet words, hearing that harsh speech from her beloved lord ... wept bitterly, and she resembled a creeper that has been torn away by the trunk of a great elephant.

Maithili, the daughter of Janaka, overwhelmed with shame, pierced to the heart by that arrow-like speech, shed abundant tears. Thereafter, wiping her face, she addressed her husband in gentle and faltering accents, saying:

"Why dost thou address such words to me, O Hero, as a common man addresses an ordinary woman? I swear to thee, O Long-armed Warrior, that my conduct is worthy of thy respect! It is the behaviour of other women that has filled thee with distrust! Relinquish thy doubts since I am known to thee! If my limbs came in contact with another's, it was against my will, O Lord, and not through any inclination on my part; it was brought about by fate. That which is under my control, my heart, has ever remained faithful to thee; my body was at the mercy of another; not being mistress of the situation, what could I do? If despite the proofs of love that I gave thee whilst I lived with thee, I am still a stranger to thee, O Proud Prince, my loss is irrevocable!

"O Lion among Men, by giving way to wrath and by thus passing premature judgement on a woman, hast thou acted like a worthless man.

"I have received my name from Janaka, but my birth was from the earth and thou hast failed to appreciate fully the nobility of my conduct. O, thou who are well acquainted with the nature of others, thou hast had no reverence for the joining of our hands in my girlhood and mine affectionate nature, all these things hast thou cast behind thee?"

Having spoken thus to Rama, weeping the while, her voice choked with sobs, Sita addressed the unfortunate Lakshmana, who was overwhelmed with grief, saying:

"Raise a pyre for me, O Saumitri, this is the only remedy for my misery!"

Hearing Vaidehi's words, Lakshmana, the slayer of hostile warriors, a prey to indignation, consulted Raghava with his glance and by Rama's gestures he understood what was in his heart, whereupon the valiant Saumitri, following his indications, prepared the pyre.

None amongst his friends dared to appeal to Rama, who resembled Death himself, the Destroyer of Time. None dared to speak or even to look upon him.

Thereafter Vaidehi, having circumambulated Rama, who stood with his head bowed, approached the blazing fire and, paying obeisance to the celestials and brahmins, Maithili, with joined palms, standing before the flames, spoke thus:

"As my heart has never ceased to be true to Raghava, do thou, O Witness of all Beings, grant me thy protection! As I am pure in conduct, though Rama looks on me as sullied, do thou, O Witness of the Worlds, grant me full protection!"

With these words, Vaidehi circumambulated the pyre and with a fearless heart entered the flames.

SITA IS RESTORED TO RAMA

Pavaka, addressed Rama, saying:

"Here is Vaidehi, O Rama, there is no sin in her! Neither by word, feeling or glance has thy lovely consort shown herself to be unworthy of thy noble qualities. Separated from thee, that unfortunate one was borne away against her will in the lonely forest by Ravana, who had grown proud on account of his power. Though imprisoned and closely guarded by titan women in the inner apartments, thou wast ever the focus of her thoughts and her supreme hope. Surrounded by hideous and sinister women, though tempted and threatened, Maithili never gave place in her heart to a single thought for that titan and was solely absorbed in thee. She is pure and without taint, do thou receive Maithili, it is my command that she should not suffer reproach in any way."

These words filled Rama's heart with delight and he said to the Chief of the Gods: —

"On account of the people, it was imperative that Sita should pass through this trial by fire, this lovely woman had dwelt in Ravana's inner apartments for a long time. Had I not put the innocence of Janaki to the test, the people would have said: "Rama, the son of Dasaratha is governed by lust ! It was well known to me that Sita had never given her heart to another and that the daughter of Janaka, Maithili, was ever devoted to me."

Having spoken thus, the victorious and powerful Rama, full of glory, adored for his noble exploits, was re-united with his beloved and experienced the felicity he had merited.

The Ramayana *trans. by Hari Prasad Shastri*

MARRIAGE HYMNS FROM THE VEDAS

HOPING for well-being, offspring, good fortune, wealth, and becoming obedient to thy husband, gird thyself in order that thou attainst immortality.

Even as the mighty river wins supremacy over its tributaries, so be thou supreme, having repaired to thy husband's abode. May you be supreme over thy father-in-law, supreme among brothers-in-law, supreme over thy sisters-in-law and also supreme over thy mother-in-law.

Let God Savitr grasp thy hand, let King Soma bestow on thee offspring and let Agni, Jatavedas make thee longlived with the husband.

Atharva Veda : XIV. 1

Husband to wife, at the girding ceremony

I gird thee with the milk of the earth, and with the milk of the herbs I gird thee. I gird thee with progeny and with riches: being thus girded, may thou win strength.

Here am I, and my "she" art thou: chant am I and verse art thou; heaven am I and earth art thou; let us, two, come together and let us generate progeny.

Atharva Veda : XIV. 2

IGNORAMAN

Wants to Know

if

1975 will end up

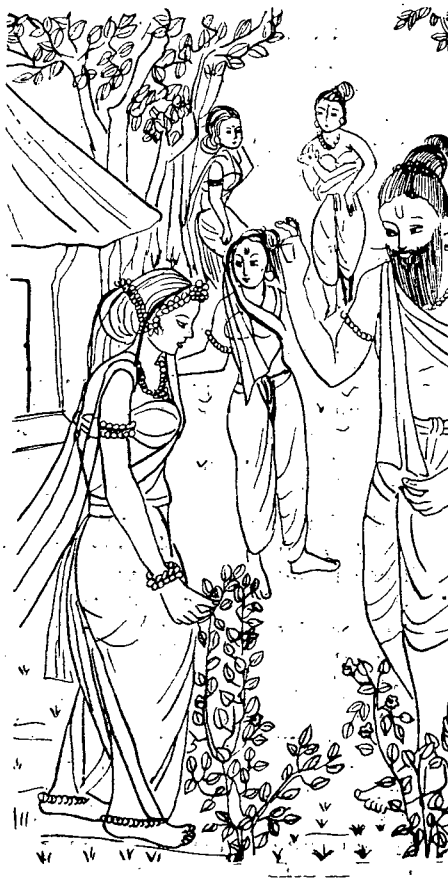
as International

WE MEN Year

SAGE KANWA'S ADVICE TO SHAKUNTALA

Honour thy betters; ever be respectful
To those above thee; and, should others share
Thy husband's love, ne'er yield thyself a prey
To jealousy; but ever be a friend,
A loving friend, to those who rival thee
In his affections. Should thy wedded lord
Treat thee with harshness, thou must never be
Harsh in return, but patient and submissive.
Be to thy menials courteous, and to all
Placed under thee, considerate and kind.
Be never self-indulgent, but avoid
Excess in pleasure; and, when fortune smiles
Be not puffed up. Thus to thy husband's house
Wilt thou a blessing prove, and not a curse.

—*Kalidasa's* **Abhijnana Shakuntalam**
Trans by M. Monier Williams



DO PREGNANT WOMEN KNOW THIS ?

THE Maternity Benefits Act, 1961, the Employees' State Insurance Act, 1948, and the Factories Act, 1948, confer the following benefits on pregnant working women who work in factories, mines and other establishments as specified in the Acts :

(1) Six weeks before delivery or miscarriage and six weeks thereafter she is entitled to leave on the average daily wage she was earning.

(2) She is entitled to a medical bonus if no prenatal, confinement and postnatal care is provided by the employer free of charge.

(3) If she does not avail herself of leave of absence, her employer cannot require her to do work of an arduous nature which is likely to interfere with her pregnancy or otherwise adversely affect her health.

(4) In the case of an illness arising from her pregnancy, delivery, miscarriage or premature birth of the child, the maternity leave of six weeks can be extended by a maximum of one month.

(5) On returning to work after the birth of the child, the mother is allowed two breaks of 15 minutes' duration each for nursing the child until it is 15 months' old.

(6) In order to qualify for maternity benefit from the employer, the woman should have worked for 160 days or more in the year preceding the expected date of delivery.

Photo : S. Kumar

DO WE NEED A WOMEN'S LIB

MEN SHOULD HELP THE LIB

IT MAY SEEM paradoxical but nevertheless true that in a country where women enjoyed a very high status in the home as well as outside in ancient times and which has a lady Prime Minister now, the need for a Women's Liberation Movement today cannot be disputed.

(a) India is one of the most backward countries in women's education, better only than Afghanistan, Nepal and Pakistan;
(b) Women share only 2.9 per cent in household decision-making, the rest being shared by men ;
(c) While the national literacy percentage stands at 29.3, the percentage of literates among women is only 18.5, and among males 39.5;
(d) While in the 1961 census 28.0 per cent of the women population was recorded as workers, the proportion declined to a mere 13.2 per cent in 1971. It is however said that this decline was largely due to a stricter application of the definition of a "worker";
(e) 90 per cent of the total working women worked as unskilled labourers and even these are paid less than men; and
(f) Life expectancy of women is shorter at 45.6 years than the national average of more than 50 years. Besides, infant mortality is much higher for girls than for boys.

One may say that statistics tell only a part of the story. That is true, no doubt. However, it is because of the facts implied in the statistics, coupled with our tradition, that we generally look down upon women. Hence the need for a women's lib movement.

It is only where the motives of women and the attitude of men towards women are concerned that the controversy arises. Here it may be pointed out that women should not understand by liberation the adoption of a masculine role, for it is not only undesirable, but also impossible; liberation does not mean the elimination of a "woman's essential womanliness". She has to learn to "reassess herself and understand her capabilities".

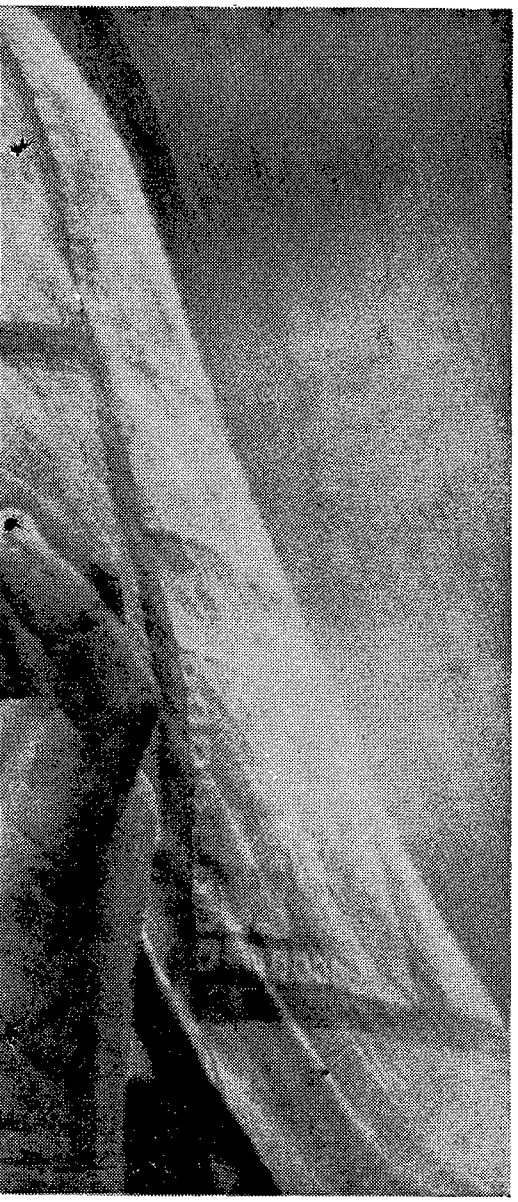
Secondly, women should not become more and more immoral as they rise in their education levels.

On the part of men, it is time they recognised that they have a very important role, perhaps more important than that of women, to play in the liberation of women. They (men) should stop maintaining double standards. While in reality they exploit the natural simplicity of women for petty pleasures, they criticise in public those very women whom they exploited.

—Y. Amar Sing
B.A. III (Eco. Hons),
Roll No 157, Imphal College,
Imphal-1.

FIRST PRIZE: Rs. 25

Students' Forum



IN INDIA?

WE DO NOT NEED IT

IN INDIA, a woman occupies the position of Prime Minister and she has been the leader of India for the last several years. Indian Constitution prohibits all discrimination by sex. Woman enjoys equal rights with Man. She has voting rights and can contest elections.

From time immemorial, the role of woman in India had been that of a dependent bordering upon bondage. Child marriage, dowry, polygamy, purdah system, denial of divorce and education had reduced her to the position of a chattel and confined her to home.

Today, equal pay for equal job and legalization of abortion have ushered a new era for her. She has a right to divorce. She can now inherit property and adopt a child. Education has broadened her view beyond the hearth and home. Woman generally tops the list in a competitive examination. By making all round progress, she has made all exploitation by man a

Lower status for women hampers the growth of the human race as a whole

—INDIRA GANDHI

WOMEN are not weak in themselves but because they are so handicapped from birth, by customs and social attitudes, they have no chance of developing their innate strength. Women's emancipation owes much to the support, and in India even public initiative, of men leaders. However, a large number of educated men in all countries are treating this year as something of a joke.

People talk and write as if every woman was all woman and every man all man. But we know that each individual is a combination of male and female genes in varying degrees. How can we consider woman's evolving role without noting the changing role of man? In the affluent countries and amongst our own urban upper classes, man is no longer the hunter, the protector, the sole provider. Altering social and economic conditions have been affecting sex roles. Because of the complexities of urban living and the need for population control, large families are being discouraged. Motherhood no longer has its old halo, nor is it so time-consuming. Hence, whether we like it or not, the more sophisticated a society, the greater the blurring of the hitherto clearly defined characteristics of the two sexes.

The consciousness of rights is not confined to women. It is part of the struggles of all those who have not had a fair deal. But it would hardly be correct to assume that men are liberated. Who have men to blame except themselves? They are imprisoned by their commitment to the status quo and the fear of change, especially in a manner which may threaten their supposed superiority.

Men, and unfortunately even women, are conditioned by our men-oriented society. We tend to accept norms which men have made without questioning their validity. Instead of imitating men, should not the norms themselves be examined in depth? Women should have equality of opportunity and programmes for their health and education, employment and better conditions of work. But surely this is not the sum total of what we ask. So long as woman has within her the archaic seed of dependence, no legislation or society can ensure her rightful position. Status is the outcome of history, heritage and social and economic environment.

There is confusion as to the meaning of equality. Is it a question merely of laws, jobs or sexual mores, the emergence of a pattern of unisex where male and female are indistinguishable in their responses, actions and contributions, or is it an opportunity for partnership in a joint endeavour? In Tagore's play, 'chitra', the heroine says to her husband: "I am ..... No goddess to be worshipped nor yet the object of common pity to be brushed aside like a moth with indifference. If you desire to keep me by your side in

the path of danger and daring, if you allow me to share the great duties of your life, then you will know my true self." A lower status and lesser opportunity for women hampers the growth of human race as a whole. It affects the lives of men themselves.

Mankind is confronted with cataclysmic challenges. Man has viewed the earth as a unitary globe from the heights of space. Yet on earth he seems unable to take a total view. Needless hardship persists. There is poverty and its attendant problems. There is growing violence. There is a dehumanisation of institutions and sterile cynicism. In the search for immediate palliatives, let us not allow the human dimension, the spirit of man, to diminish. Can woman offer perception and compassion and a total vision as regards the equitable distribution of the world's resources of knowledge, goods and services, so essential to survival ?

What is her reaction to the cosmic need of preserving the purity of the earth, of its waters and its air, of saving species of animals, birds and plants from threatened extinction and above all, what can woman do to bring about harmony within nations and peace in the world? If her responses are trivial, how can she rise in stature ? Stature is a state of being, a matter of confidence and responsibility. Woman's stature will be determined by her capacity to see with clarity and sympathy, and by her will to act.

INDIRA GANDHI

—Message to the U. N. Women's Conference in Mexico.

memory of the past. All avenues are now open to her talent. She can't be forced back to a doll's house. Anatomy is no longer her Destiny. She has liberated herself from social codes, taboos and economic domination. There is no need for borrowing the Western concept of Women's Lib in India where ancient civilization and culture have always honoured women.

—Miss Vijaya Shastri,
M.A. Part I (Economics),
Nagpur Mahavidyalaya,
Nagpur.

SECOND PRIZE: Rs. 15

NOT THE BRA-BURNING LIB MOVEMENT

THE ANSWER is both 'yes' as well as 'no'. Yes, because nothing less than a movement can pull Indian women out of the ghetto in which they have been living for centuries. And no, because American style of women's lib movement is not the solution.

While analysing the 'women's lib movement, in the sense in which it is used and understood in western countries, it would be interesting to quote Mrs Golda Meir who, when Prime Minister, was asked what she thought of women's lib. She replied sharply "you mean those nuts who burn their bras and walk around dishevelled and hate men? They are crazy. How can one accept crazy creatures who deem it a misfortune to get pregnant and a disaster to give birth to children?"

Women's lib movement in India has been initiated at various points of time in the past by various persons like Raja Ram Mohan Roy, Swami Dayananda and lately by Mahatma Gandhi but It lost its initial force and direction by the inertia of Indian society—so much so that even the normal forces emerging from the process of socalled modernisation have been able to dig only skindeep and that too in peripheral cases only.

Therefore, shying alway from a women's lib movement by closing our eyes to reality by and deluding ourselves with boasts of our great cultural heritage or fearing rebellion in our kitchens is not warranted. On the other hand the women's lib movement in India should not make mockery of itself by throwing away their bras or demanding doles for the services rendered to their husbands. It should take off from the ground, as is where is.

—R.C. Awasthi
C/o. Dr. V.P. Sharma,
ESI Dispensary Oil Mills, Modinagar (UP)
Pin-201204.

THIRD PRIZE: Rs. 10

YES

NO PLACE FOR TENNYSON

Some are resolutely "for", others just as resolutely "against", some are amused, others irritated. But no one can remain indifferent to this woman's International Year—a year which is provoking articles and speeches, demonstrations and counter demonstrations.

We cannot forget that girls will be the guardians of home life, the mothers of future generations. We do not believe that a woman has no other life than rearing a, family. Swami Vivekananda opines that women are the sources of strength, they are not "son-manufacturing" machines. "Back to the kitchen" is as meaningless a cry as "back to the village". We should never say "go back", because time never goes back. Always our cry should be "go forward and onward".

The uplift of society depends on the harmonious development of all its constituent elements. Man's progress depends on woman's—and is a part of it. "The Woman's cause is man's", says the poet. Women have been admitted to the same social and political rights as men. These rights can be freely exercised only when women are educated. Men and Women should participate at all levels of national, local and private life not as equals but as partners. The promotion of a few women is not the promotion of women in general which should be the goal of modern advanced world.

Let Tennyson's lines,

"Man for the field and woman for the hearth
Man for the sword and for needle she
Man with the head and woman with the heart.
Man to command and woman to obey".

be in literature only. Our plea is—Both to command and both to obey.

—Prasanta Banerjee
2nd year, B. Com.,
D.H.S.K. Commerce College,
Dibrugarh (Assam).

CERTAINLY, YES

Today Indian society is changing fast. Women are participating in all activities. Women given equal facilities with men can intelligently and beneficially exercise their rights and discharge their responsibilities like men. In the domestic circle, too, now they are no longer regarded as chattel. Women of distinction have figured all through the periods of history and at present women are as much part of the nation as men and there is no reason why men alone should enjoy liberties.

Mothers are makers of the nation. They have a vital role to play in the destiny of the nation and indeed of mankind.

The relevance of International Women's Year (1975) in the Indian background has deeper meaning. India being a democratic country, the constitution prohibits discrimination on the grounds of sex or on any grounds. Despite this progress there is a wide gap in the opportunities and facilities available to women as compared to men. For example, the number of women unemployed, illiterate and unskilled are greater than men. There are a host of customs, regulations and practices which are discriminating against women.

Thus a vast field lies before us to make them equal partners in social, economic, political and cultural development.

Vinaya Kumari K.
Kasaragod
(Kerala State)

Adjustments to such a transition takes time. Established old customs die hard. Unless and until the attitudes of men change, the women's lib in this country would undoubtedly remain a cry in the wilderness.

—**Chinta Janardhan N.**
K.S.G. Marg, Bombay.

A WOMAN IS ALSO A PERSON

It is unfortunate that some men ridicule the women's lib. It is the militant aspect of women's lib as it prevails in the western countries which has made the movement suspect in some men. For instance in some western countries, women demonstrated their ire by making a bonfire of their bras, taking out nude processions, and throwing their cosmetics into drains. These violent reactions were directed against the exploitation of women by men. But our women would have to chalk out their movement keeping in mind their cultural setting.

Men decry this movement on the ground that it is against womanhood. In my opinion, the term 'womanhood' is a hypocritical expression. It is only women's lib movement which can elevate the woman as a person, not as a 'commodity'. Mrs. Gandhi in an interview to 'Femina' expressed the view that she is not a woman—but a person. Is it not a bold expression?

Apart from this, liberty is an ideal in itself. According to Lokmanya Tilak, liberty is the birth right of a human being. We accepted this concept in the pre-independence era. Then why should we raise our eyebrows at the launching of the women's lib movement now?

—**Tapan Kumar Chakravarty**
L.N. Mithila University,
Darbhanga.

YES, MAKE IT MEANINGFUL

Unlike in the West where Women's Lib Movement in essence springs from the disillusionment of women being treated as mere sex-symbols, our movement has to be more subtle. Although we have in India a woman occupying the highest office, a large number of women are still down-trodden and are not able to rise to any level mainly because many men still have to undergo great changes in their attitudes to women.

Unless the interaction of the two groups is well balanced, we cannot build a new India. The oft-quated "Frailty, thy name is woman" is becoming more and more untrue when we think of the young Japanese mother who reached Everest recently. men's direct and indirect actions influence men and the destiny of the country.

Words fail to express the sorry plight of Indian women. They are offered like a commodity, with dowry, in marriage. Their condition is worse in the villages. They have to subject themselves to illiterate men and detestable customs. They even can't dream of higher values of life.

Let Indian women, as in the West, enjoy real rights and develop their personality. It requires complete change in our socio-Economic setup through education, and enforcement of existing laws.

I do not suggest giving up our good heritage. Nor should it be at the cost of the men.

It is high time we had a Women's Lib. Movement.

—**Jai Bhagwan Bhoria,**
M.A. II (Economics)
Regional Centre
for Post Graduate Studies,
Rohtak (Haryana).

SHE IS THE "HALF" AND NOT THE "BETTER HALF"

India needs a women's lib but not of the western kind, which is negative, escapist and destructive. The difference between the women of the East and West is basic and cultural. We have enough reasons for our own women's lib movement.

Our women should be freed from illiteracy, the dowry and the, 'Burka' and from outmoded attitudes. Woman in our culture is called 'ardhangini', a supplement to man and so our women's lib movement must be in keeping with this social, cultural and religious ideal.

—**Sushil Kumar Shyamal,**
RD and DG College,
Dept of English,
P.O. Monghyr,
Dt. Monghyr (Bihar)

ONWARD WITH COURAGE

Liberation means different things to different people. Definitely, Western oriented concepts concerning equality for women are meaningless in a country like ours. Liberation of women depends on social revolution which will bring about effective and relevant changes in social attitudes and values.

It is doubtful whether an overhauling of the educational system, equipping women to fight for their rights is necessary.

As it is, the Indian constitution forbids discrimination against citizens on grounds of sex.

Inspite of all such written laws it is a known fact that women in India are treated as inferior to men in many ways. Women

WE NEED THE SPACE AGE OUTLOOK

All the women in India are free only in the eyes of law. In most of the areas of life men are dominating women. To them women are inferior. Though we have entered the space age our thoughts are still of the ADAM-EVE period. I would however like to say that they are not slaves and our country is neither South Africa nor America.

Every year many teenage girls are committing suicide due to many troubles like the dowry system, unequal status, labour discrimination, unequal pay and no-security to their life. So we need a women's liberation movement to drive away these evils and to get education. We need women's liberation but it should not upset seriously our heritage.

—**S.A. Srinivasa Sarma,**
III B.Sc. (Statistics)
P.S.G. Arts College,
Coimbatore

MOVEMENT SHOULD BE RATIONAL

Women are part and parcel of society. For the development of society it is necessary to let the women play their role for the benefit of society.

But in India all women are not allowed the freedom they deserve. It is true that mere enactment of law cannot remove the difficulties of women. The society should feel the difficulties of women and should try for removel of these difficulties. A society in which ignorant, illiterate and cunning people live cannot remove the difficulties of women. So a women's lib movement is necessary to remove the ignorance and illiteracy of the people. But this movement must be a rational one and should not bring harm to society in any way.

—**Miss Anima Bhattacharjee**
B.A. Final (Economics Hons),
Barpeta (Assam).

OUR EQUALITY IS ONLY ON PAPER

Indian women are not treated as equals but as second class citizens following Manu's comparison of women with "Shudras" (low-castes) and "Pashu" (animals). The male-dominated Indian society follows the dictum "keep your wife either pregnant or in the kitchen". Indian woman is still a slave to her home. Her anatomy is her Destiny. Majority live in perpetual subser-

Lib Movement is, therefore, a must for India.

—Miss Sumati Shastri
B.A. Part II,
Nagpur Mahavidyalaya,
Nagpur

THE ONLY CORRECTIVE

Yes, India needs a women's liberation movement. In this country with an old civilization, fifty per cent of the manpower is woman-power. Still, in the 20th Century the women are treated as personal property. They have little say in social, economic, political and cultural affairs of the society and of the country. In panchayats they are completely ignored and to Lok Sabha and Vidhan Sabha they are elected solely as a concession by man. They have limited opportunities in the services. This is because society always emphasized that boys should receive the best of education and opportunities for betterment. Of course, in our country we have a woman prime minister. Womenfolk in India generally have faith in man but many a time this faith is shaken when man deserts her. We need a women's lib to correct this situation of inequality.

—Kum. Rekha Dashora
1st year Science,
Meera Girls College,
Udaipur (Raj.).

START IT IN VILLAGES

Indian women form half the total population. Whether they contribute to growth and progress or whether they are a drag on society depends on whether they are treated as equals or as subordinate to men.

Our women's literacy standard is very low as well as their social status, barring a limited number. The rural women who form nearly 60% of women population are in the grip of traditional customs, taboos etc. Their contribution to the various walks of life is negligible.

So, if we start a women's liberation movement, it should be mainly concerned with rural women. It is meaningless to arrange huge processions, and shouting slogans in the streets of cities. Better to adopt a massive step by step movement. It needs the support of men to succeed.

—M. Ramasubramanian
Final B.A,
Edayapatty
Alanganthur
Madurai (Dt)
Tamil Nadu

WOMEN'S LIB WILL BENEFIT ALL

It is good that the women of India have made up their minds to be equals with men! Women liberation movement or the bra burning movement does not advocate aggressive feminism but a gentle yet firm one that envisages the spread of the feminine qualities of love, tolerance and dedication.

Women in the West fought for and protested for legislative reforms. With a surfeit of legislative reforms, the Indian women are still one of the most downtrodden. If a woman is called 'Abala', it is not because she is weak in herself but because she is so handicapped from birth by customs and social attitudes that she has no chance of developing her innate strength. Marriage remains a woman's only destiny and from this flows the offensive custom of dowry. The celluloid image of the long suffering heroine, which is criticized for its perpetuation of archaic norms, emerges as the reality even after independence.

Let us call for a change of mental attitudes and behaviour towards the role of women in society in order to raise their status. By doing so, women are not thinking of themselves but of all mankind. Men will not know themselves truly until they allow women to develop their full potential.

—Devinder Sharma
B.Sc. (Ag) Final Year,
College of Agriculture,
Palampur

OUR WOMEN ARE NOW MORE VOCAL

In the past women's feelings about their role in Indian society generally, and their treatment with regard to employment specifically, and permissiveness largely were neither strong nor vocal. There was no world-wide organised movement of any consequence among women with the specified goal of changing women's role in society from which the Indian women could draw inspiration. Women's place in society and in the home may have limited their horizons but it has not generated fears for the stability of society.

A women's resolution has never been a real threat, as I see it. This state of affairs is certainly changing and India needs it. Women as a group are becoming increasingly frustrated. In India there is a new "revolution of rising expectations" among the urban, educated upper middle-class women. As educational opportunities have substantially improved, career and employment opportunities have also expanded, new goals have been established, and the possibilities of real progress towards these goals has appeared. Such a situation engenders a sense of deep dedication in those involved. They can be expected to fight with a religious fervour to achieve their newly defined goals synchronising the role of motherhood with that of a bread winner. Indeed, I believe a strong feeling of frustration exists among many of our most intelligent and successful career women, most of whom are not even a part of any organised Women's Lib Movement. If, as they seek a greater degree of equality, these ostensibly quite peaceful women do not meet with appropriate responses, more and more of them may seek to change the system in highly unconventional and abrasive ways.

—Adige Dinkar Rao
A-179, Defence Colony,
New Delhi

AGE OF TRANSITION

"Social progress can be measured precisely by the social position of the fair sex", said Karl Marx.

Since the 19th century the demand for equal rights for women has become part and parcel of social and political struggles. It is paradoxical that the women of Western nations should launch a women's lib. They have already been emanicipated from the drudgery of house-hold and are equal in the intellectual field.

The position of women in India is different. Lower wages for equal work, uneding kitchen drudgery and child care are the tasks assigned to them. Very few are in jobs to support their family. Who cares for their feelings? Does the society give proper treatment to them? What amount of hardship do they undergo from cradle to grave? Girls are at a disadvantage in the marriage market, compelled to bring dowry and jewels with them. A married woman is only a machine, though in theory she is her husband's half.

What is the fate of a young widow? Does the Society pay any attention to her sufferings? Widow remarriage is still frowned upon.

We are living in a transitionary stage of our history and women of this generation are not tradition-oriented and custom-bound to the extent of the previous generation. They have still to find a new scale of personal values that go well with the changing values of society. This demands a good deal of moral strength on her part and she has to also be careful.

—P. Kalaimani
83, Thiruvalluvar St.,
Katpadi (TN).

YES, TO MAKE HER A BETTER HOUSEWIFE AND CITIZEN

Indian women do need a boost to their status and so I think the women's liberation movement is necessary in India. Their place is supposed, traditionally, to be in the 'home and the hearth'; but here also, she is mostly a puppet.

Women's Lib will also help remove the impression that women are less efficient than men. This has been proved to be absolutely baseless.

Even in this advanced age, a woman's movement is very restricted because of the presence of anti-social elements all around. So, where is the chance of free and full expression of herself? Eve-teasers and the like can really prove a great menace.

So, Women's Liberation Movement is also necessary to rid our society of the evils of population explosion, illiteracy, insanitary living conditions, ill-health, poverty and the like. A woman by participating as an active member of the infrastructure of society must not and cannot afford to be just a spectator of life—she has got to participate actively. This she can only do when Women's Liberation Movement makes headway.

Women's liberation movement in India will, I am sure, enable the Indian women to make a good blending of her dual role of housewife and citizen.

—Miss Dolonchapa Dutta,
St. Mary's College, Shillong.

WOMAN FORCE STILL UNTAPPED

The term "Women's Lib" means, equal privileges for women with men. In this nuclear age, we have seen that the woman is capable of doing almost everything that men can do.

There were, and still are, many women with potential talents, but for want of adequate scope, many of them cannot blossom into their best.

India is now passing through an economic crisis from which women cannot and should not keep aloof. If they have to join the mainstream of development making equal contribution, they have to have equal opportunities. This will call for their emanicipation.

Indian women, specially in the villages, are steeped in ignorance and superstition and the purdah veils this evil to maintain the dominance of men. It is the women

even more then men perhaps, who can strengthen and enrich the moral and cultural fabric of society.

Even a few years back, "Women's Lib" was a dream in our country, but now, the enlightened section of the society has started to feel that "Women's Lib" can be a dynamic force for the nation's progress.

—Keya Sen Gupta
Sr. Mary's College, Shillong.

NO

THERE IS A CASE FOR MEN'S LIB

This is the International Women's Year, celebrated everywhere. It is like a boon for the women, particularly in India.

It is true that alongwith 'Adam', God created a helper and a friend, 'Eve'. But aside from helping Adam, she has also created problems for him. It is quite possible that some men are thinking of a Men's Lib Movement now.

Women are thought to be weak and delicate as compared to men. This may be due to the physical aspects and social functions of women. To combat this, there started a movement in the West 'The Women's lib Movement Indians have a characteristic way of copying anything which seems new. Is this justified? Absolutely not! Because the condition in India is such that we can't think of such a movement. It is my opinion that women are getting many facilities in all walks of life as compared to men. "Ladies First" is a common courtesy. Seats are reserved for women candidates in various academic and technical institutions. Separate ladies' compartments and sections in theatres, hotels, buses and where is it not? You may have to line up for getting tickets for a show, but women enter from backdoor and get it first.

It seems strange that we should talk of a women's lib movement in India. When they are not being oppressed, what is the need for such a movement? Women can be seen in all the walks of life in India, from beggars to millionaires, from criminals to police-officers, from labourers to IAS officers and from actresses to Prime Minister. When they can achieve all this, why the 'Women's Lib', I want to Know.

—Sudhirendar Sharma
College of Agriculture
Palampur (H.P.)

WOMENS SHOULD ATTRACT NOT ATTACK

We all know that Indian women cherish the value of chastity, purity, responsibility and sanctity. Though some of them are converts to western and modern attitudes, there are millions of them who hold their ancient culture in great respect. Indian women are given the top-most place in many fields. There is no need for a movement like, Women's Lib' conducted by American women.

Besides, Indian women do not seek to overreach their legitimate level. 'Women's Lib' may be suitable and possible in foreign countries. In the field of education and many industries the female sex can compete with the male sex. But women are praised for their inward beauty and motherly love and homely life. Even 'Nature' itself has created the woman to be the fairer and weaker sex. Hence female sex is meant to attract but not attack.

Some may be as energetic as men but all cannot become equal to men in every respect. In India, a large number of women are innocent of most of the modern ideas. Foreign women are dominated by shattered feelings and confused aims which will affect their spiritual poise.

I have to say that the feminist ideals of the West are foreign to the spirit of Indian Women's Movement, whose leaders always kept in mind the ancient ideal and value of Indian culture the high spirituality afid the spirit of service and devotion that women symbolise.

—Miss M. Thamilmani,
I.A.S. Pre-Examination
Training Centre Nandanam.
Madras-35.

INDIAN WOMEN ARE AS FREE AS MEN

Movement for the liberation of women stems from the belief that women have been enslaved by the prevalent social norms. Let us see whether this is so in India. Unlike in the West, Indian women have not been denied the right of equality in any sphere of life or kept under strict 'purdah' as in Arab countries. There are numerous examples to show that women have adorned various important posts in India. What to talk about the right of equality in the social and political life, women have always been respected and worshipped in India, not considered merely as an object of carnal pleasure. Even since ancient times the power and prowess of women was recognised and given due place.

In our country women need not and they in fact do not fear male supremacy. They know that they have been called upon to perform those functions for which they are anatomically or otherwise most suitable. And whenever situation has so demanded, menfolk have sought their help in tackling the social problem. Our culture and civilization are such that women never feel themselves as subordinate or subdued. Moreover, Sita and Savitri exemplify the Indian ideal of womanhood. Therefore there is no need of women's lib in India. Our women have always been "free" and respect worthy.

—Anil Jayaswal
Patna University, Patna-4.

LIB WILL ADD TO CHAOS

Does India need a Women's lib movement? 'No, certainly not!, would be my answer.

I do not find an iota of reason for India to be rocket with such an exotic and unnatural movement. Socially. politically economically, educationally and in other fields the women are on equal footing with men. The purdah system has become a thing of the past and today women are not confined to household drudgery alone. They are pursuing distinctive careers e.g. as administrators, doctors, engineers etc. in society. They have the right to vote and to be voted for. As such we have to be proud of our women. They have the right to any economic activity. Their education is not being left out in the cold, but they are being encouraged to become scientists, philosophers, artists, writers etc.

It is her natural duty to care and nurse the children and to serve her spouse. If she wants to go against nature and usurp the status of men the result will be chaos and life would be dull and brutish without maternal love and care. So I would appeal to all women to help in bringing about a higher standard of society than ruin what little standard we have achieved.

—Tesengo G. Momin
St. Antony's College,
Shillong, Meghalaya.

WHAT MORE DO INDIAN WOMEN WANT ?

Women constitute the backbone of subsistence farming and actually they do physically arduous tasks. Most of the world's women-those who are in developing countries where around 80% of population is rural, have always done and are doing the most back-breaking work without even the most rudimentary equipment.

It does sound crazy, at least for India, where people enjoy full freedom giv en by the constitution and where a lady is the Prime Minister, that we should start a lib movement. Think of great names in history like Razia Begum, Kittur Chennamma, Rani Lakshmi Bai, etc., and we can well be proud of our heritage.

On the other hand, women in U.K. were not allowed to open a Bank account until 1890, and American women were not allowed to smoke in public until 1905 or so. In India, side by side with these inspiring examples we also have Manu's ancient dictum on women which still influences the thinking of many men. We know India has a great cultural heritage and we should maintain the spirit of this heritage. What we see in urban and semi-urban areas in India are women who are getting the same treatment as men in the field of education and job opportunities. What else does she need? If she still has other demands to make, are we not proceeding towards doom ?

To quote yet another example, what we see in urban and semi-urban areas are women who are treated on equal terms both in the field of education as well as job opportunities.

—N. Ramesh Kumar.
39/59 Sannidhi Ftree),
Basvangudi,
Bangalore.

IT IS ABSURD

Liberation means freedom from all kinds of bondage. Then why do women clamour for special rights, when both men and women suffer from the same kind of bondage?

In India the scope for women in the political area is self-explanatory. With our Prime Minister being a woman and a number of women having distinguished themselves in political and other fields, any cry for women's lib is absurd.

Consider the economic aspect. Chances of employment for women are certainly bleak. But how do women expect to get a better bargain. when the number of ua-employed men in India is so large?

It is only socially that women in India have been subjected to great humiliation. The 'Dowry' practice is a niasta ce. There is hardly any security for the working woman. Condition of the womaa in the 'slums' is even worse. Her 'quota' of ill treatment from the 'man' is increasing, not decreasgin. A large number of them are forcibly driven into prostitution. If

women's lib is needed in India, it is only to uplift them socially. A movement is not necessary.

Kishan Kumar Mishra
Cuttack-7 (Orissa).

THE LIB CRY COMES FROM THE ELITE

In the ancient period women enjoyed equal status with men in India. Only in later times did she become a second rate citizen.

It is only since the last century, that the position of women became somewhat better due to the efforts of socio-religious reformers and the result of education and industrialisation. In India respect to womanhood has always existed. It is only a few, misguided, ignorant people who treat women otherwise. Our women. particularly the urban, enjoy equal rights. Our constitution guarantees freedom and equality and right to property. A good number of women occupied and are occupying high posts and status in political, economic and social fields and in all other fields. Our Prime Minister is a woman.

Our independence is still young and along with men the women's lot has also to be improved. So India does not need any special Women's Lib Movement. The demand is only confined to urban elite women, who, forgetting their rural counterparts, are trying to imitate meaninglessly everything Western and are forgetting the cultural values of Indian women.

The woman of today is far better off than the woman of pre-independence days Still, we need some improvement. The first thing that we should do is to remove the psychological insecurity from the minds of Indian women. Second thing is that the attitudes of some males towards women should change. Education and employment opportunities should be widened. Some of the urban women go for employment only and seek better financial security, whereas the poor/rural women cannot get even menial work. So employment should be given only to the needy and on verification. Some women themselves feel inferior. So the mass media like movies, TV, radio, and press should educate the people to better the lot of Indian women.

—Sunki Laximinarayna
285, Mahakalinagar,
Bombay-25.

WE DO NOT NEED IT

By 'womens' lib movement', we mean the agitation by women to secure equal rights and freedom from men.

Ours is an agricultural country with 70 per cent living in villages and with no education. Women's education has not been encouraged since times immemorial. They are not really interested in the day to day affairs of the country. Both men and women work in their fields throughout the day and women do not find time for struggles and agitations. We are divided in our religious beliefs and by caste barriers. It is not easy to find a common platform for the lib movement.

S. Satyanarayana.
ELURU
West Godavari Distt

INDIA DOES NOT NEED IT

Instantly, the theory behind the women's lib, is to give them equal rights with men. But the question is: in what sectors are women not enjoying equal rights? The Indian Constitution has declared them equal. In practice, however, see women working shoulder to shoulder with men, whether it is for tilling, loading, machine-handling, etc. or in high offices or in politics. The inspiring example of Prime Minister Indira Gandhi is there before our very eyes. She has set an example to women everywhere. In a country where a lady is the PM, what is the sense in complaining that women are not enjoying equal rights? Essentially, India has no need for a women's lib. movement.

Kuldeep Kumar
Pan Bazar. Gauhati (Assam).

MEN'S ATTITUDE MUST CHANGE FIRST

Legally, women are equal to men in India. But socially and economically they are unequal. The fate of a large number of women is decided by social customs. Majority of women are economically dependent on men.

The concept of society in India is quite different from that of the western countries. Women's Lib Movement is western in conception and this does not fit into our approach. The movement's impact is confined to a certain class of women in India. Further, the Indian women do not change by putting on mod dress.

Women as persons are equal but, but in fact they are different in many ways. There are certain obligations which flow from this difference between the sexes. One cannot eliminate the role of a mother or sister. As far as equality is concerned, men and women should be on par. For achieving real equality our social attitudes should change. Institutional equality along with mental equality must come. Therefore, the fight for equality cannot succeed unless the psychology is changed.

Men have only one attitude towards women which need not be expressly mentioned. The women's Lib Movement cannot succeed unless and until wrong notions from the minds of men are removed. Therefore, India does not need a Women's Lib Movement. The only thing needed is mutual understanding between men and women.

Pradeep Kumar
Plot. No. 33.
Sri Krishnanagar
Patna-800001 (Bihar).

OUR URBAN WOMEN DON'T NEED IT

Of course, India needs emancipation of women from a conservative social structure, specially in rural areas. But certainly not a liberation movement, which represents fanaticism and an irrational approach.

From what does an urban woman want to liberate herself? She has all the liberty that men have. Women are working in offices, factories, in politics, in social service, in education. Name any branch of life in urban India and you will find women working there. No doubt the ratio of working women is far less as compared to men. But it is not due to discrimination against them; they themselves do not come forward to work. The larger proportion of women working in metropolitan cities supports this view.

But the portrait of rural India is certainly different. Here, society and jobs are both divided along the lines of sex. Women are practically confined to agricultural labour. In society also they do not enjoy the same status and freedom as men do. It is here that emancipation of women from conservative concepts is needed-bu t not a so called liberation movement.

—Nandni Mehra
XI, St John's School,
VARANASI

AN ELITE AND SELFISH DEMAND

The status of women in India is not, constitutionally inferior. The institutional climate is making it so. It can be observed that no woman with equal abilities and competing spirit is bereft of opportunities which are open to men. The prevailing Indian atmosphere is conducive for the enhancement of the status of women. In rationing queues, in buses and everywhere they are commanding the respect which they deserve. The percentage of female children from recent statisties is showing an increasing trend, and employment opportunities for them are equally expanding. Such being the case, where is the need for a women's liberation movement the precondition for which is a legal inferiority for the sex? The cry for the lib is motivated by the selfishness of a few elite educated women who aim at political favour and influence.

If at all women's status is not upto the mark anywhere, I feel it is because of the inability of women to get rid of their inferiority complex, a hangover of tradition. Solutions like massive participation of ladies in day-to-day affairs, education programmes like functional literacy programmes (proposed in V plan) publication of literature to educate common women, will be more appropriate.

When India is facing numerous problems like strikes, bandhs, frequent agitations, indiscipline of work-force etc. women lib movement will be more a headache to the administration.

B. Kamaiah
S.V.U. College Hostels.
Tirupati (A.P).

THERE IŚ NO NEED FOR IT

It must be remembered that Indian subcontinent consists of different religions, customs, habits, tongues, traditions etc. Indian religious societies are bound to customs and tradition more than others, and it is not easy to eradicate them.

If human life can be compared to a cart with two wheels, one is the husband and the other the wife. As long as these two wheels are moving smoothly, life will move smoothly. It must also be remembered that both wheels of the cart should be similar in all respect, and which of these wheels is superior and which inferior? We can hardly answer this question. Therefore from the society's point of view men and women should have equal freedom and opportunities.

In modern days both men and women work together and compete in almost all the fields. It cannot be denied that women are generally unfit for many outdoor activities in which men excel.

It serves no purpose to criticise older people or the values they cherished. In the primitive stages of history women also had equal freedom with men. If they lost part of it, it also was a part of the process of civilisation itself. Both in the primitive society as well as the very modern society women have equal rights with men. But the attitudes governing primitive and modern societies to freedom and life differ. There is no need in India to start a special lib. for women.

—G. Chandra Sekaran
Saidapet Vellore-632012.

(Continued on page 48)

Shriman Doormat Mathrubhutham

TRIVADI

The scene is the living room of the Mathrubhuthams, an affluent couple living in South Delhi. It could be any time; this is a play for all seasons! At start, the front door opens and Mr. Mathrubhutham walks in, briefcase in hand. He has come after work and is very tired. He sees that his wife is on the phone. He sits down wearily, proceeds to remove his coat, tie etc.

Mrs. M:. . .You know about *him*. Incompetent. Sullen. Moody. You don't know what I go through day after day. The problem is, he never listens to you. You could go on and on, and on and on..for ages..literally ages..and all he'll do is stare at you open-mouthed. A big gaper, that man, the biggest you ever saw. If he were only a little intelligent—a little intelligent is all I ask, heaven knows—but there, what's the use?.. Yours is exactly like that? Don't tell me! Poor dear, I know what you must be going through. Thank the lord, we have our work. Otherwise we should go mad. Stark, raving mad..

(Mr. Mathrubhutham coughs once, twice, thrice, Mrs. Muthrubhutham turns around, notices him; looks at him as if he were a stranger, As recognition dawns,—and it does so slowly—she turns to the phone again.)

Mrs M: I'm sorry. I was interrupted. That one coughing? No, it wasn't one of the children. They wouldn't dare. That was Mr. Mathrubhutham. He's just got back..I know it sounded funny but it's his way of drawing attention to himself. Can be a baby sometimes. A real big baby! Okay, then, see you tomorrow! What do you mean, where? Don't tell me you've forgotten! At Annapurni's place? Yes, yes. The Society for the Prevention of Cruelty to Caterpillars. Three O'clock! Bye!

(She puts the receiver back on the hook, then turns to her husband):

And what brings you back so late?

Mr. M: I couldn't get a scooter.

Mrs. M: So what did you do? Stood there in the middle of the road, gazing at the stars?

Mr.M: As a matter of fact, I did. Was almost knocked down by a speeding lorry.

Mrs. M: I see!

Mr. M: And a cyclist carrying a charpoy!

Mrs. M: And a cyclist! Oh my god, have you no consideration for me? The last thing I want to see in the papers is that my husband has been knocked down by a passing cyclist. A cyclist with a charpoy! I'd never hear the end of it in the Ladies' Club.

Mr. M: If you hadn't taken the car..

Mrs. M: All right, blame me. Blame me for everything. You get knocked down by a cyclist..

Mr. M: I wasn't. The charpoy grazed me, that's all.

Mrs. M: Please spare me the details.

Mr.M: I hope you've finished with the car. Because..

Mrs.M: I haven't. Chuchi-Chichi's nephew is coming down from Simla and her car is in the garage, so I've loaned her ours.

Mr. M: Chuchi-Chichi? Someone we know?

Mrs.M: (Mimicking) Someone we know. My god, this man sits there and asks if Chuchi-Chichi is some one we know!

Mr. M: Oh yes, of course..

Mrs. M: Who is she?

Mr. M: (*weakly*) I don't know.

Mrs. M: That's the trouble with you. You don't read the magazines.

Mr. M: I'm sorry... but I'm famished.

Mrs. M: So?

Mr. M: I thought..I thought may be you can give me something to eat.

Mrs. M: I come home tired from presiding over the women's liberation meeting—and you want something to eat.

Mr.M: Didn't you tell Narayan to cook anything?

Mrs. M: Narayan isn't here. I've loaned him for half a day.

Mr. M: To Chuchi-Chichi?

Mrs.M: No. To Padmini Padmanabhan's aunt who lives in Karol Bagh. She's having a guest tonight. Poor thing!

Mr. M: Well. Perhaps just a cup of coffee..

Mrs. M: You know where the kitchen is.

Mr. M: (*Rising*) Well.

Mrs.M: And don't make a mess of things. Narayan likes the kitchen clean. I wouldn't want to upset him.

Mr. M: Talking of Narayan, that was no way to speak of him. You know, your description of him.

Mrs.M: How did I describe him?

Mr. M: On the phone! You said he was incompetent, sullen and moody. You said he lacked intelligence.

Mrs. M: Oh that?

Mr. M: It isn't right. He's quite smart really

Mrs.M: (*Laughing*) I wasn't talking about Narayan.

Mr.M: Fine, that's all right then.

Mrs.M: I was talking about you.

Mr. M: Me? But that wasn't..I mean, that wasn't very kind.

Mrs.M: It's the truth, but...

Mr.M: Incompetent?

Mrs.M: Yes. The whole world knows it.

Mr. M: Sullen? Moody?

Mrs M: (*Gently*), Oh, come on! Don't act so injured. Now, run along and make yourself some coffee. And while you are about it, get me some too, I haven't eaten a thing in thirty-three minutes.

Mr M: (*Going*) I'm quite competent, you know. And unsullen. And unmoody. (*Suddenly stopping*) Who's going to cook dinner?

Mrs M: If you can't do me a little favour and cook a little something, we'll have to eat out. I'm all fagged out.

Mr M: (*Softly*) Doing what? Burning your bras?

Mrs M: What was that?

Mr M: Oh nothing.

Mrs M: I heard something about bras.

Mr M: (*Retreating into the passage*); Nothing, nothing.

Mrs M: Men—they all have a one-track mind!

(*The phone rings*)

Yes! Yes, yes. How are you Nalini? Where did you disappear?

Shri Trivadi is a Free-lance Journalist, New Delhi.

I tried to phone this morning. Three times! What? Why don't. you speak louder—can't hear you at all..Ah, that's better..yes, I heard about that. But have they decided where it is to be? ..Bangalore. Oh, I should just love to go to Bangalore ..Are they really thinking of asking me to read a paper? How nice! I should love to..I shall start dictating it rightaway..No, no. I haven't got a steno or anything but my husband is here.

No, he doesn't know shorthand but he has a good handwriting.

No, he won't mind it at all.. He can be coerced sometimes, like all men, but we'll see..Hello, hello! The damn thing's got cut off. (*Dialing*): Three-eight-seven.. engaged! You dial three digits and it's engaged already. (*Tries a few more times, then gives up*). Delhi telephones!

Mr. M: (*Entering*) I can't find the sugar.

Mrs. M: It's in the tin marked "Turmeric".

Mr. M : I see. (*He is about to go*)

Mrs: M: An exciting thing has happened. The International Women's Union is to meet in Bangalore. And I'm to read a paper on the Husband's Role in Women's Emancipation. Isn't that wonderful!

Mr. M: Bangalore? That means you'll have to go there. Or—you could get someone to read out your speech?

Mrs M: What nonsense! It's an international conference. Not one of your South Block meetings. I must be there! I hear it will come on TV!

Mr. M: There's no TV in Bangalore.

Mrs. M: Don't be silly. It will be shown in Arizona.

Mr. M: That's a desert.

Mrs. M: Or Milwaukee, or something. That's where the President comes from.

Mr. M: How long will you be gone?

Mrs. M: What do you mean, I? You are coming with me!

Mr. M: Me! (*Weakly*) When is it?

Mrs. M: September—second week.

Mr. M: That settles it. I have a meeting with the Steel people. Can't get out in August. Or September. Or October!

Mrs. M: I don't know what you'll tell the office, but you are coming. The Steel people aren't more important than women's emancipation.

Mr. M: There's been a circular. Nobody to get out of headquarters unless absolutely necessary. Austerity, you know.

Mrs. M: If women's emancipation doesn't seem to you to be absolutely necessary, all I can say is..(*Phone rings*). Oh, must be Nalini...(*Picking up the receiver*). Hello, Nalini? No! Who is it? For Mister Mathrubutham? No, he isn't here yet.

(*Puts down the phone*)

Mr. M: But I am here!

Mrs. M: It was probably from your office.

Mr. M: It may have something important.

Mrs. M: Don't I know? You and your office—and all those endless conversations!

Mr. M: You might have let me talk.

Mrs. M: No fears. I have to have the line free for Nalini. Poor thing, she'll be trying to get me. The least we can do is leave the phone alone for a few minutes.

Mr. M: But the office! It may have been the Minister's PA! I've been wanting an appointment.

Mrs. M: The minister will have to wait, that's all..You seem to have forgotten all about the coffee. I told you the sugar is in the turmeric tin.

Mr. M: I tried the tin marked salt.

Mrs. M: Don't be ridiculous. That's tea!

(*Mr. Mathrubhtham laughs. Mrs. Mathrubhutam looks sharply at him*).

Mrs. M: Did I hear you laughing?

Mr. M: No.

Mrs. M: That's better. Incidentally, there's something I want you to do for poor old me.

Mr. M: Take down your speech? I heard you telling Chuchi-Chichi..

Mrs. M: That wasn't Chchi-Chichi. Nalini!

Mr. M: I heard you telling her that you would dictate to me...

Mrs M. : (*Cajoling*) Do I *ever* dictate to you, darling? I only make requests—that's all I ever do.

Mr. M: And your request is: take your speech down in my beautiful handwriting? About how you won't be a man's slave?

Mrs. M: Yes, but later. Now, I was going to say something else.

Mr. M: What?

Mrs. M: You won't be offended?

Mr. M: (*Suspicious*): What is it?

Mrs. M: It's just a thought, of course. But I know you'll agree.

Mr. M: (*Even more suspicious now*) What is it?

Mrs. M: I want you to change your name.

Mr. M: Change my name? Now?

Mrs. M: Before the international conference.

Mr. M: But why?

Mrs. M: It's so old-fashioned!

Mr. M: May be, but I have got used to it.

Mrs. M: Make it something really modern.

Mr. M: Like what?

Mrs. M: I leave it to you but I think Shatragughan Sinha sounds nice.

Mr. M: Good god!

Mrs. M: Or anything else for that matter. As long as it isn't Mathrubutham, it's all right.

Mr. M: But why?

Mrs. M: Because it's part of my name, too. That's why.

Mr. M: I don't understand!

Mrs. M: It's so difficult to pronounce. And people say it in different ways. You know what they call you in your office?

Mr. M: No, what?

Mrs. M: Bathroom. That's what they call you. Bathroom!

Mr. M: But it isn't Bathroom! It's Mathrubutham. Short for Mathrubutheswaran. (*With self-pity*) I've given up everything.. everything. Now you want me to give up my name as well. It isn't possible.

Mrs. M: Oh yes it is! I have checked. Just an announcement in the Gazette.. and you pay a certain fee..

Mr. M: I won't.

Mrs. M: You will. You have just decided.

Mrs. M: I haven't.

Mrs. M: You have, dear. And that's what I like about you. You take the right decisions! So quickly too!

(*The phone rings. And the curtain falls—mercifully*).

STUDENTS' FORUM

(*Contiuned from Page 45*)

LIB IS NO ANSWER

Womenhood in India symbolises love, grace and charm. Women remain in the background, yet it is to them that our society owes so much, as they wield a mighty power by their influence over their husbands and children. History unfolds before us instances of women achieving great distinction in fields previously reserved exclusively for men.

The women of India, having gained recognition in fields of politics, science, education, sports and other activities in the pre-women's lib era, can surely do without the help of such a movement. Further, there are some physical restrictions which the womenfolk can never overcome and hence in those spheres they should give in gracefully. No doubt our society imposes certain restrictions on the women. But is Women's lib the answer? Cannot the problem be solved by some other means?

We are the weaker sex and why not give a chance to the gallant men to show their chivalry ?

Debarati Dutta.

Shillong (Meghalaya).

PLANT BREEDING FOR HIGHER PROTEIN

The recent discovery that Opaque-2 and Floury-2 genetypes in maize are associated with a high lysine content represents a major breakthrough in the development of cereal varieties with a desirable protein quality. This will have far-reaching effects on improving the nutritional levels of man.

DEVINDER SHARMA

IN INDIA, as well as in several other developing nations, there is much protein malnutrition in addition to insufficiency of calories. As crops are grown in humus-deficient soils, with the aid of increasing quantities of chemical fertilizers, the crops become increasigly deficient in proteins, vitamins and minerals. This has been proved repeatedly by comparative analyses.

Protein content in corn and other crops have often dropped even more remarkably than in wheat. According to the United States Department of Agriculture, during the period 1940 to 1969 the yield of wheat increased and protein content dropped from nearly 19 percent in 1940 to an average of 10.5 percent in 1969. This is one reason farmers today have to use larger quantities of grain to feed livestock than they had to in the past.

You are what you eat. If you eat foods that lack in nutritional value, your body pays the penalty. Plants and animals raised on eroded and depleted soils are inferior producers of foods. And such foods result in sick, degenerate and disease-prone beings.

"The most serious loss resulting from soil exhaustation", say, Mickey in his *Man and the Soil*", is not quantitative but qualitative. It has to do with the quality of life the soil supporters. Much remains to be done, in the study of the relationship of the soil to the mineral and vitamin requirements of human diet, but much has been done. And what is known points unequivocally to the fact that deficient soils produce deficient men."

The baby will not have good bones if fed on milk deficient in calcium and phosphorus. You need to feed more greens to makeup the carotene and Vitamin A deficiency in cow's milk. An adult will not built muscles if fed on grains from leached and eroded soils, devoid of protein-building minerals, vitamins and iron.

Recent genetical tools have helped us to recombine efficiently the genes present in the naturally existing populations of crop plants. With the wide array of techniques for the manipulation of both the morphological and physiological traits of a crop plant now available, scope exists for tailoring a crop plant to the needs of a specific purpose.

science

Breeding for higher protein would increase the nutritional value of the crops. The possibility of increasing the protein content of maize by breeding has been demonstrated at the Illinois Agricultural Experiment Station. The recent discovery by Purdue scientists that Opaque-2 and Floury-2 genetypes in maize are associated with a high lysine content represents a major breakthrough in the development of cereals variety with a desirable protein quality.

Maize has low quality protein composed of two fractions: (a) proteins found in the germ, which are nutritionally balanced but which comprise only about 20 per cent of the total protein in maize, and (b) proteins found in the endosperm, known as Zein, which have inadequate amount of two essential amino acids, lysine and trytpophan which the human body cannot manufacture, and are therefore nutritionally deficient.

Recently, an international team of scientists have identified a mutant gene, known as Opaque-2, which changes the quality by increasing the lysine content of maize endosperm. This mutant recessive gene produced soft, opaque kernels instead of the usual ones, and carried about 69 per cent more lysine than the endosperm from the normal ones. The protein content of Opaque-2 is nearly as much as that of meat and more than that of milk. According to CIMMET (Mexico), if this gene can be transferred to world crops, it would be like adding ten million tonnes of protein to the world supply and could alleviate malnutrition among millions of maize-consumers.

The superior nutritional value of the proteins in the new maize has been proven by feeding it to rats which gained in weight, an average gain of 27 grams for rats fed on standard maize. The new crop was fed to pigs also with striking results. The pigs gained weight twice as fast on Opaque-2 as on ordinary maize. The pigs fed on normal maize developed a protein deficiency disease, kwashiorkor, and died within 110 days but another group fed on 'new maize remained healthy and vigorous. Scientists working in CIMMET gave a diet of Opaque-2 to some children in the advanced stages of kwashiorkor, the protein deficiency disease. Their body swelling subsided, diarrhoea ceased and all started to gain weight. Within some days they had fully recovered.

These and similar experiments will have far-reaching effects on improving the nutritional level of man. There are distinct possibilities that this can be done, provided a country is endowed with knowledgeable and dedicated plant breeders. Dr. Norman E. Borlaug of Mexico once said, "Plants do speak, but just like gentle ladies they only whisper, their voice can only be heard by those who remain close to them. To develop this type of affinity with the plants, it is necessary to train one's eye as well as mind. A good plant breeder can exert a catalytic effect on the whole cycle of agricultural development. □

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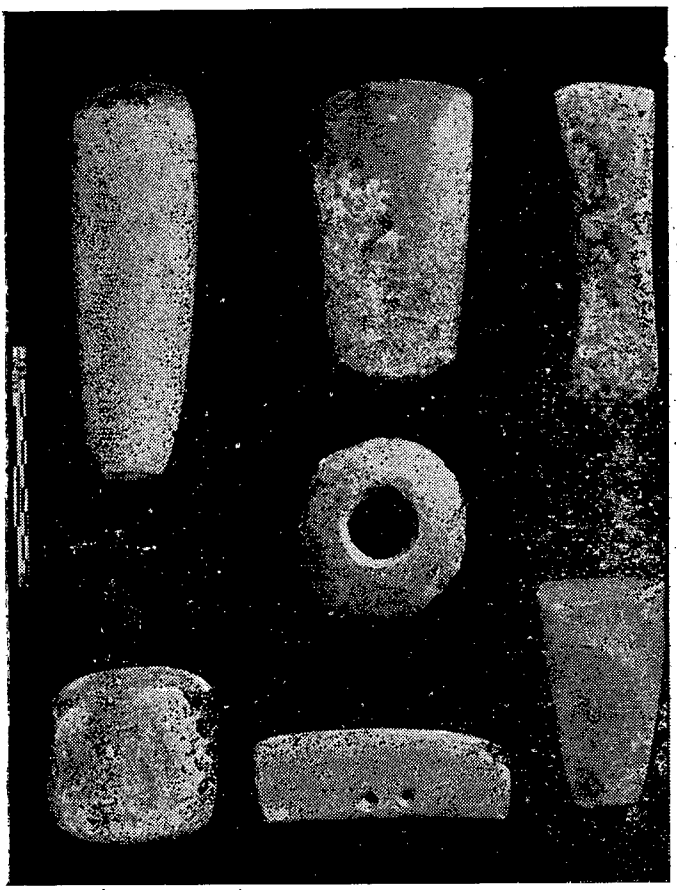
Indian Archaeology



'NO part of the world is better served in archaeological matters than is the Republic of India', observes Dr. Mortimer Wheeler, one of the most eminent living archaeologists. The position is no doubt gratifying and this derives largely from the activities of archaeological research in the country which are being conducted under a coordinated plan not only by the Archeaological Survey of India, but also by the State Departments of Archaeology and some Universities and research institutions. In a country of the size and cultural diversity of India, careful and strategic planning is essential if archaeological field work is to produce coherent and significant results within any reasonable space of time. During the past twenty-five years or so, no fewer than 100 sites have been examined. The total effort, in quality as well as quantity, has been impressive, and many gaps in our cultural history have been bridged. A brief account of the results of some of these excavations which have made a few dramatic contributions to our to knowledge may be summarised period-wise.

NEOLITHIC PERIOD

(Circa—2400 to 1500 B. C.)

The Neolithic culture with its very primitive economy based on bone tools and hand-made pottery have been unravelled in a wide area commencing from Jammu

B. K. THAPAR

Joint Director General Archaeological Survey of India

in the last 25 years

Although archaeological research in India has a history of more than a 100 years and has contributed vastly to the discovery of long-forgotten cultures, the explorations and research in the last 25 years have greatly helped to define the extent of their spread, their dating etc. and filled a number of gaps in our knowledge. In a vast country like that of India with an amazing cultural diversity, archaeological research has to be carefully selective and must conform to a planned strategy if it has to yield significant results within a reasonable length of time. In the last quarter century over 100 new sites have been examined and a few of these have been excavated with dramatic results, laying the scientific foundations of future research.

PLATE I, II (*Far left and left*): The Neolithic people used ground stone implements and bone tools such as harpoons, points, chisels, needles, awls, etc. PLATE III (*right*): Lothal, the south-eastern part of the settlement used as the acropolis consisted of a mud-brick platform to support blocks of buildings. One part of this area contained a sub-structure of 12 blocks, each separated by channels or air ducts, probably representing the base of a granary or a warehouse.

and Kashmir and extending into Bihar.

Of the many excavated sites belonging to this period, three (each located in a different region) are of special interest: Burzahom, near Srinagar in Jammu and Kashmir; Utnur District, Mahbubnagar in Andhra Pradesh and Chirand, District Saran in Bihar.

The excavation at Burzahom revealed two successive phases of neolithic occupation, assignable altogether to circa 2300-1500 B.C. In the earlier phase, the inhabitants lived in pits dug into the natural soil, and roofed over perhaps with timber. The economy of the people was largely primitive. Besides ground stone implements they used bone tools such as harpoons, points, chisels, needless, awls, etc. (pls. I & II). Their pottery was hand-made and showed basket impressions on the outer side of the base. In the succeeding phase, pit-dwellings were abandoned and structures of mud were made overground with plastered floors, often coated with red ochre. The potter's craft became elaborate with the introduction of the wheel. A stone slab, depicting a hunting scene (incised), being perhaps the only authentic evidence of neolithic graphic art in India, was recovered from the levels associated with this phase. The economic status of the people seems to have been confined to hunting and fishing occupations combined with some rudimentary cultivation.

The excavation at Utnur brought to light remains of a stockade into which cattle were penned, attesting

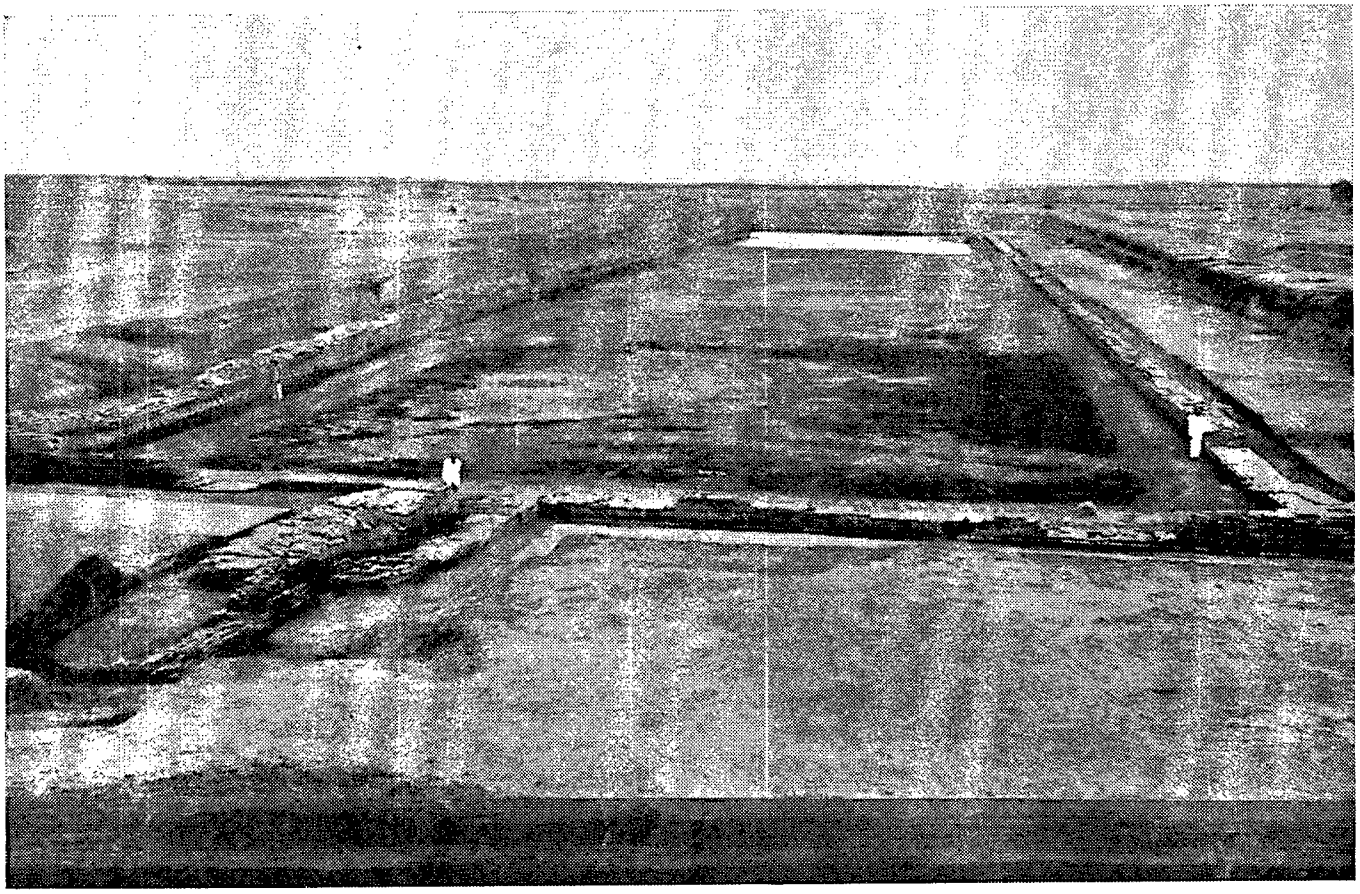


PLATE IV: The most interesting structure unearthed in Lothal is the so-called dockyard, contained on all sides by baked brick walls with a spillway and sluice-gate at the south end. Along its western margin was a mud-brick wharf to facilitate loading and unloading.

to the pastoral character of the inhabitants. At apparently regular intervals, the accumulated cattle dung was fired in *situ*. Evidence of five major burnings and other smaller ones was recorded. The people used pottery (both hand and wheel-made), ground stone tools and microliths and blades, and probably built their huts of branches and brush. On the basis of radiocarbon dating, the settlement may be presumed to have belonged to the last quarter of the third millennium B.C.

The third site to claim our attention was Chirand. Here, remains of the neolithic settlement consisted of circular structures, the walls of which were found to be built of wattle-and-daub and supported perhaps conical roofs. The noteworthy elements of this culture was the use of bone tools like needles, bodkins, awls, drills, scrapers, arrowheads, daggers, etc. Besides, the people used ground stone tools in (limited quantity) microliths and pottery (both hand-and wheel-made). Such an assemblage had never before been found in the Ganga vally. Radio carbon dates place this culture between 1750 and 1300 B.C.

THE INDUS CIVILIZATION

(Circa—2500 to 1500 B.C.)

We now know that the Indus Civilization extended upto the limits of Delhi in the east and the Tapti estuary in the south,

EVER since its exciting discovery and identification in the early twenties of this century, the Indus Civilization has been fascinating the scholars, and the result of recent explorations and research have laid bare the *form* of this civilization, though its *dynamics* still remain to be ascertained. During the last twenty-five years or so over 125 sites belonging to this Civilization have been located within the geographical limits of India, extending its proven limits to the neighbourhood or Delhi (about 45 km.) in the east and to the Tapti estuary on the south (about 250 km. north of Bombay). Of these innumerable sites, three have been subjected to large-scale excavation: Lothal, District Ahmedabad in Gujarat, Kalibangan, District Ganganagar in Rajasthan and Surkotada, District Kutch in Gujarat.

LOTHAL is located near the head of the Gulf of Cambay on the coastal flats just above sea level. Excavations revealed a sequence of two principal periods of occupation, of which the lower one (Lothal A) belonged to the mature Harappan and the upper (Lothal B) to the Late Harappan or sub Indus.

It was apparently a walled city and bears all the essential marks of the Indus Civilization: grid plan with straight streets with regimented buildings, elaborate drains, baths, etc. Three-quarters of the settlement was devoted to habitation and factories. Of the latter category, a bead factory and a coppersmith's house were exposed. The south-eastern part of the settlement was used as the 'acropolis'. Here, a mud-brick platform seems to have been built to support blocks of buildings. One part of this area contained a substructure of mud-bricks, consisting of twelve blocks, each separated by channels or air-ducts, which probably represents the base of a granary like that on the citadel of Mohenjodaro or alternatively a warehouse. (pl. III) The superstructure had presumably been of timber and suffered damage by fire.

Many terracotta sealings, obviously fallen from the stored bales, were recovered from the area.

The most noteworthy structure at Lothal however, is the so-called dock-yard, (pl. IV) located on the eastern flank of the mound. It is an oblong depression, some 214 by 36 metres, and was contained on all sides by baked brick walls with a spillway and sluice gate at the south end. Along its western margin was a mud-brick wharf to facilitate loading and unloading. The finds include typical Indus seals and sealings, chert blades, cubical weights, spear-heads, arrowheads, axes and fish-hooks of copper and bronze. While most of the pottery is impeccably Indus, certain new types and designs seem to be peculiar to Gujarat. Among the finds, perhaps the most significant is a button-type seal closely resembling those found in Bahrein island and labelled as 'Persian Gulf' seals. Its occurrence at Lothal points to a brisk sea-borne trade between the Indus valley and Sumeria during the third millennium *B.C.* with Baharein island as a middleman station or entro port. The discovery of a dockyard at the site adds further weight to this assumption. In fact, some scholars have claimed that the land of the Indus (with Lothal as its possible part) may have been the fabled Dilmun (an otherworldly paradise, 'a place where the sun rises') or Meluhha of the Sumerian and Akkadian cuneiform documents.

The cemetery was located to the west of the fortified area. Only one mode of burial, viz. extended inhumation, was attested, the unique feature, however, being that occasionally two bodies were interred in the same grave, along with the customary objects.

KALIBANGAN, located on the left bank of the now dry river Ghaggar (ancient Saraswati), yielded a sequence of two periods of occupation, of which the upper one belonged to the Indus Civilization and the lower to an antecedent culture. It was found to have been fortified from the very beginning of the occupation. In the earlier period, the fortification-wall was made of mud-bricks. Some noteworthy features of the houses which were also made of mud-bricks included the existence of ovens, resembling the present-day *tandoors*, and cylindrical pits lined with lime mortar, intended possibly for storage. As evidence suggests, this occupation was brought to a close by a seismic catastrophe. The distinctive culture trait of this Period is, however, the pottery, of which six different fabrics were recognized. Besides, the inhabitants used small-sized blades of

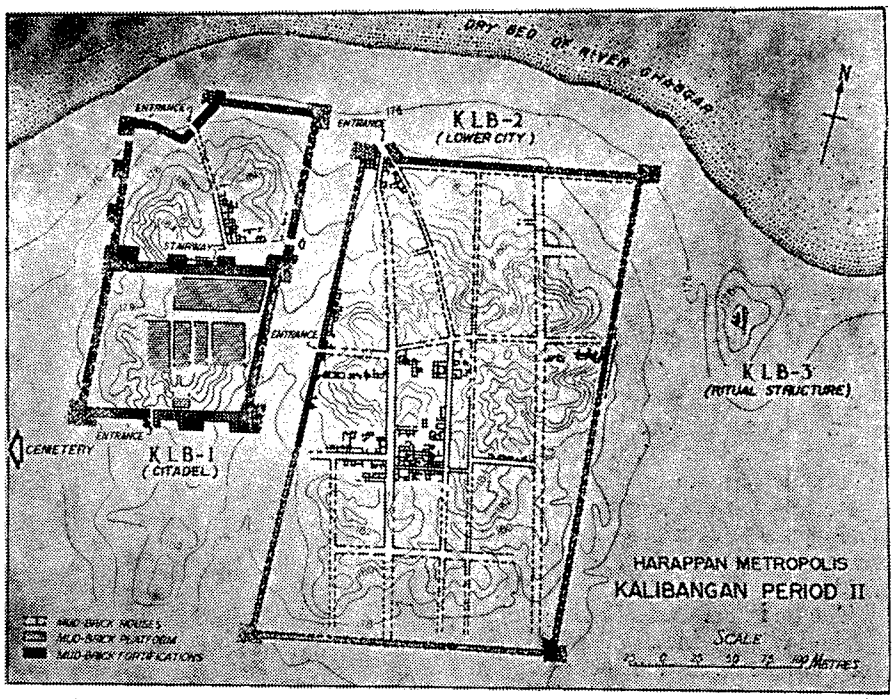
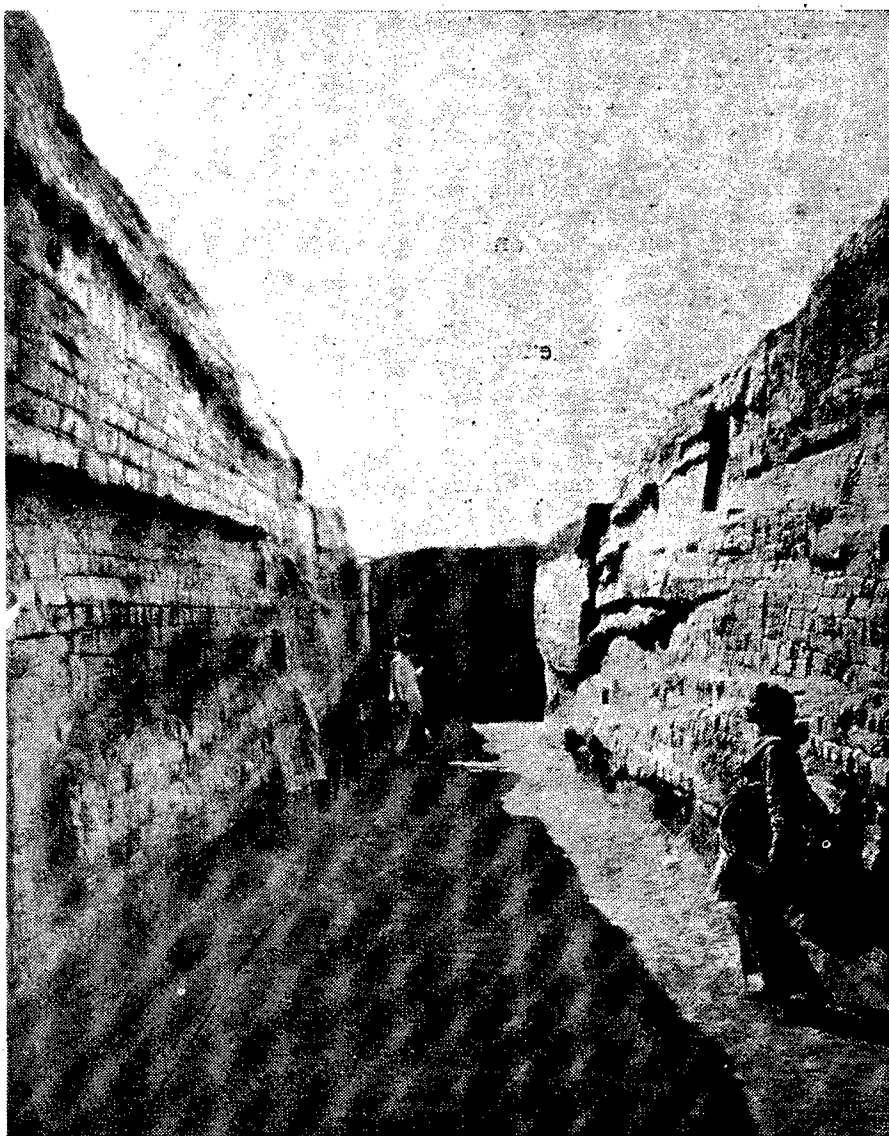


PLATE V (above): The general layout of Kalibangan conforms to the features of a 'citadel city,' not very different from that of Harappa or Mohenjodaro. PLATE VI (*Below*): The city area in Kailbangan shows one of the exeavated thoroughfares with blocks of houses on either side. Within the city was a grid of streets, running north-south and east-west.



chalcedony and agate; beads, variously of steatite, shell, carnelian, terracotta and copper; querns and mullers; bone points and copper celts. Among terracotta objects the more noteworthy are animal figurines of bull and toy cartframe wheels. A significant evidence relating to this period was of a ploughed field, situated to the southeast of the settlement outside the town-wall and showing a grid of furrows, with the one set being more closely spaced than the other. This is perhaps the earliest ploughed field exposed through excavations. Interestingly enough, this pattern bears a remarkable resemblance to the modern ploughing system in the neighbourhood, where two types of cereals are grown in the two sets of furrows in the same field.

The main features of the settlement of the Indus Civilization are a 'Citadel on the west and a 'Lower Ctty' towards the east. (pl. V) Thus, the general lay-out is comparable with that of Harappa and Mohenjodaro.

The citadel-complex, enclosed by a fortification wall, consists of two almost equal but separately-patterned parts. The fortifications were made through-out of mud-bricks. The southern half of the citadel contained some half-a-dozen massive platforms of mud and mud-bricks each separated from the other by a passage and intended for a specific purpose. Of the buildings which stood upon the platforms no plans are available, being obscured by depredations of brick robbers. Nevertheless, the available remains indicate that some of these might have been used for religious or ritual purposes. The entrances to this part of the citadel were located on the south and north and were not meant for vehicular traffic. The northern half of the citadel contained residential buildings, perhaps of the elite. This part of the citadel had its own entrances.

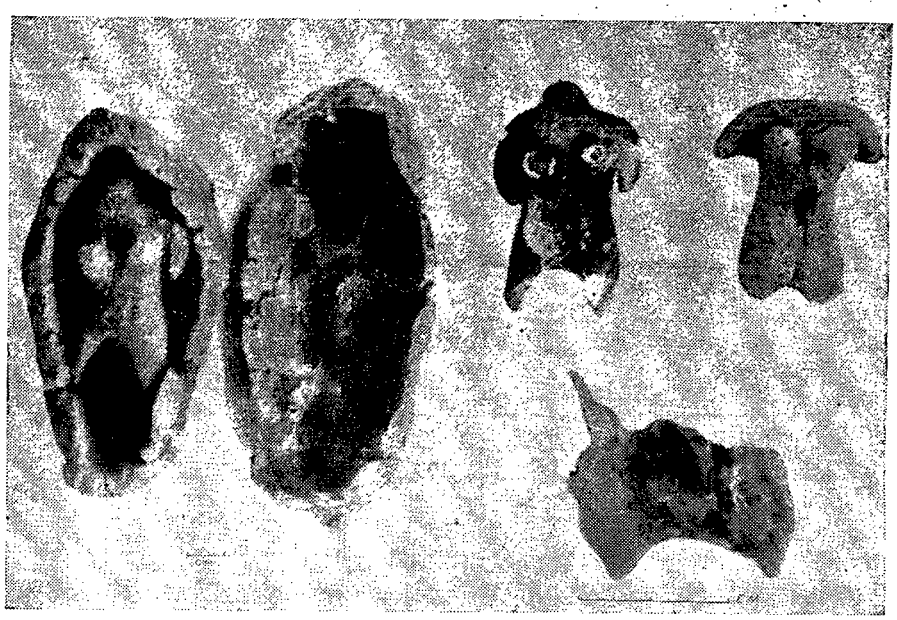
The lower city was again a parallelogram and lay to the east of the citadel with an intervening space of about 40 m. It was enclosed by a fortification wall built of mud-bricks. Within the city was a grid of streets, running north-south and east-west and dividing the area into blocks. (Pl. VI) To avoid damage from a busy vehicular traffic, wooden fender-posts were provided at some of the street-corners. Two entrances to the fortified area, one on the north and the other on the west, were exposed by excavation. The latter evidently was used by the city-dwellers for communicating with the citadel. The houses were built of mud-bricks, the use of baked brick being confined mostly to drains, wells, door-sills, bathing or washing platforms, etc. The finds of this period include besides the patent pottery, inscribed seals, sealings, copper-bronze objects, long blades of chert, etc.

To the east of the city, a small mound was found to contain an exclusive structure containing a group of 'fire altars'. The absence of normal occupation on this mound suggests that the structure was intended for some religious purposes.

The cemetery for this settlement was located to the West south-west of the citadel, on the present flood-plain of the river. Three types of burials were recorded: (i) extended inhumation in rectangular or oval pits with relevant grave-furniture; (ii) grave furniture, without skeletal material deposited in oval or circular pits; and (iii) grave-furniture, without skeletal material deposited in rectangular pits. (pl. IX)

Surkotada, located along the ancient route connecting lower Sind with Kathiawar across the Rann held out alluring possibilities of providing tangible evidence for the diffusion of the Harappa Culture from Sind to Gujarat *via* the land route. The excavation here brought to light a sequence of three cultural phases.

PLATE VII (above): A panoramic view of the Surkotada settlement showing both the citadel and residential annexe. PLATE VIII (*below*): The most significant find at Inamgaon, poona district, was an unbaked clay receptacle with a mother-goddess figurine buried in a shallow depression in the house, a practice which suggests some links with reigious practices in contemporary West Asia.



In the earliest phase (Sub-period IA), the cultural assemblage was predominantly Harappan, with a sprinkling of an earlier tradition. The settlement, fortified from the very beginning of the occupation, consisted of a 'Citadel' and a 'Lower City', the former being located on the west and the latter, separated by a partition wall, on the east. (pl. VII) The fortification-wall was built of mud

and mud-bricks and retained by a veneer of stone rubble. The houses were made of rubble masonry. The associated levels yielded typical Harappan pottery and other finds. Amongst the latter, special mention may be made of a large number of *linga*-like clay objects (perhaps used as cult objects) and an inscribed seal. In sub-period IB the Harappan elements continued with a decreased frequency. The fortification wall showed some structural changes. The upper levels of the sub-period yielded sherds of the white-painted black-and red ware of the Ahar fabric, which heralded the arrival of new folks. During Sub-period IC, the Harappan pottery became still less in use, while the white-painted black-and-red ware dominated. The fortifications were reconstructed in rubble masonry. However, the layout plan of the settlement showing the citadel and the lower city, was retained.

Another site of the Indus Civilization, currently under excavation, is Banawali, District Hissar in Haryana. Here, remains of two cultural Periods, respectively pre-Harappan and Harappan, similar in cultural content to that at Kalibangan have been brought to light.

OTHER CHALCOLITH CULTURES

(Circa 2100—1000 B.C.)

Many sites, yielding evidence of a chalcolithic occupation, have been located in Central India, northern Deccan and southern Rajasthan.

Of the many chalcolithic sites discovered, over half a dozen have been systematically excavated, the more noteworthy being: Navdatoli, District Prakash in Madhya Pradesh, Dhulia in Maharashtra and Ahar, District Udaipur in Rajasthan. The available evidence points largely to a rural pattern of society with agriculture as the mainstay. Three seasons of field work at Inamgaon, Poona district, have brought to light remains of two distinct chalcolithic cultures, both interlocked with each other. The earlier one is known as the Central Indian (Malwa) Chalcolithic Culture (*Circa* 1600-1300 B.C.) and the latter, the Northern Deccan Chalcolithic (Jorwe) Culture (*Circa* 1300-1000 B.C.). The material equipment of both these cultures was largely the same, being characterized by the plenteous use of blades and microliths along with a restricted employment of copper artefacts.

It was in the ceramic range that these cultures differed from each other. The houses of the former culture were both rectangular and circular on plan with floors made of pebbles, often rammed with black clay. Some of the houses showing circular outline had sunken floors in the form of

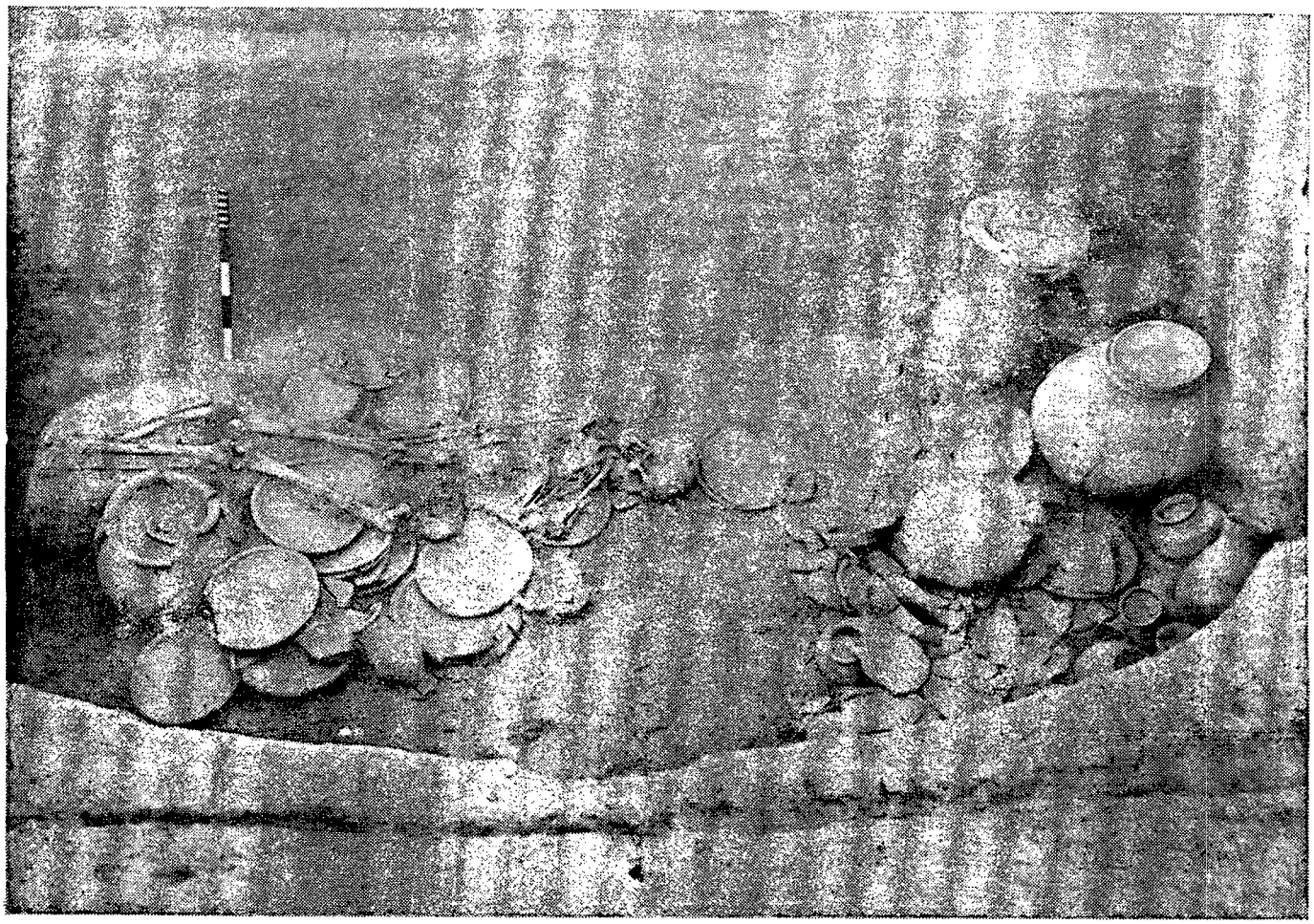


PLATE IX: The cemeteay of Kalibangan settlement, located on the present flood plain of the river revealed three types of burials, easily distinguishable from each other. Some contained extended inhumation in rectangular or oval pits with grave furniture, others contained only grave furniture without skeletal material in oval or circularpits and the third type, with grave furniture without skeletal remains deposited in rectangular pits.

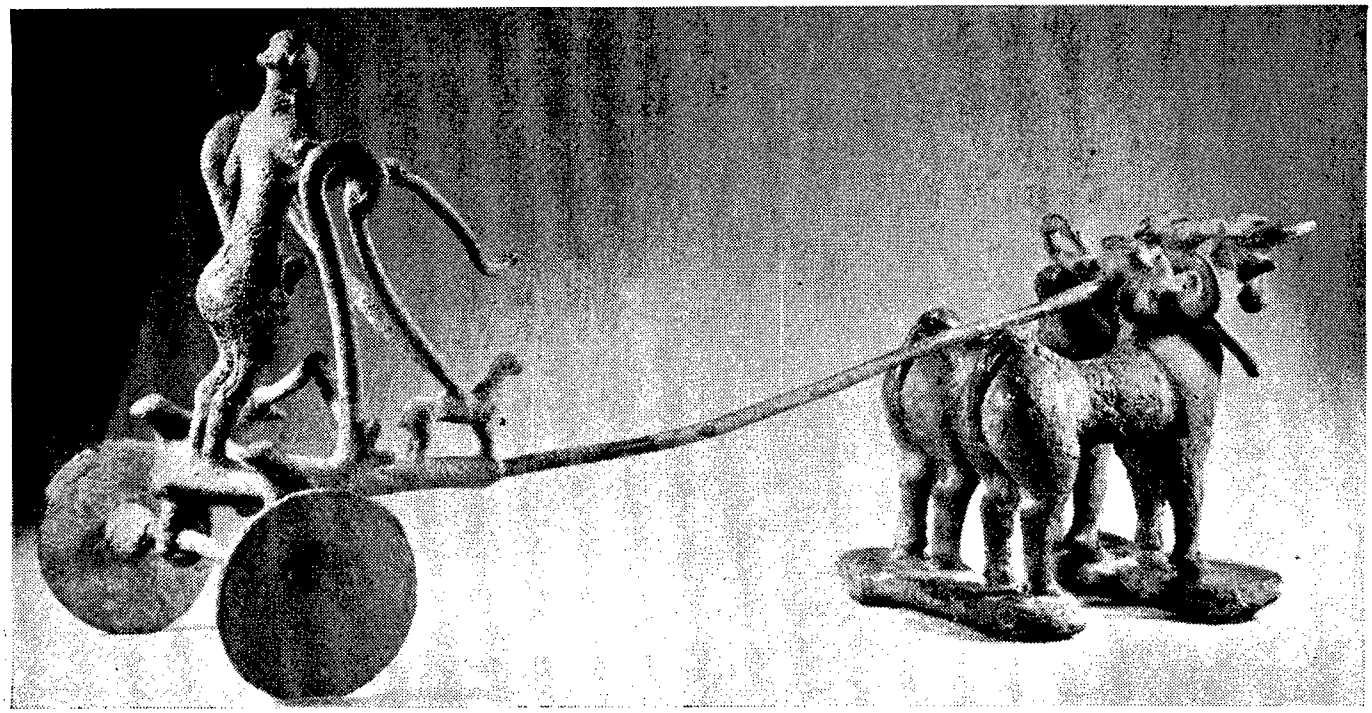
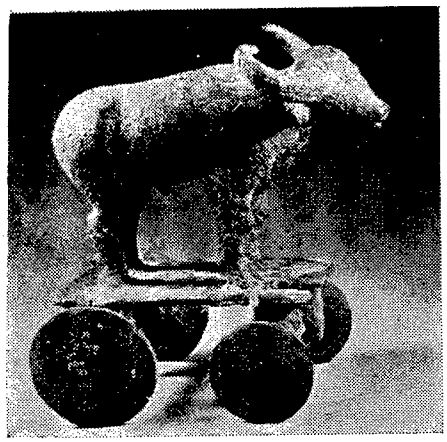
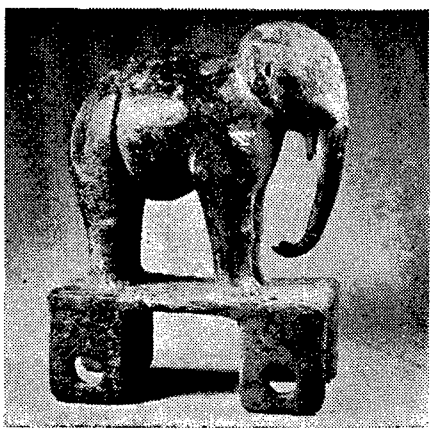
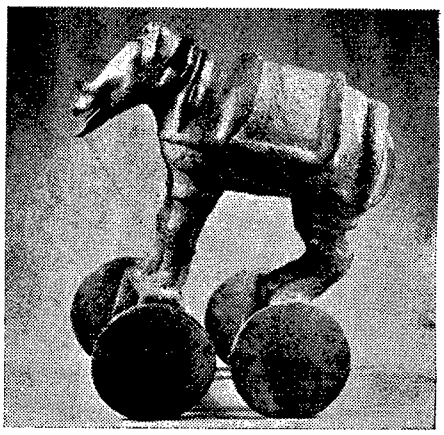


PLATE X and XI (*above and below*): In an excavation conducted in 1958-59 at Daimabad, Ahmednagar district, a remarkable find was a hoard of four copper objects: A chariot with two yoked bulls, a rhinoceros, an elephant and a buffalo, all placed on wheels and perhaps used as toys. They are attributable to the period 1800 to 1200 BC, thought research may throw more light on there date.







shallow pit-dwellings. In one such house, a twin urn-burial was encountered. The houses of the latter culture were all rectangular on plan; they were also considerably large in size as compared to those of the earlier culture and had dwarf walls with rounded corners. The walls were of wattle-and-daub and the floors of cowdung and lime. Twin-urn and extended burials were found within some of the houses. The settlement appears to have been fortified. Remains of what looks like a fortification-wall, built of uneven stone, set in mud mortar, were noticed on the western periphery of the mound. Besides, remains of an embankment, built perhaps as a safeguard against floods, were also noticed on the western side. The settlement thus shows an advanced stage of rural economy. The most significant find was an unbaked clay receptacle, containing a Mother Goddess figurine belonging to the latter culture, (pl. VIII) and found buried in a shallow depression in the house-a practice which suggests some links with contemporary West Asia. The other notable finds included a number of copper bangles and anklets, bearing incised patterns and a large number of blades, microliths, polished stone axes, fish hooks, various bone objects and pottery.

A remarkable chance discovery which may add unexpectedly and dramatically to our perspective of the chalcolithic culture is the find of a hoard of four copper objects from Daimabad, District Ahmadnagar in Maharashtra; a chariot with two yoked bulls, a rhinoceros, an elephant, and a buffaloe. (pls. X & XI) It may be recalled that the excavation at this site, conducted in 1958-59, had indicated that the site remained under occupation from *circa* 1800 B.C. to 1200 B.C. The stratigraphical association of the hoard, however, still remains to be established by future research.

THE COPPER HOARD CULTURE

(Circa 2000—1300 B.C.)

Recent investigations have succeeded in revealing the age of the Copper Hoard Culture as somewhere around 1500 B.C.

Since the beginning of the last century 'Copper Hoards' comprising harpoons, anthropomorphic figures, antennae, swords, shouldered and bar celts, rings, etc. have been reported from different parts of the country, more notably from the Ganga basin. Their authorship has variously been ascribed to the Harappan refugees, Vedic Aryans, aboriginal Mundari-speaking people and eastern Austronesians. However, the other elements of the culture represented by these implements had not so far been clearly defined, for most of these objects were recovered as surface finds and not as a result of a systematic excavation. The recent excavation at Saipai-Licchhvai, District Etawah in Uttar Pradesh, has, for the first time, established that the Copper Hoards were associated with a red ware (Ochreous in colour), sometime slipped and painted. Other noteworthy objects found in the same deposits include ground stone objects like pounders, querns, pestles and pallets and a chert blade. Chunks of burnt clay bearing reed-impressions indicate the existence of houses of wattle-and-daub. Corroborative evidence has also been obtained from Lal Qila, District Bulandshahr in Uttar Pradesh. As a positive evidence of regular occupation at the latter site were found clay-plastered floors, set with potsherds, and containing series of potholes. A few stray baked brick-fragments were also obtained from those deposits. Thermoluminescent dates of the Ochre colour pottery from four sites, including Lal Qila, would thus place (derivatively) the Copper Hoard Culture broadly in the first half of the second millennium B.C.

IRON AGE AND THE BEGINNINGS OF HISTORY

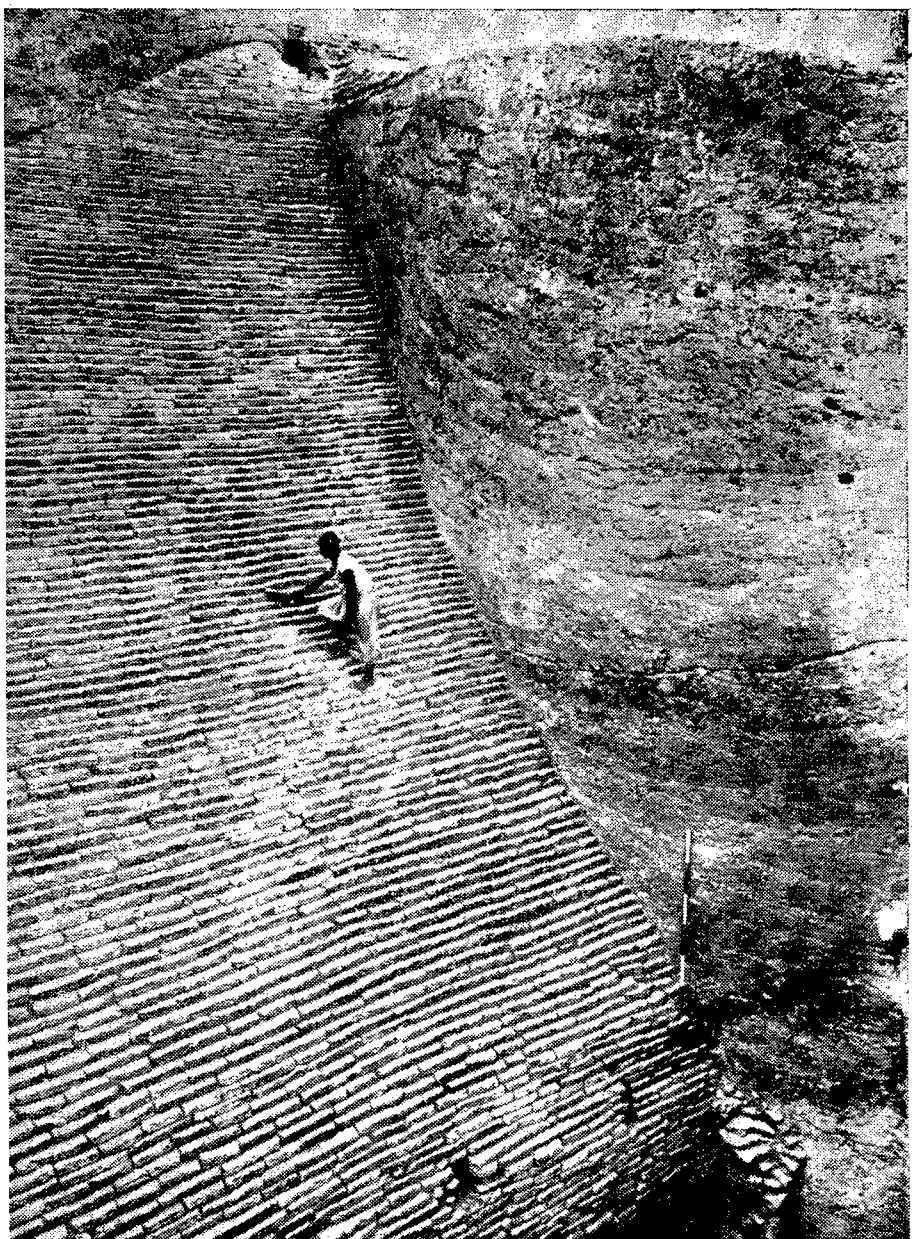
(Circa 1000 BC onwards)

We owe it to the researches conducted in the last 25 years or so that we now can confidently place the beginning of the iron age in India to around 1300 B.C. that is, the age of the Brahmanas and Upanishads.

For long, objective evidence for the beginning of iron technology in India had been wanting. It was held that the use of iron came to India through Achaemenian contacts in the sixth century B.C. Fortunately for us, radiocarbon dates of the materials associated with the use of iron at

PLATE XII (above) : In Rajasthan, Punjab and Western Uttar Pradesh (coterminus with Brahmavarta) excavations have unearthed typical pattery of the painted Grey ware type, ascribable to the period 850 L.C.

PLATE XIII (below): Kausambi : Brick rivetment of the fortification.



sites lying both in the Ganga basin and the peninsula have now indicated that the use of iron was known as early as the first quarter of the first millennium B.C. Technological change, however, took some centuries to come. Historically speaking, this period corresponds to the Later Vedic Age, represented by such literature as the *Brahmanas*, the *Upanishads*, etc. Archaeologically speaking, it falls in the latter part of the interrugnum following the collapse of the Indus Civilization and preceding the beginning of the Historical Period in circa sixth century B.C.

During the last twenty-five years or so, quite a large number of sites ascribable to this period have been located in Rajasthan, Punjab and western Uttar Pradesh (coterminus with the region known as *Brahmavarta* and *Brahmarsi desa*). Of these as many as eight have been systematically excavated: Hastinapura, Kausambi, Rupar, Ahichchhatra, Ujjain Atranjikhera, Noh and Purana Qila in Delhi. The evidence obtained from these excavations indicates a rural pattern of society. Houses were built of mud or mud-bricks or wattle-and-daub. The diet included rice. Bones of cattle, pig and (latterly) house are also reported. Among arts and crafts, the more noteworthy is a ceramic industry, labelled the painted Grey Ware. (pl. XII). This ceramic industry is quite distinctive, both in shape and design, and stratigraphically follows (after a break in occupation) the Ochre Colour Pottery mentioned in the preceding sub-section. The time span of the culture represented by this pottery extends from circa 850 to 500 B.C.

The rise of Magadha which synchronises with the times of Mahavira and the Buddha marks the beginnig of the Historical period. It grew into an urban civilisation with a script, coinage, extensive use of iron, fortified cities and imperial rule.

This brings us to the threshold of the Early Historical Period marked by the coming of the Buddha and Mahavira and the political emergence of Magadha as a dominant state. During this period, which covered such dynasties as the Saisunagas, the Nandas, the Mauryas and the Sungas, a more or less uniform culture, whose hallmark is a black lustrous pottery, known to archaeologists as the Northern Black Polished Ware, was in existence. The other elements of this culture (alternatively called by some scholars as the Ganges Civilization) consisted of: structures of baked bricks; development of the Brahmi script; introduction of coinage; urbanisation, fortified cities, plenteous use of iron, etc. Besides the above mentioned sites, where remains of this period were recorded, more sites in the middle Ganga region were excavated, of which the principal being Rajghat, Rajgir, Mathura and Pataliputra (modern Patna). (pl.XIII) Material remains of the succeeding periods, viz. Kushan and Gupta, were obtained principally at Kausambi, Ahichchhatra, Rajghat, Purana Qila, Delhi and Mathura. Besides structures, they consisted of pottery, coins, terracotta figurines, beads, etc.

In 1966, an Asokan edict was located in Delhi on an outcrop of the Aravallis, west of the Kalkaji temple. With the discovery of this edict *in situ* the existence of a Mauryan town at Delhi was clearly indicated. The excavation at Purana Qila have since proved that the site remained in regular occupation from the Mauryan to the Mughal period. Mathura, which was the capital of the Kushans, had been excavated in the earlier part of the present century. But the excavations besides yielding a large number of sculptures failed to solve several problems. The present excavation at Mathura had two principal objectives to realize: (i) to examine the actual character of Dhulkot in relation to the historical factors and (ii) to assess the nature of settlement of the Saka-Kushan period. The excavation established the existence of a fortification around the ancient city, datable to the Saka-Kushan Period. The surviving traces of the fortification indicate that it had an irregular crescentic shape with Yamuna flanking the chord side on the east

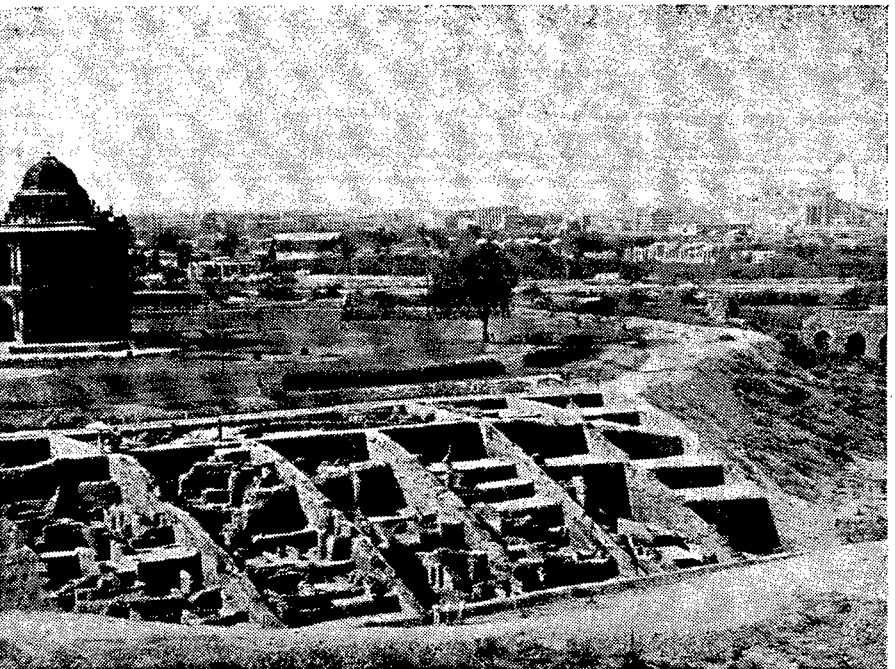


PLATE XIV : Purana Qila. The excavations at Purana Qila have proved that the side remained in regular occupation from the 4th century B.C. to the Mughal period. Below is a general view of the excavation showing the strata of different period starting with the Mauryan period.

DISCOVERY OF NEW BUDDHIST STUPAS

Among the Buddhist stupas excavated during the period, three are very important: Piprahwa, District Basti in Uttar Pradesh, Pauni, District Bhandere in Maharashtra and Antichak, District Bhagalpur in Bihar.

At Piprahwa, the clearance of the brick-built stupa, first exposed by W.C. Peppe in 1898, brought to light its complete features together with the evidence of the interment of a soapstone casket containing fragments of bones in a brick chamber, laid into a pit at the base of the stupa. One of the caskets recovered earlier bore an inscription in Asokan Brahmi characters: 'This relic shrine of divine Buddha (is the donation) of the Sakya Sukiti brothers associated with their sisters, sons and wives', indicating thereby that the relics of the Buddha were re-enshrined during Asoka's time. The discovery of thirty-one sealings at a depth of 1.6 m. below the surface in the adjoining monastery, bearing the legend: *Om Devaputravihara Kapilayastu Bhikshu*

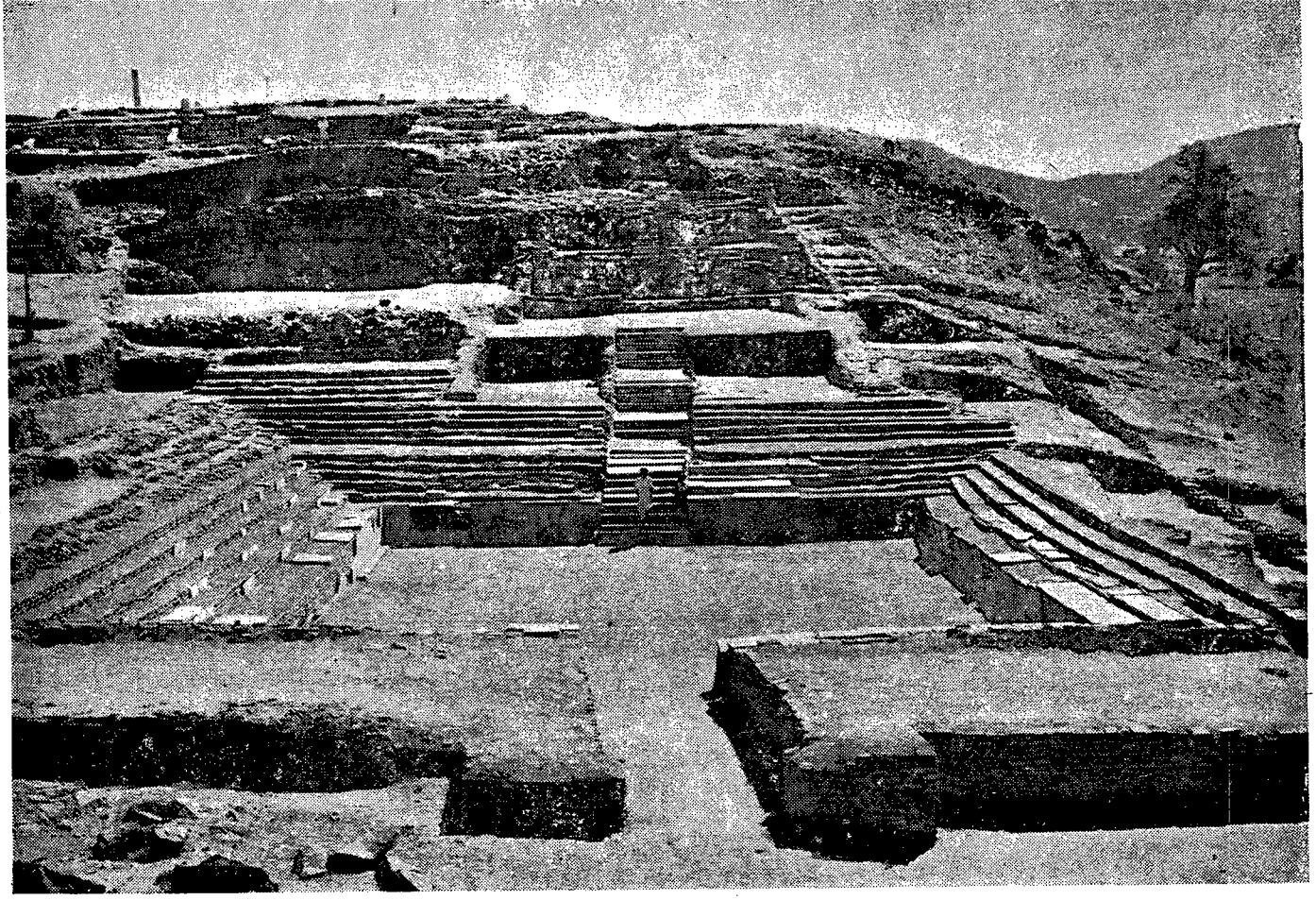


PLATE XV, XVI and XVII: The Nagarjunakonda excavations, done on an extensive scale, have revealed that the site was largely Buddhist in cultural content. The vestiges mostly belong to the Satavahana and Ikshvaku periods. The more noteworthy of them are the open air stadium (above), a replica of the 2nd century Buddhist stupa (below left). The terracotta figurine showing a rider (below right) belongs to the Mauryan period and comes from Purana Qila

Sanghasya in Kushana script points to the possibility of the location of ancient Kapilavastu in the neighbourhood.

At Pauni a Buddhist *stupa* complex (*circa* second century B.C. to third century A.D.) was brought to light. (pl XV) The *stupa* at one stage was found to be surrounded by an elaborate railing with gateways along the cardinal directions. The monument seems to have been the result of the munificence of various individuals, as attested to by numerous inscriptions on pillars and coping-stones of the railing.

Excavations at Antichak (ancient Vikramshila, the famed University-town of seventh-ninth century A.D.), District Bhagalpur in Bihar, brought to light a massive *stupa* with two terraces belonging to the Pala Period. The last season's excavation exposed a massive 3m, wide boundary wall and a number of shrines lying to the north-south and south of the stupa besides remains of a gateway. In one of the shrines eleven images of the Buddha were found.

PLATE XIX : Nagarjunakonda : This remarkably well preserved bathing ghat of the Satavahana and Ikshvaku periods has been removed and reset on the Nagarjunasagar island where all the excavated remains of the place are preserved in a museum.

EXCAVATIONS IN SOUTH INDIA

Systematic research on the cultures and civilization of premediaeval south India is only 30 years old. Excavations at a number of sites all over South India have revealed the sequence of three distinctive cultures leading to the Early Historical.

In South India the Iron Age is heralded by the Megalithic Culture, distinguished by a variety of burials showing inter alia plenteous use of iron and black-and-red pottery. Until 1945, almost nothing had been done to systematize the cultures or civilization of pre-mediaeval south India. The excavation at Arikkamedu near Pondicherry on the Coromondal coast, conducted in 1945 for the first time provided a secure chronological datum for dating a widespread Indian ceramic (Rouletted Ware) by its association with the imported Roman (Arretine) pottery. The evidence was further confirmed by the excavations at Dharanikota (ancient Dhanyakataka), District Guntur in Andhra Pradesh. A representative culture centering upon the first century A.D. was thus defined. Thereafter many sites, located in the various parts of the peninsula, were excavated. Of these, Maski, Kaveripattinam and Nagarjunakonda merit our attention here. Maski is more famous for the Asokan edict which mentions the name of Emperor Asoka. However, the excavation at the site brought forth a sequence of three cultural periods represented by the Neolithic-Chalcolithic, Megalithic and the Early Historical. Many burials of the Megalithic Culture were also excavated.

Excavation at Kaveripattinam, the famed port-town mentioned in the *Sangam* literature and *Silappadikaram*, yielded remains of a *vihara* and a wharf, belonging to the early centuries of the Christian era. Roman coins have also been reported from the site.

Nagarjunakonda, named after the great Buddhist monk, has been very extensively excavated, first during the earlier half of the century and secondly during 1954-1961. The latter excavations were, however, necessitated by the building of the Nagarjunasagar Dam across the Krishna which was to submerge the entire site. The earlier excavations had revealed that the site was largely Buddhist in cultural content. The subsequent excavations, however, brought forth remains of a complete cross-section of human achievement beginning from the Palaeolithic Period to the late Seventeenth Century, albeit with breaks in occupation. (pl. XVII) The excavated vestiges, however, belong largely to the Satavahana and the Ikshvaku periods. Among these the more noteworthy were: (i) open-air stadium with accoustic properties; (ii) bathing ghats; (pl XIX); (ii) a large arena used for gymnasium and other purposes; (iv) *stupas* with *ayaka* platforms; and (v) monasteries and temples. Since the ancient site has already been submerged under water, some of the outstanding structures mentioned above have been rebuilt on top of the Nagarjunakonda hill which has now become an island. The finds recovered from the excavations have been displayed in a museum, built on the same hill.

NOTICE

The 1 October 1975 Issue of *Yojana* will carry a number of articles by specialists on Museums and the conservation of archaeological monuments

Time Check for Radiocarbon Dating

E. PHILLIPS

THE principle of radiocarbon dating is that a fraction of the carbon dioxide in the atmosphere contains radioactive carbon-14 which is absorbed by plants during photosynthesis and by animals feeding on plants. When the plant or animal dies the input of carbon stops and the carbon-14 gradually reverts to the common non-radioactive form, carbon-12. So the ratio of carbon-12 to carbon-14 in a dead plant or animal is a record of the time lapse since it died.

Radiocarbon dating is not accepted without reservations however. Where written records are occasionally available, as in Egyptology, for example, the method is sometimes shown to be wrong by several hundred years. Probably the proportion of carbon-14 in the atmosphere in those times differed from today's value so that dates calculated using the present level have a built-in error. Therefore, the radiocarbon method itself needs checking. A way of doing this has now been devised by Professor Colin Renfrew, an archaeologist at the University of Southampton, Southern England, and a statistician from the northern English University of Sheffield, R.M. Clark. They report that the radiocarbon method can be corrected to make it safely applicable to find dating back to 5000 B.C.

Comparison Available

Clark and Renfrew looked at two geographical regions where alternative methods of dating happens to be available for comparison with the radiocarbon clock. American scientists have found that high up in the White Mountains of California a tree, the Bristlecone Pine, survives to an incredible age—some are 4,500 years old, making them the oldest living things—and the dry climate allows the preservation of still older dead trees. By counting the annual growth-rings the wood in the trees can be dated to within two or three years. That is a ready-made check on the radiocarbon method which shows that dates obtained by it are fairly accurate back to 1500 BC, although they become seriously wrong for earlier times. For example, pine formed in 2500 BC gives a radiocarbon date of only 2100 BC, and wood known to have been formed about 5000 BC is given a date almost a thousand years younger.

But because of the uncertainty engendered by the impression of the radiocarbon check, archaeologists are both to rely on the Bristlecone Pine calibration. One fear is that the concentration of carbon-14 at the high altitudes where the pine grows might have been in some way unusual, making the radioactive basis in California not strictly comparable with that in Europe and the Middle East.

So, for a second check, Clark and Renfrew went back to the written records of ancient Egypt. From 1800 to 3000 BC these can be dated accurately by reference to the astronomical events they mention. Thus whenever organic material is found in conjunction with written records a further check on the radiocarbon method is possible.

However, neither method can be used on its own as a calibration for the radiocarbon method—in the first case because the carbon-14 content of the trees may be in some way anomalous, and in the other because the Egyptian finds dated by the radiocarbon method may somehow have got mixed up with written material from an earlier or later time. So Clark and Renfrew used statistical techniques to compare the two methods of calibration. This is necessary to check whether any discrepancies that do occur are sufficiently small to have happened by chance, or whether they are serious enough to cast doubt on the validity of either scale.

It turns out that the two scales are compatible, and as the chance of each scale being in error by exactly the same amount is extremely small, the conclusion is that either can be used. But as the pine tree calibration is more detailed and covers a greater span of time it is used in preference to the Egyptian data.

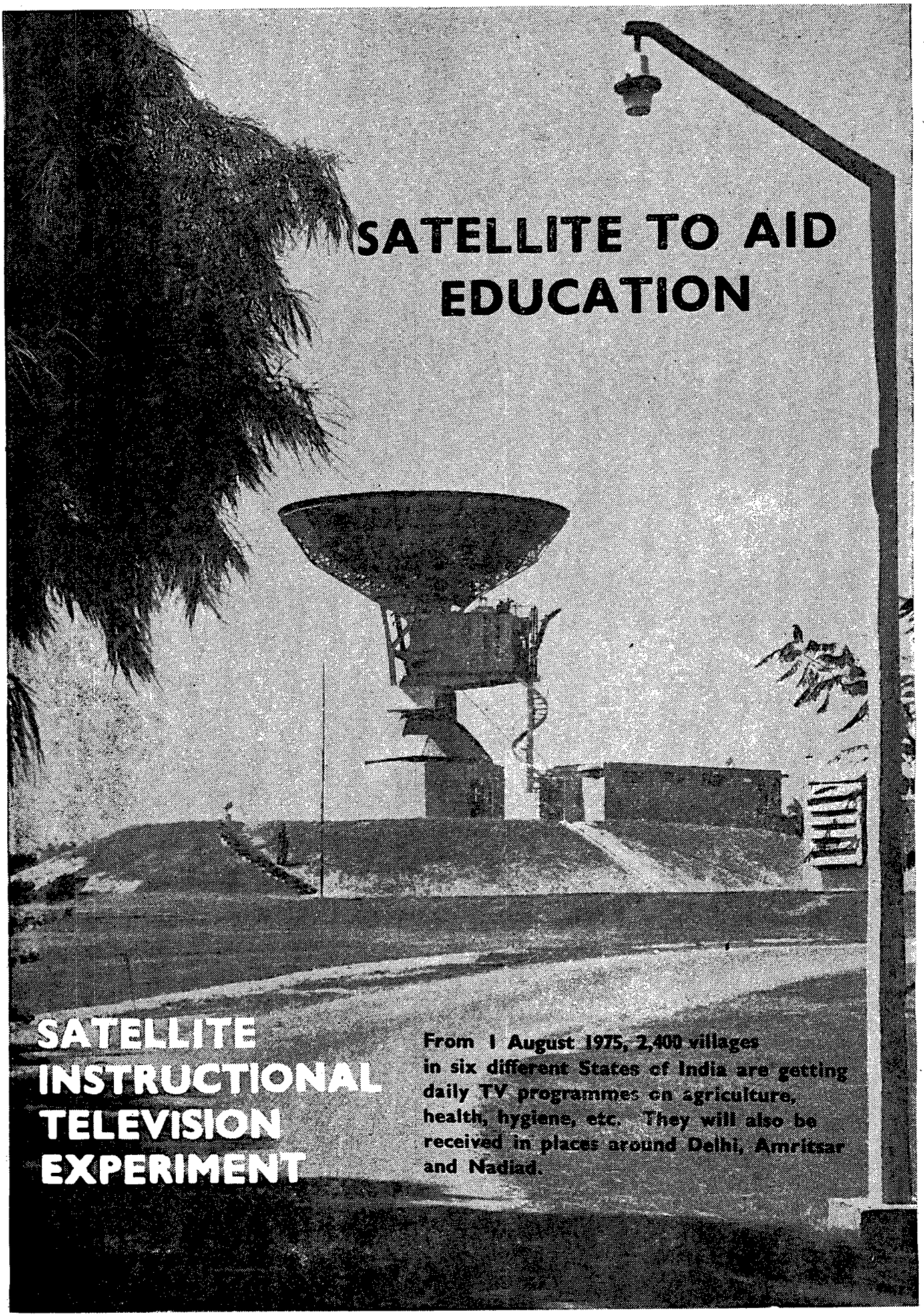
Significance of Result

This result has great significance for archaeology. Our knowledge of European prehistory is being radically changed by radiocarbon dating so the greater confidence which should follow from Clark and Renfrew's work will be widely appreciatted in scientific circles. Perhaps the most notable advance is that archaeologists are questioning the view that European culture originated in the ancient civilisations of the Near East, gradually fanned out through Europe and eventually reached the western coasts. This 'diffusion theory' arose long before scientific dating of individual finds became possible, and is founded on factors such as supposed similarities of style between tombs in western Europe and the Near East.

Carbon dating is causing a starting revision of these views. Megalithic structures in western Europe—for example, that remarkable and huge stone circle, Stonehenge, in southern England—are found to be older than structures in the Argean which are supposed to have influenced them. By showing how the carbon-14 clock can be corrected, Clark and Renfrew make these relationships much more distinct. On the 'diffusion theory' megalithic tombs in western Europe are based on tombs built in Crate about 2500 BC which can be dated from Egyptian artifacts found with them. Yet the carbon-14 dates for the western tombs are 3000 to 3500 BC. In Britain, Stonehenge was attributed to Argean influences arriving in Britain around 1500 BC, but it now seems to have been built 500 years earlier.

Perhaps even more important, Clark and Renfrew greatly extend the potential of radiocarbon dating. Although strictly speaking their work applies only from 1800 to 3000 BC, it strongly suggests that the corrected method can be used to the limit of the Bristlecone pine tree data, 5000 BC approximately, with the possibility of going back a few thousand years earlier as even older pieces of wood turn up in California. In principle the carbon-14 method can date material as old as 50,000 years, but although an accurate calibration for the first 10,000 years is now within reach, there is still no way of knowing whether the method is accurate for the earlier period. □

Courtesy: SPECTRUM


SATELLITE TO AID EDUCATION
SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT
From 1 August 1975, 2,400 villages in six different States of India are getting daily TV programmes on agriculture, health, hygiene, etc. They will also be received in places around Delhi, Amritsar and Nadiad.

What you need know about Communication Satellites*

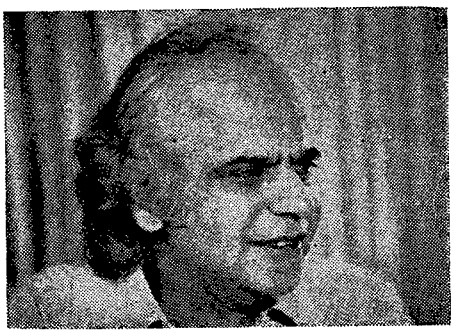
YASH PAL

If you really want to give equal opportunities to all people, if you want to develop the hinterland, if you want to be able to communicate from the far off reaches of Himalayas, from Andamans, or from anywhere in a field almost at an instant, then there is absolutely no substitute for a satellite. And for a country like ours, which has little to build on, satellite communication is an advantage. In fact we do not have so much risk in discarding old technologies as some other countries.

A communication satellite these days costs no more then a Boeing 747, and I mean one satellite with two spares. What really costs money is the provision of additional services which don't exist now. You have to spend extra money, and this seems to be the only way to go. Accountants have great difficulty in assessing social benefits. They have also a great difficulty in assessing the value of time, and they do not realise that No communication is more expensive than communication. 'No communication' is the state in which a large part of our country still finds itself.

EARTH satellites provide us with a very efficient method of installing a platform at a great distance from the earth. This platform can be used for, besides other things, viewing very large parts of the earth simultaneously. It also enables us, if we so like, to bounce signals between any two places which are in the view of the satellite. In this sense, earth satellites have a capability of more than replacing the role of the ionosphere which has been traditionally used as a bouncing medium for radio communication purposes. In other words, living on air and earth, we can have an effectively flat earth as far as our view of other places in the world is concerned.

The satellites can of course provide not only passive reflection like the ionosphere, but they can also carry transponders which boost up the strength of the signals received from the transmitter on the earth and re-transmit them in a convenient frequency band at higher power. This very simple alteration of the erlative geometry of the mutually visible points has very far reaching effects on the spread of future communication. We have, for once, to



forget about the scale of distances. A distant place is as near or as far as a near place if we are communicating via satellite. In this sense, the whole philosophy of neighbourhoods and nearness to each other is very strongly altered.

The age of communication satellites was forecast by Arthur Clarke about 30 years ago. The first earth satellite was launched by the Russians in 1957. Signals were bounced off a passive satellite in early sixties by United States. and for almost ten years now we have had commercial satellite communication provided by the INTELSAT and INTERSPUTNIK systems.

The period of revolution around the earth for a satellite at an altitude of the order of a few hundred kilometres is about 90 minutes. Such a satellite will remain within view of the observer on the earth only for a few minutes before it gets very close to the horizon. Clearly, a reflecting platform which comes in only once every 90 minutes and then has to be tracked very fast before it disappears after a few minutes is not ideal for purposes which we have been talking about. However, as the distance of the satellite from the earth is increased, it is easy to see that its period of revolution also increases. When you reach a distance of the order of about 22,000 miles or 36,000 kilometers, the period of revolution of the satellite around the earth coincides with the period of rotation of the earth.

Therefore, if the satellite orbit lies at an appropriate distance over the equator, it becomes stationery with respect to the rotating earth. This particular orbit of the satellite is called an earth-synchronous orbit and is greatly preferred for communication purposes. All the INTELSAT satellites which are used for inter-continental and inter-country communication are in such synchronous orbits. However, since for realisation of the synchronous orbit the satellite must necessarily be located over the equator, the regions very far north and very far south inside the Arctic circle can look at the satellite only at very low elevation angles; the North Pole and South Pole are clearly not visible from the satellite. In order to provide communication to such areas,

Shri Yash Pal is Director, Space Applications Centre.

*Extracts from an Invited talk at the Annual Meeting of the Indian Academy of Sciences held at New Delhi, November 7-9,1974.

one needs to have satellites whose orbital plane is inclined to the equatorial plane. This is the case for the so called Molnya system of satellites used by the USSR. However, in this case one cannot use a single satellite, but must have a number of satellites, preferably three, in order to keep communicati on continuous. Also the eccentricity of the orbit is very high to that the satellite remains visible for a long time and when it goes to the other side of the earth, it swings closer and travels very fast till it comes into view again.

During the time this particular satellite is out of view, one necessarily has to work with another satellite, properly spaced, so that the communication can be kept continuous. For this class of satellites, as opposed to the synchronous satellites, it is essential that the transmitting and receiving antennae have the capability of tracking. Another problem of these high eccentric orbits is connected with the fact that while passing close to the earth near the perigee of the orbit the spacecraft is subject to density drag of the atmosphere and solar cell degradation by the radiation belts.

The Three-Axis Stabilised Satellites

In order to reduce the requirement of power for transmission from the ground as also from the satel lite, it is essential that the satellite carry a high gain antenna along with a low-noise receiver which necessarily leads to a rather narrow beamwidth. Because of this it becomes necessary to have the satellites stabilised to a high degree of accuracy. By stabilisation one means that not only the drift in the orbit is small and predictable, but also the beam pointing is accurately controllable and steady. Two different stabilisation techniques have been generally used so far. In effect these are not two different techniques, but two different schemes of using the gyroscopic principle. If one has a fast rotating momentum wheel carried by the satellite, then one can turn the body of the satellite with respect to the momentum wheel by transferring angular momentum from the wheel to the body and vice versa. If there are three momentum wheels rotating in three orthogonal directions, then one can tilt the satellite in any direction by exchanging the corresponding components of the angular of momentum either by feeding to the wheels or taking from the wheels. This is the principle of the so-called three-axis stabilised satellities.

Operational communication satellites which have been developed so far are not working on this principle, but on the principle of having the whole body of a satellite rotate, to provide gyroscopic rigidity. But since the antenna of the satellite must necessarily point towards earth not only towards the earth but accurately towards a pre-determined point—it is necessary that the platform carrying the antenna should be despun with respect to the rotating body which is in the shape of a cylinder. This technique has been perfected and the success of the INTELSAT satellites shows that it is quite reliable.

One of the problems, however, with these cylindrical satellites carrying despun antennae is that their size cannot be increased indefinitely because they must necessarily fit inside the shroud of the launching rocket. The size needs to be increased because the solar panels which provide power to the satellite are mounted on the outer surface of the cylinder, and if one wants higher power for the satellite, one needs a larger surface area for the solar panels. On the other hand, if one works with three-axis stabilised satellites, there is no limit to the size of the solar panels because very large panels can be folded up to fit inside the shroud of the satellite. It is generally believed, therefore, that the future generation of communication satellites, which will have high power requirements will be three-axis stabilised. There are several three-axis stabilised satellites operating even though they are not operating in a commercial mode at present.

What Happens When Satellites Develop Faults ?

One of he questions which arises in everybody's mind is "how can we depend on a piece of hardware sitting out there in space, in a very hostile environment, to provide an essential element in an operational system, because we have no cheap way of going out there and repairing a fault?" Here one comes up against a rather interesting situation. It is certainly true that the environment out there is very hostile, but usually when we say so we are always thinking of living beings, human beings like us; it is of course terribly hostile for us. On the other hand, when you talk of inorganic things, when you talk of an equipment, you have the freedom to specially design it to conform to that environment. On physical grounds there is no reason that this equipment cannot perform perfectly for a long time. In fact it is possible that it will perform better in than environment than it would if it were sitting here on the ground. It is not the so-called hostility of the environment, but its unpredictability, unexpected changes, which cannot be easily designed, for that can cause failures. Such unexpected changes are unlikely in outer space, unless a meteor demolishes the satellite. On the other hand, an equipment designed for the so-called benign environment on the ground is more likely to be subject to unpredictable situations like strong winds, peculiar conditions involving abnormally high temperatures and humidity, cyclones, floods, and bungling human beings.

So, after one has really learnt how to do it, there is no reason that the space hardware should not be even more reliable than the ground hardware. In fact the need for developing very reliable systems for operation out in space has lead to substantial developments in the whole theory of reliability and in methods of fabrication and design which ensures that the equipment works for a long time without attention. This particular aspect of space technology is something which is likely to have a spin-off effect on the design of ground system also, because if something can be made to work in space unattended for five to seven years or ten, in principle it should be possible to design the equipment which will operate on the earth also for something like that period of time, may be slightly less, and will not need much attention. Many people are thinking in terms of such designs.

The design life of the presently operating communication satellites is between five and seven years, and pretty soon one hopes it will go up to ten years. In principle, this life could be much longer. The limitations are imposed by two factors. Firstly, the satellite in orbit is powered by solar cells. The solar cells are subject to degradation because of solar particles impact and various types of radiations. After five to seven years their efficiency decreases somewhat and therefore the amount of power available to the satellite also decreases. There have been phenomenal improvements in the quality of solar cells. The efficiency of the solar cells has increased from about 5 per cent to something like 14 percent. Also the methods of covering the cells so as to protect them from solar particles and the environment have been improved. One hopes that this efficiency will increase still further and also that

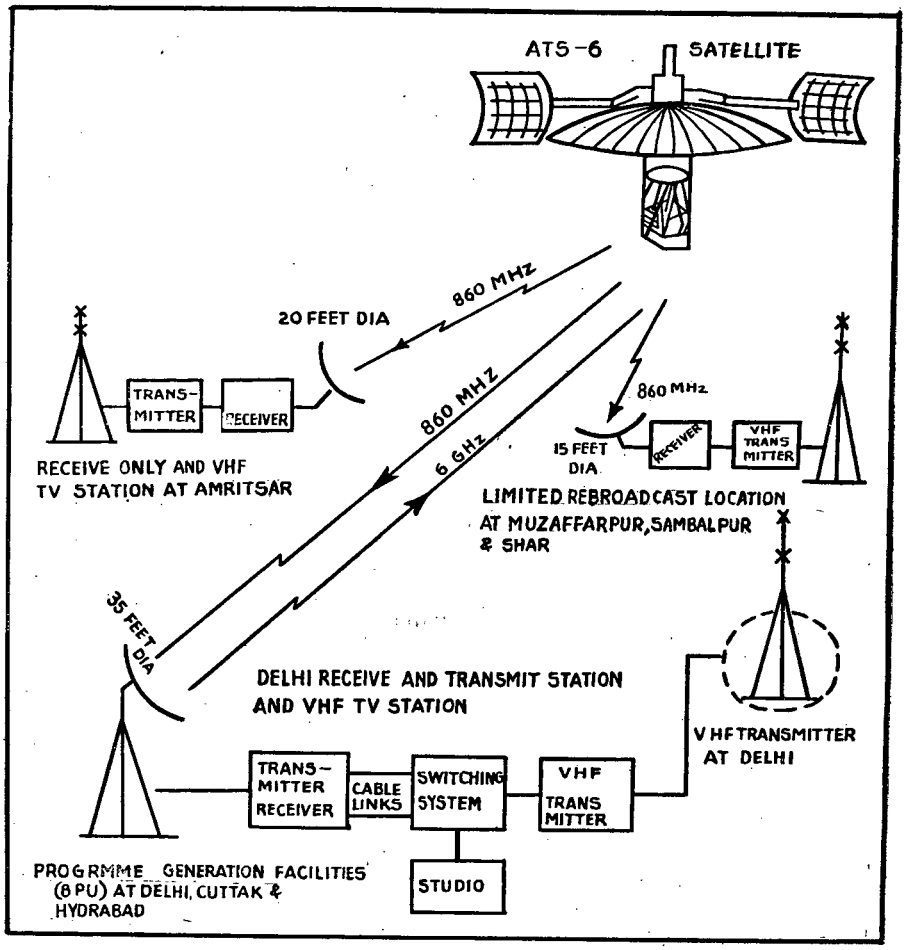
the life of the solar cells will also be increased. In any case, one can always over-design solar arrays if one uses folded arrays as is becoming the fashion now with the coming in of the deployable arrays and three-axis stabilised satellites.

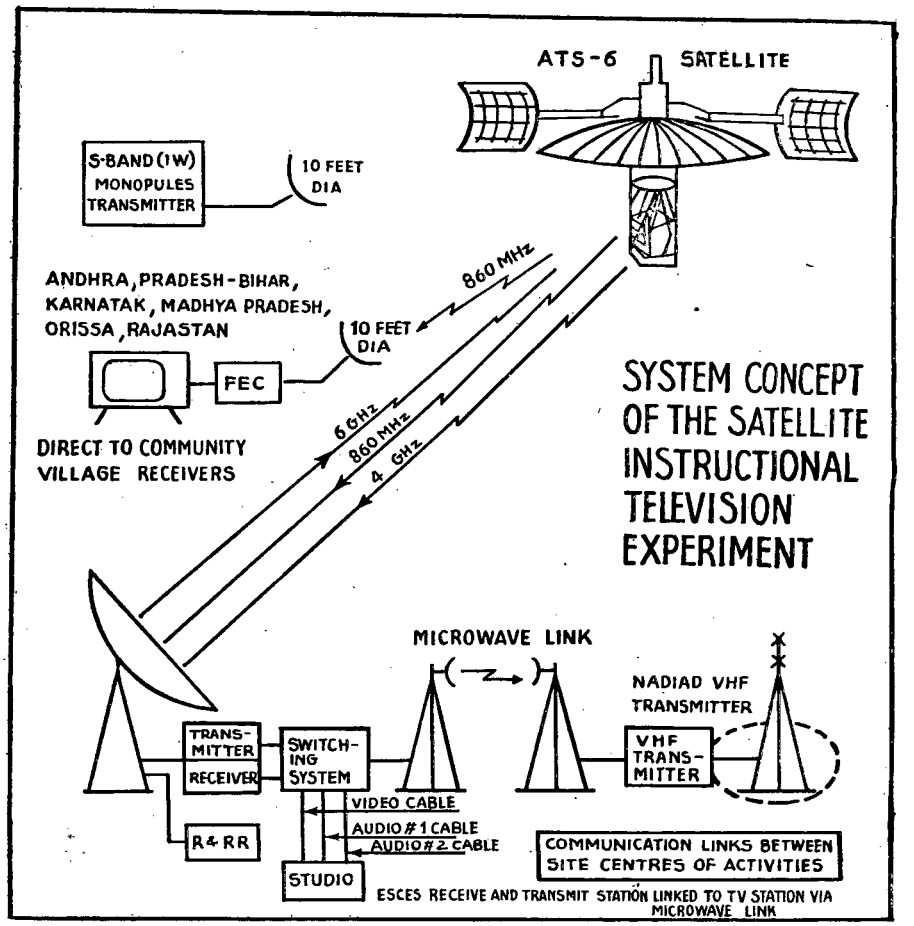
The other factor which limits the life of the satellite, and perhaps a more serious factor at the moment, is the need to carry hydrazine gas which acts as the fuel to manoeuvre the satellite even after it has been put in a perfect orbit. The satellite in orbit is subject to various perturbations because of drag from the residual atmosphere, because of solar pressure, solar wind, etc. and these perturbations have to be corrected. Another perturbation is the interaction between the currents inside the satellite and the ambient magnetic field. The higher order terms in the geopotential, longitudinal variation of the gravity field, etc. cause the satellite to flow down towards potential valleys. The normal slewing of the satellite does not cost energy because one merely transfers momentum between the wheels and the satellite, but there are several functions which do need energy inputs.

The amount of fuel carried by the satellite is necessarily limited and when the fuel gas is exhausted there is no way to do some of the essential manoeuvres and to move it around, and even if it is active electronically or in terms of its communication package, it is essentially dead as far as its utility on the earth is concerned. Here again one hopes that there will be available other and more compact sources of energy rather than bottles of fuel gas which can provide the manoeuvring capability for a much longer period. Electronics is also becoming more reliable. I forsee that within a year or two the design life of communication satellites will be of the order of ten years, which is certainly getting close to the design life of most of the ground equipment one can possibly think of.

Designing of Satellite

Design of communication satellites to suit the needs of a particular country has become a very refined art. It may, incidentally, also become a lucrative art. However, one should not get the impression that a frozen design means equally frozen usage options, that once you have fixed on a design you do not have enough of flexibility in reagrd to its use. In fact most satellites can be used in many different ways depending on the ground system which is





put up for this purpose. For example for a moderate power satellite carrying an S-band and several C-band transponders, one may be able to have up to five channels of TV broadcast and a limited telecommunication capability; or by switching all the power to the C-band transponders one can enhance the telecommunication capability; by several thousand channels. This can be done a posteriori after the satellite has been launched. Much of the usage depends on the deployment of the ground system. This is some thing which is not usually realised when people comment on some of our discussions about the future communication satellite for India.

Three important elements of the communication system aboard a satellite are the high power TWT tubes for the amplifires, the antennae and the feeds. Development in high and high efficiency (750%) power tubes during last few years have been very spectacular. At the moment tubes are available which can deliver as much as 200 watts per transponder which is more than one would need for most of the forecast uses of communication satellites. Small feeds are being designed so that a large number of feeds can be deployed in the focal plain of an antenna, and a combination of these feeds can yield almost any desired beam pattern. In fact they can also be deployed for switching of narrow beams from one region to another.

In the field of antenna, the development has been more spectacular. Till recently the size of the antenna was limited by the size of the shroud available in the launch vehicles. With the coming of the deployable antennae, this limitation has gone and one can in principle have as large an antenna as one desires. The largest antenna which has been unfolded in space so far has a diameter of the order of 30 feet which is essentially the kind of diameter one uses in a fairly large earth station on the earth. This has lead to dramatic change in the manner in which communication satellites can be used. Instead of dispersing the energy over a wide region of the earth, one can take a hundred watt of power and concentrate on a couple of degrees of the earth and have a situation in which individual home receivers with small antennae on top can receive the signal directly from the satellite. These home receivers can, in principle, become only about 2-3 times more expensive than ordinary TV receivers. At the moment the cost factor is about two in the Indian situation.

This particular aspect has relevance when you want to use a very large ground segment. For example, if you want to deploy a hundred thousand individual receivers, then it is much better to put the power and a big antenna on the satellite so that the individual receivers can have small antennae and less sophisticated amplifiers. This is the kind of an experiment one is trying to do during SITE.

A Profile of ATS-6 Satellite

At this stage it will probably be useful to describe some of the features of the ATS-6 satellite, which was launched this year on 30th May and which is being used for the SITE experiment in India. ATS-6 is, by far, the most powerful communication satellite launched so far. It is not powerful in terms of its channel capacity because it carries a large number of other experiments, but it is powerful in terms of its being able to put very intense signals on the ground.

ATS-6 is probably the most complicated satellite ever launched. It has a very large number of space experiments abroad, and in addition, it also has a very versatile communication capability. Amongst some of the experiments which have already been carried out and some which are still being carried out, one can list the following:

One experiment is connected with the fact that the satellite can be pointed very accurately. One had wanted to use it, in combination with other satellites and ground systems, to locate positions of ships, aircrafts, etc. with a high degree of accuracy. This has proved to be extremely successful. The satellite carries a small ion engine to test its working in outer space. It carries a quartz crystal micro balance in order to monitor the contamination and its deposition in the local environment. It also carries a combination of scientific experiments to undertake environmental measurements including further research on solar emissions. It has a laser retroflector for experiments in laser ranging. It has several beacons, in frequency ranging from 40 MHz to about 360 MHz, which are available to experiments all over the world to study propagation at these frequencies through the ionosphere and atmosphere. In addition, it carried transponders aboard which can be used for studying propagation of millimeter waves ranging from 12 GHz to 30 GHz. One of these experiments will need 12 and 18 GHz to be beamed up from the ground which will be translated by the transponder and broadcast in the 4 GHz band so as to be received by a large earth station. This experiment will enable one to determine the propagation characteristics at these frequencies during heavy precipitation. We are planning to do this experiment while the satellite is within our view next year.

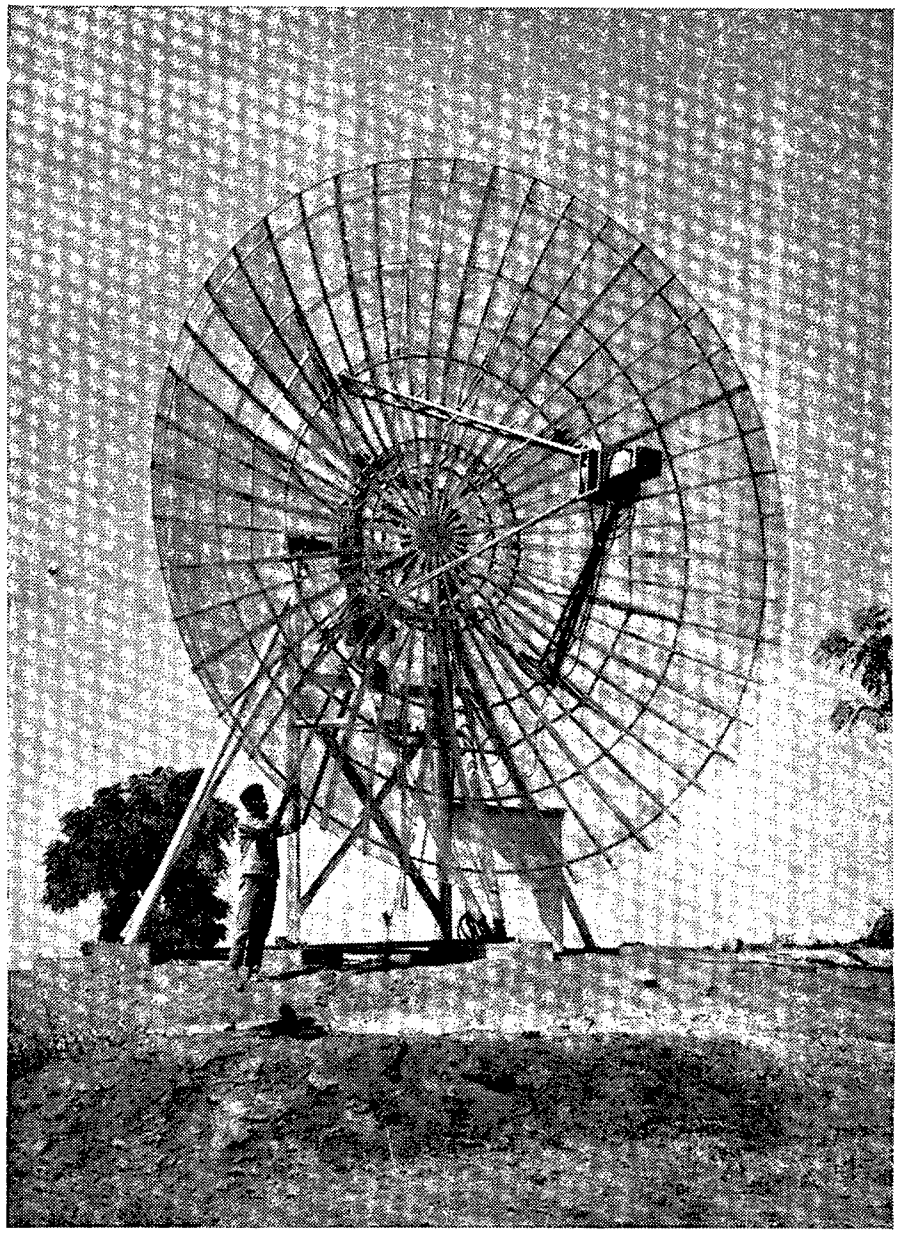
The pointing of the satellite has been found to be extremely accurate. The satellite can be pointed in any desired direction by using an on-board computer or a beacon on the ground. In fact in a single day's operation it will be made to change its pointing more than once. The communication part of the broadcast experiments consists of an on-board receiver at 6 GHz and downlink transmitters at 4 GHz, in the S-band (at 2.5 GHz) and at 860 MHz. 4 GHz is for telemetry, telecommand and for the purposes of some scientific experiments, while S-band and 860 MHz are used for satellite to earth broadcasts. Currently the S-band is being used for direct reception experiments in the United States. When the satellite moves over to India, in the middle of next year, 860 MHz will be used for the same purpose.

The satellite carried enough gas to enable it to manoeuvre and to bring it to India—not India really, but over Kenya—from where it will be visible from India and take it back to United States after one year of operation at appropriate longitude. The Indian experiment will use the large deployable antenna of 30 feet diameter. This antenna is made of metalised decron mesh which is in the form of an umbrella whose ribs are wound over each other and it is deployed in space when the satellite has already achieved its orbit. This deployment is completed in a fraction of a second. The power is provided by solar cells mounted on two booms which extend out from the body, and stand 54 feet from end to end. The total amount of power is about 800 watts. The antenna patterns for this atenna have been measured and found to be nominal, or as they were expected. The transmitters have 80/100 watt power and the amount of energy received on the ground when focussed by the 30 feet antenna is sufficient so that good TV picture can be received in remote areas using only a 10 feet diameter mesh antenna along with an inexpensive transistori-

sed TV receiver. That the satellite will work for direct broadcast purposes has already been tested in the American experiment. We have no problem even getting colour pictures through our equipment. The quality of the signal is high and the margin above the FM threshold is about 9 db.

Talking about the versatility of communication satellites, I would like to mention one particular experiment which we have just proposed for the period SITE is being conducted. It should be possible to switch the 30 feet satellite antenna to the 6 GHz receiver on board so that one should be able to transmit to the satellite with a small 10 feet antenna using only about 10 watt of power rather than a large 40 feet antenna. This 10 feet antenna on the ground could be mobile. However, since the beam width of the satellite at 6 GHz is about 0.4°, which means a diameter of coverage of the order of 200 miles, the ground antenna has to be located within this specified radius. However, if it should happen that we want to communicate from a remote place and we can carry the ground terminal to that place rather easily either by helicopter or by putting in on a jeep, then by command one can tilt the satellite to point towards this ground antenna so as to be able to receive the signals and rebroadcast them or send them to another station for recording. This is an example of enormous amount of flexibility available with space communication systems. Some of this is available only when you have your satellite under your own control, i.e., only for domestic satellites.

One could go on describing the large number of satellites, which we have dreamed of, and working actively and are being discussed these days. Many countries are going in for domestic satellites: amongst them are Iran, Japan, Indonesia, Brazil, Germany and U.S.A. Canada already has a domestic satellite. U.S.A. has under discussion several domestic communication satellites for its own use; one of these has already been launched and is operating for Western Union. It of course has military satellites for communication and other areas; so does USSR. Domestic communication satellite is an area in which India started talking and planning much before anybody else did, but as has happened in many other cases, we have just remained talking and arguing, while others are going ahead with their plans.



A close up of a 'receive only' antenna at the Amritsar Earth Station. This antenna, which has a diameter of 20 feet, can only receive signals from the Satellite.

The Economics of a Communication Satellite

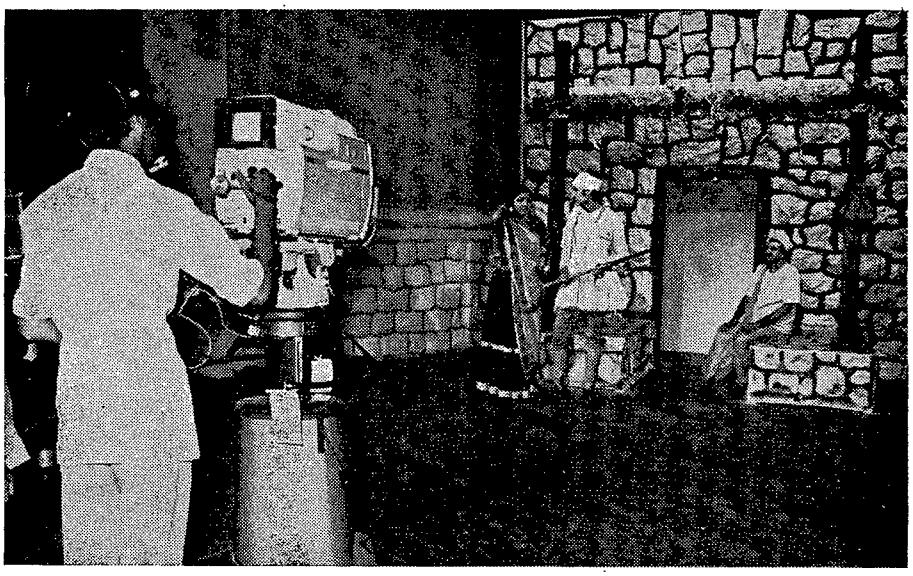
What are the uses of a domestic communication satellite and its cost benefits? Whenever we talk of satellite communication, we naturally must consider the possible differences in cost of a satellite system as compared to the ground system. There is no doubt that if we want to confine our communication facilities to narrow regions of the country, which are well populated and economic from the point of traffic density, then it is better to set up the ground communication system and connect everything up with microwave links. However, when you take a country like ours with a very underdeveloped stage of communication, it appears that satellite communication technology was almost invented for us. When we talk of costs, we usually forget the cost of time. I am sure that if we had enough money and enough time, then probably in next 50 years we could provide communication to the remotest corners of this country. On the other hand, if we decide that communication is an important asset that leads to development, that leads to growth of industry, that leads to people coming close to each other, that leads to integration, then we have also to cost the price of waiting not ten years, or 20 years, but the price of waiting even one extra year. □

Programme Production For SITE

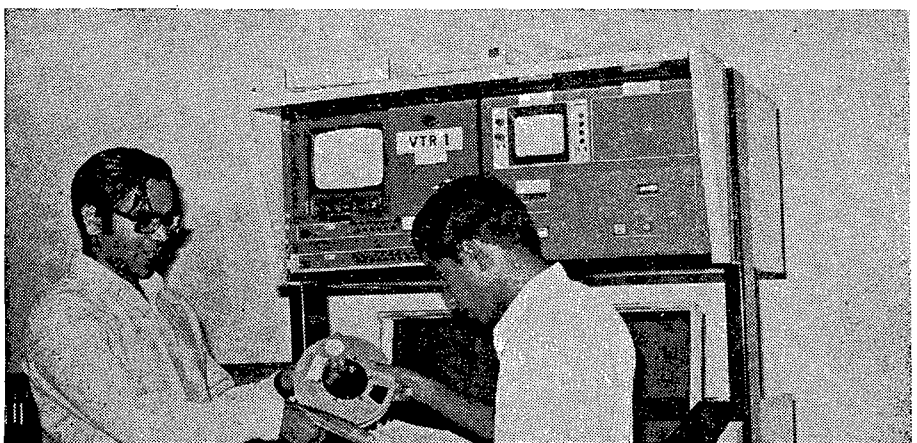
K.S. KARNIK

PRODUCTION of TV programmes is one of the most vital elements of SITE. The large investment in SITE can ultimately pay off only if the TV programmes can accelerate the processes of social change and national development. The instructional objectives of SITE—spelt out in the India-USA agreement—are in the areas of agriculture, family planning, national integration, primary education, etc. However, the programme impact will clearly not be limited to these areas. The power of the medium and its novelty will definitely have an impact on the general attitudes and value-systems of the audience. This indirect impact becomes an important consideration in programme planning.

AIR has the primary responsibility for programme production. However, ISRO (Indian Space Research Organisation) is also making some science education programmes for children. These will be broadcast twice a week in the mornings during the school year. In addition, ISRO has taken on the primary responsibility of programmes for the Nadiad area. Special programmes for training teachers are being made by NCERT.



Above : **Programme being shot in the ISRO Studio at Ahmedabad.** Below : **Picture signals being recorded at the Video Console.**



Since the satellite transmissions are for about 4 hours each day, the total requirements of original programmes (excluding repeats, etc) is about 1130 hours. Production of these programmes are done mainly at AIR's 3 Base Production Centres at Delhi, Hyderabad and Cuttack. ISRO has a studio at Ahmedabad and also a small one at Bombay. In addition to the production in studio, a number of documentatries, etc. from Films Division and other sources have also been identified for transmission.

Production of programmes for the direct reception clusters pose special challenges. Programmes have to be made with commentaries in two different languages and meant for two or more States in the country. In some cases the same picture will appear in all the six SITE States and it will have to carry 4 different languages. While these considerations will definitely hamper both the quality and quantity of production, they also demand a most imaginative and creative approach. The challenge of SITE lies in ensuring quality (and quantity) while working within these constraints.

ISRO has the responsibility for production of about 80 "capsules" of science programmes for children. Each "capsule" is about 22½ minutes and consists of 2 programmes. Every week two ISRO capsules will be transmitted during the morning programmes for children. ISRO is dubbing the programmes in Hindi and Oriya, while dubbing in Kannada and Telugu will be done by AIR at Hyderabad.

Production of ISRO programmes is based on the set of programme briefs which were prepared jointly by producers, scientists, educationists, researchers and others. The starting point for each brief is some element of the village environment with which the child is thoroughly familiar—e.g. village pond, bicycle, kitchen, etc. Each of these focal points gives rise to a series of briefs on different science concepts. As an example, from bicycle one can have programmes on air pressure, motion, force etc.

Each brief specifies the programme objective, the science content, its application to the rural environment and questions to ponder over. The general approach and the philosophy behind these programmes is spelt out in the "credo" which basically emphasises *learning* as opposed to teaching, and *discovery* instead of lecturing.

Each group of briefs, based on a common focal point is allotted to a producer and a "science educationist" is identified to work with him. These two, working together with a script writer and a communication researcher, finalise the script and the approach.

A vital ingredient in the process of programme making is research. General research data—supplemented specifically by the Audience Profile and Needs Assessment Studies (carried out by ISRO's Research and Evaluation Cell)—serves as the backdrop for planning of a particular programme. A researcher is based in the ISRO Bombay Studio and provides online assistance and consultancy to the producer in terms of programme format, language, information content and other communication research inputs.

As a further step, both the scripts and programmes themselves have been tested on village audiences using social science research techniques. The feedback from these village audiences has been invaluable in the planning of future programmes. In fact this "pre-testing" is now an accepted part of the production process. Apart from the ISRO science programmes, AIR programmes for evening transmission and ISRO programmes for Kheda have also been pretested.

The Kheda Production Programmes

The production of programmes for Kheda is an especially exciting venture. For the first time in the country, a TV transmitter is being set up in a rural area to primarily provide TV service to village audiences. It is also the first time that there will be about 500 *rural community* TV sets already installed when the transmitter goes on the air. These unique features provide an excellent opportunity for testing the efficacy of a rural-oriented TV system.

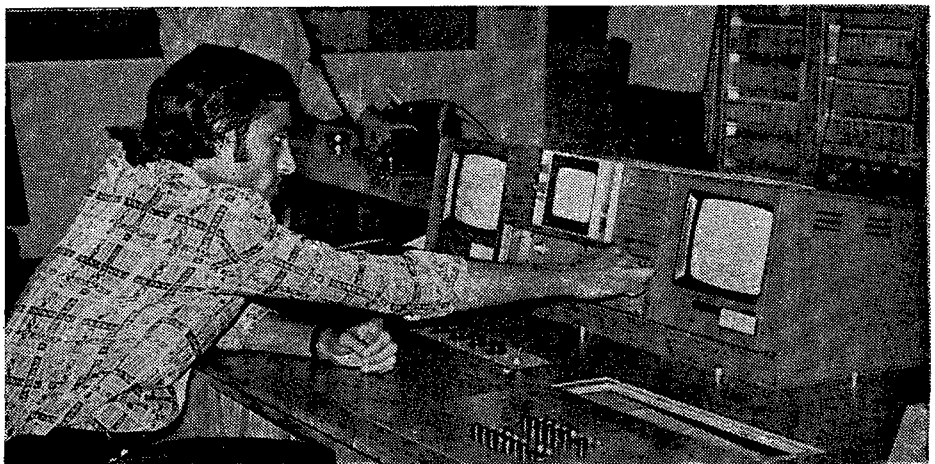
The evolution of the programme plan for Kheda was the result of a process that involved a number of well known professionals. These included writers, dramatists, subject experts, artistes, etc., besides producers, researchers and others from ISRO. The broad objectives of the programme plan are to design a system that voices the concerns and grievances of the people, thus providing a link between the masses and the administrators, to broaden the social outlook and heighten aspirations by bringing stimulating, otherwise inaccessible personalities, places and events of the outside world into the village. In addition, the programmes will also meet the specific information needs of the villagers in all fields of importance to them. In all programmes, the maximum possible involvement of the local people will be sought.

Since Kheda is almost next-door to our Studio in Ahmedabad, it is possible in this case to cover local events and to make the programmes truly responsive to local needs. Apart from first-hand feedback which producers themselves will get by visiting Kheda, more extensive feedback on audience reactions will be provided by ISRO's Research and Evaluation Cell. This will make it possible to modify future programmes appropriately and to have a better understanding of the audience.

Production of programmes by AIR is going on in the 3 special studios at Delhi, Hyderabad and Cuttack. Production of programmes for the first two months of transmission has been completed. The videotapes with these programmes are transmitted to the satellite from Ahmedabad.

Science programmes for the first 3 months transmission have been completed and the process of adding on Oriya to the Hindi original is going on at ISRO's Bombay Studio. Kannada and Telugu are dubbed on by AIR's studio at Hyderabad.

In spite of all these efforts and even all the research that has been done, it will be foolhardy to predict, the impact of SITE or of the TV programmes. While all indications are that the programmes will create a considerable impact given the programmes, the power of the TV medium and its novelty—their contribution to social change and national development can finally be judged only after the SITE experiment. What SITE will definitely do is to contribute to our experience and knowledge, making it possible to plan and produce better, more effective TV programmes. □



Above : **Sound signals being recorded on the Audio Tape recorder.** Below : **The Console for Transmitting Audio and Video Signals.**

Maintenance: Vital Element of Success

M. S. KODIKAL

EACH village that benefits from the Satellite Instructional Television Experiment is equipped with a Direct Reception Terminal which will receive TV signals from the ATS-6 Satellite. These terminals are sophisticated electronic equipment specially made to withstand the severe environment of the villages. The entire job of installation, checkout, operations and maintenance is the responsibility of Space Applications Centre and Deployment. An Operations and Maintenance Group has been set up to look after these activities. The deployment began as early as I November 1974 and the activities will continue till August/September, 1976.

The Direct Reception Terminals

These terminals consist of an indoor and an outdoor unit. The outdoor unit consists of a 3 m diameter parabolic expanded metal mesh antenna and a small electronic package called the head end. This is connected to the indoor unit through a 15 m long special cable. The indoor unit is a specially designed television receiver which an receive the SITE programmes transmitted from Ahmedabad or Delhi earth station. Two audio channels in two different languages will be simultaneously transmitted along with one video or picture. At the receiver any one of the audio channels can be chosen.

This antenna comes in the form of a kit which has to be assembled and installed on site by a team of trained personnel. The Head End unit is mounted on the antenna in a special enclosure to protect it from the weather. The TV Receiver is a modular unit which can be easily repaired in the field by a trained service mechanic. The Direct Reception Terminals have been manufactured by the Electronic Corporation of India, Hyderabad, a Govt. of India Undertaking.

Cluster Organisation

SITE Operations are being conducted in the six states of Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Orissa and Rajasthan and each state will have a "cluster" of 400 Direct Reception Sets. For efficient maintenance of the sets, a cluster headquarter office has been established in each of the clusters, with an engineer-in-charge who is supported by technical, administrative, accounts and auxiliary staff. There are three other maintenance subcentres attached to each cluster HQ. The DRS sets have been distributed so that approximately 100 sets are to be looked after by each sub centre. For this purpose a jeep has been provided for each subcentre. The selected villages fall within 60 kms. radial distance from the maintenance subcentre.

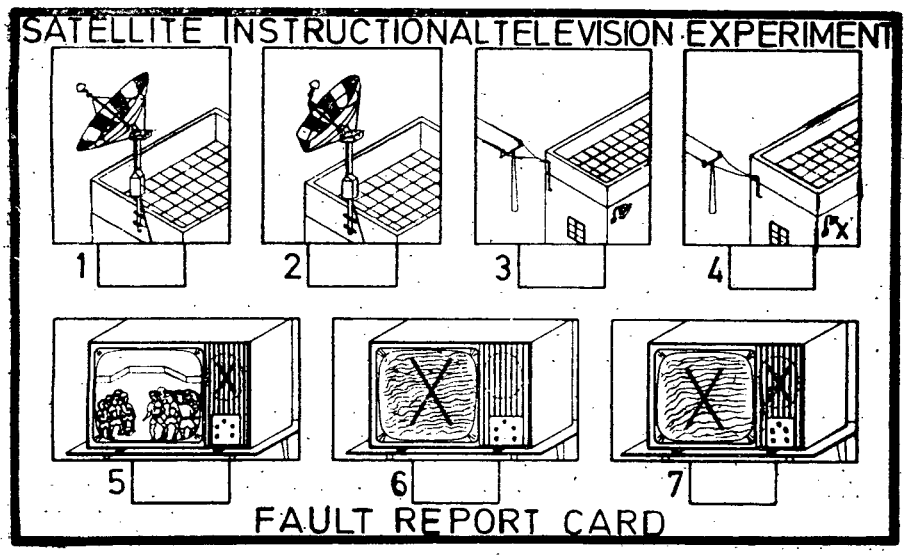
Deployment

This activity involves assembling of the antenna in the selected village, activiting the TV set and testing the complete system. The antenna has to be accurately positioned so that it is in line with the satellite. In this respect the UHF signal transmission and reception is different from ordinary radio broadcasting by AIR, BBC etc. where the radio waves are reflected from the ionosphere and can be picked up by an antenna. The position of the satellite being known, its bearings with respect to True North are calculated on a computer, for each maintenance centre using the solar ephemeris or the position of the sun on any particular day. Using the computer programme the technician using surveying instruments fixes the direction of the satellite and positions the antenna accurately.

During the deployment which preceded the actual experiment, the satellite was not available for testing the total system. A special unit called the Signal Simulator was developed in SAC, and with this instrument it is possible for the technician to allign the complete terminal, even without a transmission from the satellite. Another unit which was provided to the installation staff is an Inverter which when connected to the Jeep battery, provides a source of 230 volts A.C. supply. The inverter is very useful when there is no electricity available in a village when the deployment team goes for installation.

The installation is left in charge of the custodian nominated by the State Government. He is usually a village school teacher, sarpanch or some other responsible person. The custodian is imparted training in the basic operation of switching the TV sets, turning it and also to analyse some of the common faults that could develop in the normal operation of the terminal. A specially prepared Instruments Mannual in the local language has also been supplied to the custodian.

The TV sets being deployed are



Shri Kodikal is Project Leaders D.O.M.

solid state and of modular construction. The printed card assemblies can be easily removed and replaced in the field.

In some villages TV sets being deployed are more robust and rugged than the usual commercially available sets. These ruggedised sets are deployed in locations which have difficulty of access due to bad roads, or roads subject to flooding during monsoon etc. In Orissa, battery operated sets have been installed in some 150 villages. Battery charging facilities have been set up in the Orissa subcentre offices.

Operations

The operations phase commenced on 1st August when SITE programmes began to be radiated from the prime earth station at Ahmedabad.

In the village, the custodian has to switch on the TV set about 10 minutes prior to the programme. A special video test pattern and audio tones are transmitted at the beginning of the programme by means of which the TV set is tuned. At the end of the programme the TV set is to be switched off and kept in a safe place. In some clusters, the state governments have provided wooden boxes in which the TV sets can be safely kept.

The custodian also maintains a log book and makes entries of the time of switching "on" and switching "off" the TV set, number of people witnessing the programme, the technical quality of the picture and the sound etc. He also reports faults, whenever they occur, to the maintenance in-charge of his centre. For this feedback special self-addressed and postage paid post cards have been printed and distributed to the custodians. These Fault Report Cards visually depict several possible fault situations and the custodian merely ticks off the particular fault on the card and posts the card in the nearest post box. He may employ other channels of communication like telephone or can communicate in person. This data is required for the technical evaluation of the results of SITE. Valuable information about the realiability of the system like MTBF and MTTR figures, will be available from the custodians' log books. These log books are issued to the custodian at the beginning of every quarter.

Maintenance

This is an important activity during SITE, and much of the success of the Experiment will depend on how efficiently the maintenance system functions. It is more than just a question of a few villages missing some programmes. It is a question of creating a good image and proving the credibility of a satellite based television distribution system.

The maintenance process is set in motion on the receipt of the fault Report Card at the maintenance centre. Upon receipt of the fault reports, the technician logs them in chronological order and after assessing the status of spares and test equipment decides on a route plan to cover as many of the villages from where faults have been reported. If the number of faults reported are large, then the unattended calls are put in queue for the next day's servicing. It is days from the date of receipt of the Fault Report Card, Subject, of course, to road conditions, availability of vehicles etc.

Most of the minor repairs can be attended to in the field by replacing the printed circuit boards in the TV set. In case the TV set has developed a major fault, then it will be removed to the Cluster HQ for repairs. The technician may provide a spare set to the village in the interim period.

For the battery operated TV sets in Orissa the batteries have a cycle time of one week and will require recharging at the end of this period.

Selection Of Villages To Receive Programmes

B. S. BHATIA

THE satellite beam is so directed that TV signals can be received almost anywhere in the country. As in this experiment only 2,400 TV sets were to be installed, it was essential to develop a procedure to select the states, districts and villages where the sets would be installed.

To facilitale maintenance and signficant data collectiion, it was decided that the television sets would be installed in clusters of about 400 each. With a total of 2,400 television sets it was decided to have six clusters. The first step was to decide in which states these six clusters would be. For identifying these states, the criteria of backwardness as defined by the and the Commission, was accepted Planning states having the largest percentage of backward and second level districts were listed. From this list states that were expected to receive terrestrial television by 1975 were eliminated and the list of SITE states was finalised as Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh Orissa and Rajasthan.

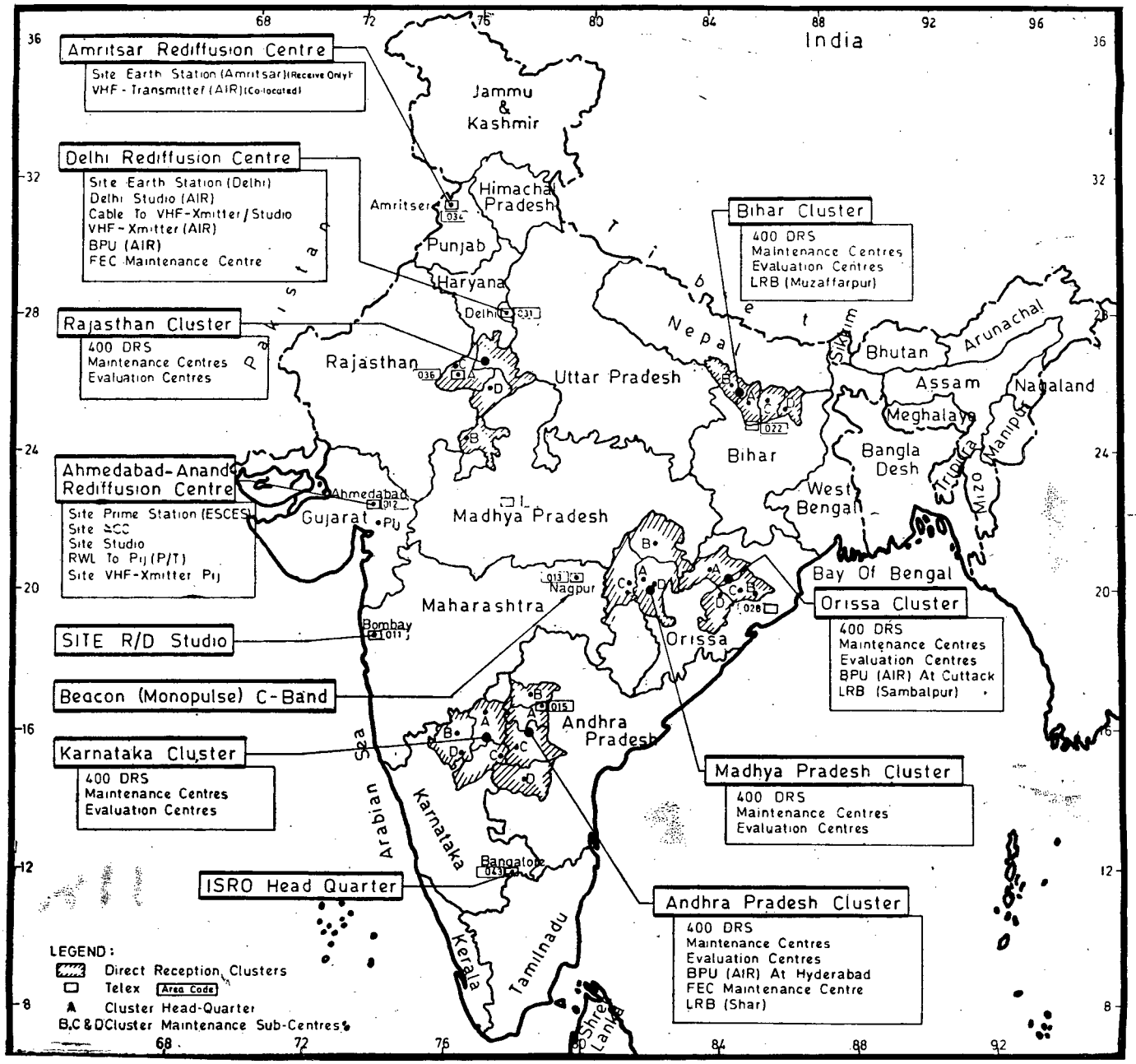
To decide on the districts, the criteria of continuity after SITE and the contiguity were applied. The continuity criterion was applied to ensure that after SITE continuous TV service is made available to these areas. The contiguity criteria was applied to maximise the utilisation of satellite time by using the capacity to broadcast two audio channels with one video. The areas selected in Andhra Pradesh—Karnataka and Madhya Pradesh—Orissa are contiguous so that the same picture with two languages would be acceptable in both the areas.

In selecting the villages for installation of TV sets a variety of technical and sociological considerations were taken into account. The technical considerations mainly related to the installation and maintenance of the TV sets whereas the sociological considerations related to the viewing situation.

Utilisation

As a first step the towns where the maintenance centres would be located were finalised. Towns having largest number of electricfied villages within 40 Kms were selected as maintenance centres. It was planned to have four maintenance centres to look after the 400 sets in each state so that each maintenance centre would have to look after about 100 sets. After selecting the maintenance centres, all the villages having domestic electricity and located within 60 Kms radius from these maintenance centres were selected and data was collected from all these villages, by ISRO field teams, on availability of suitable public buildings, existence of obstructions to the antenna, availability of electricity approachability, population, etc. Data was collected from about 6000 villages in the SITE states and after tabulation and analysis a list of 2,338 villages was finalised.

Mass media exposure alone is unlikely to affect behavioural change. It can contribute to the increase in knowledge, but for behavioural



MAP TO SHOW SATELLITE TV COVERAGE

change inter-personal communication and follow up activities are most essential. Through SITE a very powerful mass medium is being made available to the villages. But unless the TV message is followed up by a number of activities behavioural changes could not be expected. Through utilisation efforts are made to ensure that the required follow up and support activities are made available to atleast some of the SITE villages.

The aim of Utilisation is—

—to reinforce the message

—to provide additional information on the subject

—to clarify the doubts arising in the minds of the audience.

—to ensure availability of infrastural support to make adoption possible

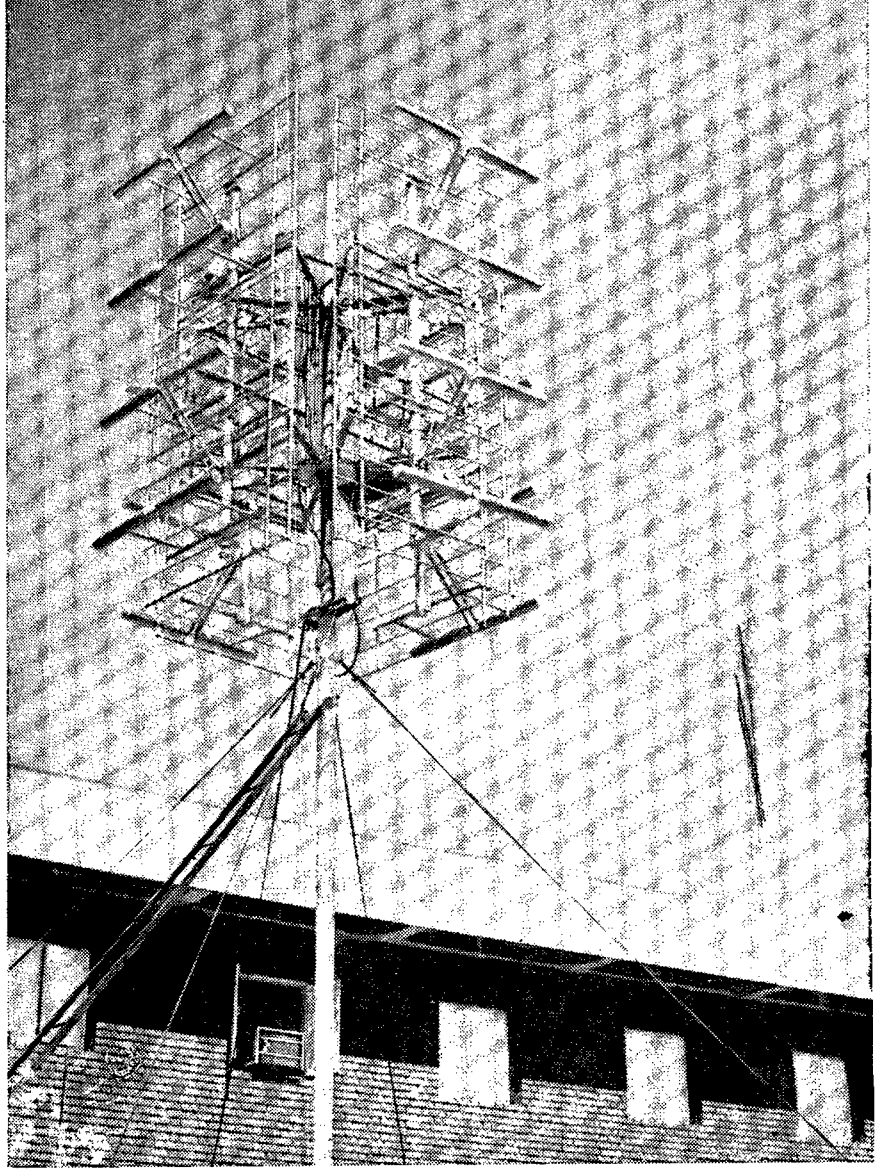
No single medium can do all this. To achieve the above it is essential to design a Communication Package of Printed Material, Interpersonal Communications, Group discussions, Provision of Physical inputs and Special motivational and support activities.

During SITE it is planned to make intensive utilisation efforts in about 5 villages of one Block in each State. The existing machinery of the state extension services will be involved in the intensive Utilisation efforts. Every month about four programmes relating to major agricultural crops, and health problems are selected to make this intensive effort. Printed Material is obtained from the state and distributed to the villages. Discussions wll be held between the State Extension staff and the villagers for clarification of any doubts. Group discussions will also be arranged amongst the villagers themselves and also between the local experts from the Agricultural Universities or Health departments with the villagers. Attempts will be made to ensure through the State agencies, that required physical inputs like seeds, fertilisers, pesticides and credits are made available to the farmers. Attempts will also be made to arrange spe-

cial motivational activities like demonstrations, vaccination camps, etc. to facilitate understanding and adoption of messages broadcast.

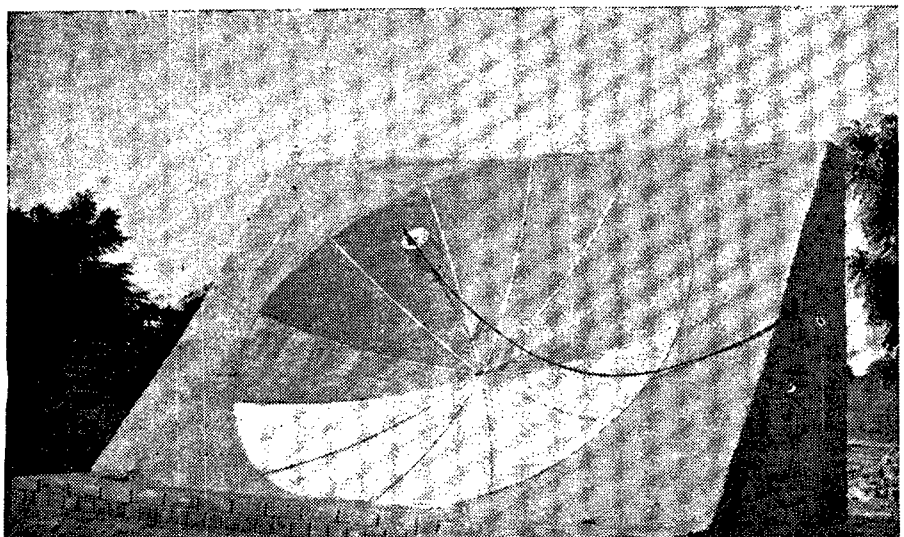
Interface

Interfaces with State and Central agencies : The cooperation of the State governments has been of great value to this project. From the initial stages of selection of villages all the state governments made all necessary facilities available to the field staff. The state governments helped in locating offices and finding administrative personnel. When the villages were selected the complete state machinery helped in extending electricity to the buildings where the TV sets were to be installed. This alone was a very huge task (defined as Operation Electricity) which the state undertook to complete within very stringent time constraints and with their own finances. The states also agreed to provide boxes for the safe custody of the TV sets. They nominated custodians in every SITE villages and agreed to pay the custodians to look after the safe custody of the TV set. The involvement of each state government increased to the extent that the states found it essntial to have separate Liaison SITE officers. Every state found it essential to form two high level committees with the Chief Minister as Chairman of one committee to attend to all SITE matters. A Secretary level official was nominated as the Coordinating Officer for SITE and he is responsible for coordinating all the activities in the state. All departments like the Community Development and the Panchayat Raj, Home Department, Electricity Board, Agriculture Department, Health and Family Plauing, Education etc. are involved in these committees and necessary cooperation is being made avallable by various state agencies to make this project a success.



The T.V. transmitter at Pij is ground based with a power of about one kw. It is linked with the experimental Satellite Communication Earth Station at Jodhpur Tekra in Ahmedabad, through microwave links. It can receive programmes from the TV Studio at Ahmedabad and from the satellite.

A closeup of a chicken mesh antenna as it is installed in the villages. The antenna is laid in a wall to get protection against rough winds or heavy showers.



At the Centre, besides the Department of Space and All India Radio all user ministries like the Ministry of Agriculture, Health and Family Planning and Education have been closely involved in defining the programme topics and contents. All ministries have appointed a SITE Liaison Officer and have been closely collaborating in programme planning.

The Ministry of Education through its centre for Educational Technology of the N.C.E.R.T. has also planned to conduct a teacher training programme. For this purpose the satellite will be used to broadcast teacher's training programmes to about 24,000 teachers in the villages during the vacations. The programme will be repeated thrice and therefore about 96,000 teachers are expected to get training during this one year. □

A SALUTE TO ARTHUR C. CLARKE,

The Prophet who Foresaw Satellite Television before the Birth of Sputnik

It can Prove a Great Boon to Mankind and at the Same Time Spell Danger to Man's Cultural Heritage

SON OF A FARMER, a Fellow of the Royal Astronomical Society, winner of UNESCO's Kalinga Prize for lucid science writing, physcist, mathematician, inventor, skin-diver, treasure-hunter, lecturer, teacher, editor, author, journalist, encyclopaedist, scenarist and prophet, Arthur C. Clarke, the Englishman who has made Sri Lanka his home, has predicted immortality and equality with the gods for man by the year 2100. Although he does not want us to take him too seriously on his Chart of the Future, (he did not take himself sufficiently seriously in 1945 to take out a patent on the geostationary satellite idea for global TV), Clarke has sufficient knowledge of several coordinates of science to project them along predictable lines to arrive at viable possibilities. "The great problem," as Clarke himself puts it while discussing the role of scientists as prophets, "it seems is finding a single person who combines sound scientific knowledge—or at least a *feel* for science —with a really flexible imagination."

Clarke's career as prophet has been strewn with more than one outstanding Success. Apart from the communications satellite idea given out in 1945, he made a direct hit in 1947 when he gave 1959 as the date of the first moon rocket. Although he prophesied manned satellites in 1970 and the moon landing in 1978, these events have come off much earlier. However, "my only concern", he says, "is with *what*, not with *when*".

In an essay entitled "Voices from the Sky" written long before the launching of Telstar, Clarke enumerates the precise scientific basis for the communications satellite and discusses some of the revolutionary consequences which stem from instant global visual communication :

"The radio waves which are now our chief message bearers travel in straight lines, like light itself. But the world, unfortunately, is round.

"Only the curious accident that the earth is surrounded by a reflecting layer —the ionosphere—makes long distance radio possible. The invisible mirror to the sky reflects back waves in the broadcast and short-wave bands, but its performance is somewhat erratic and it does not function at all on the *very* short waves. These slice straight through it and head on out into space, and thus cannot be used for long distance communication. (long-distance, that is by terrestrial standards. They serve admirably for talking to planets and spaceships).

"It is the television engineer who is most badly affected by this state of affairs. For technical reasons, TV is confined to the very short waves—precisely those which are not reflected back to earth. TV programmes go straight on out into space; they may be picked up beautifully on the moon, but not in the next country.

"This is the reason literally hundreds of TV stations are needed to cover a large area like Europe or the United States. Still more serious, it is impossible to span the oceans; they remain as great an obstacle to TV as they were to the human voice before the invention of radio itself. To exchange TV programmes between Europe and America, would require a kind of electronic bucket chain of perhaps fifty ships moored in a line across the Atlantic, relaying the signals from one to the other. This is not, to say the least, a very practical solution.

"There is a simpler answer. Just *one* relay station will do the job—if it is in a satellite a few thousand miles above the earth. All that would be required would be a receiver to pick up the signals from one continent, and a transmitter to rebroadcast to the other.

"But transatlantic TV is only a modest beginning. If the relay satellite were far enough out—say 10,000 miles —its broadcasts could blanket half the world. And two or three such satellites, equally spaced around our planet, could provide TV coverage from pole to pole. The clear, clean signals coming directly down from the sky, with no background interference and no ghostly echoes picked up by reflection from nearby buildings, would permit far higher standards of picture quality than those we tolerate today.

"Perhaps at this point I may be permitted what has been called the modest cough of the minor poet. To the best of my knowledge, the use of artificial satellites to provide global TV was first proposed by myself in the October 1945 issue of the British radio journal *Wireless World*. The scheme then put forward, under the snappy title. "Extraterrestrial Relays", envisaged the use of three satellites 22,000 miles above the equator. At this particular height, a satellite takes exactly twenty-four hours to complete one orbit, and thus stays fixed for ever over the same spot on the earth. The laws of celestial mechanics can thus provide us with the equivalent of invisible TV towers 22,000 miles high...

"...Freedom of communication will have an ultimately overwhelming effect on the cultural, political and moral climate of our planet. It holds danger as well as promise...

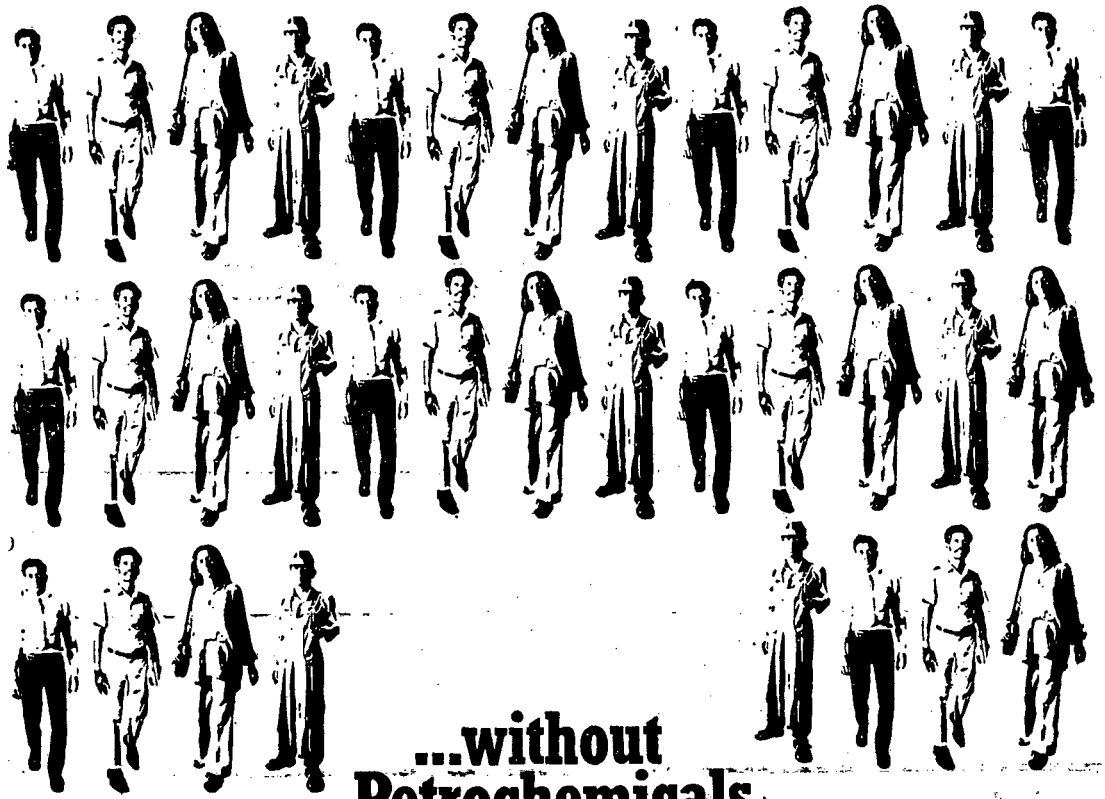
"...The advent of global TV and radio coverage will end, for better or worse, the cultural and political isolation which still exists over the whole world, outside the great cities ...

"...The abolition of all barriers to free intellectual and cultural intercourse will complete the revolution started by the automobile half a century ago and timidly continued by today's short-ranged electronics. It will mean the eventual end of the limited, small-town mentality which, it is true, has a certain charm (especially to nostalgic novelists and especially from a distance). When all men, wherever they may be, have equal access to the same vast communications network, they will inevitably become citizens of the world. and a major problem of the future will be the preservation of regional characteristics of value and interest. There is grave danger of global levelling-down; the troughs in man's cultural heritage must not be filled at the price of deminishing the peaks....

"The universal communication system will have a profound impact upon language. As already suggested, it may lead to a single dominant tongue, others becoming merely local dialects. More probably it will result in a bi- or trilingual planet. In this respect, Switzerland may be the prototype of tomorrow's world. Far above the earth than the builders of Babel ever aspired to, we may at last undo the curse that was visited upon them...

"...As communications improve, so the need for transportation will decrease. Our grandchildren will scarcely believe that millions once spent hours of every day fighting their way into city offices—where, as often as not, they did nothing that could not have been achieved over telecommunication links..." □

Imagine Employment...



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The livelihood of almost one in fifty people employed in the organised sector depends on petrochemicals.

Petrochemicals provide the basic raw materials that sustain many of our essential industries, ranging from antibiotics which preserve health to pesticides which enhance foodgrain production.

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Review Of Current Economic Situation

Six Per Cent Growth Rate Envisaged

Major achievements are containment of inflation, higher industrial production and a better momentum to the public distribution system.

The following is the text of Union Finance Minister Shri C. Subrahmaniam's Statement in Lok Sabha on July 30, 1975

AGRICULTURAL production during the kharif season of 1974 suffered a setback due to vagaries of nature. However, there was considerable increase in production during the recently harvested rabi crop. The output of foodgrains during the last rabi season is currently estimated to have reached an all time record level of nearly 44 million tonnes as compared to 37 million tonnes last year. The production of wheat has been estimated at 26 million tonnes. This implies a welcome reversal of the declining trend of wheat output which was noticed after 1971-72.

As regards the prospects for the current year, the Planning Commission have fixed a target of 114 million tonnes of food production, of which about 69 million tonnes are expected to be produced during the kharif season. The South West Monsoon has been more or less on time. The rainfall has so far been normal in most parts of the country. Timely and adequate rains, coupled with improvements in irrigation and power supply have thus greatly facilitated timely sowing of crops. Every effort is being made to remove the major bottlenecks which may hamper the achievement of food grains targets for 1975-76.

In order to achieve the production targets, emphasis is being laid on faster increase in the creation of irrigation potential maximum utilisation of existing potential, better availability of power, fertilizer, seeds, plant protection facilities, credit and technical know-how. In the allocation of resources priority has been accorded to the completion of ongoing irrigation projects so as to realise benefits from these projects without loss of time. Efforts have also been intensified to resolve inter-state water disputes. The programme of ground water surveys is being stepped up. The supply of EC grade aluminium which is necessary for energisation of tubewells and pumpsets is being improved.

The arrangements for the supply of improved seeds are being further streamlined. The all India seed producing organisations like the National Seeds Corporation of India, the State Farms Corporation of India, the Terai Development Corporation and the State Seed Corporation have geared themselves to ensure adequate supply of improved seeds. Under the programme for building up an effective pests surveillance, forecasting and warning service, 12 stations have been set up. Training programmes have been organised in the major rice growing areas for all levels of workers including senior officers in the new rice technology. Similar programmes are being organised for the production technology in wheat.

The Indian Council of Agricultural Research and other research institutions have developed some new varieties of rice, jowar, bajra etc. New rice varieties viz. IET 2245, W-13400 have been found suitable for release and the areas suitable for their cultivation have been identified. Similarly, improved hybrids of jowar viz. CSH-6, have been found suitable for release particularly in drought prone areas. Large scale minikit demonstrations on bajra hybrids viz. HB-3, 4 and 5 have been laid in different parts of the country. Efforts will now be concentrated on meeting the seed needs for anticipated coverage and targets to be realised under the programme. A total area of nearly 30 million hectares is proposed to be covered under the high-yielding varieties programme in 1975-76. This will mean an additional area of 3 million hectares over the estimated level reached in 1974-75.

As part of the measures being taken up to step up agricultural production, one of the significant developments has been the Government's decision to reduce the price of fertilisers with effect from July 18, 1975. Some of the reductions are indicated below:

Name of fertiliser	(Rs. per tonne) Old price	New price
Urea (46%N)	2,000	1,850
C.A.N.(28%N)	1,145	1,060
D.A.P.	3,005	2,805

Along with the increase in the distribution margins allowed to the distribution agencies, it is expected that the reduction in fertiliser prices will help to increase the consumption of fertilisers in the country.

Resource gaps in State plans have been identified and in the supplementary estimates recently passed by the Parliament additional resources to the extent of Rs. 75 crores have been provided to give to the States further central assistance for enabling them to meet the resource gap in respect of major irrigation and power projects.

Agriculture in the new economic programme: The new economic programme announced by the Prime Minister on 1st July, 1975 contains several items relating to agriculture. Progress in implementation of this programme is briefly reviewed in the following paragraphs.

Agricultural land ceilings and distribution of surplus lands etc.: Early in July 1975 all the State Governments and Union Territory Administrations were requested to take expeditious measures for implementation of land ceiling laws. The State Governments have once again been urged to bring tenancy legislation in line with the national policy and to expedite the compilation of land records for the purpose of speedier implementation.

Provision of house sites for landless and weaker sections: Some form of legislation already exists in many

states conferring ownership rights on homestead tenants. The State Governments have also been intsructed to undertake a quick survey in about 2/3 weeks time to study the dimension of the problem and to assess the steps that are called for to provide house site to every needy person in the rural areas. Guidelines have already been circulated to the State Governments in this regard. These envisage placing obligation on Panchayats etc. to provide house sites when such sites are common property. In addition, the land available with the State Governments or obtained through implementation of ceiling laws may be allotted to the landless. If no such land is available the State Governments may acquire it.

Declaration as illegal of bonded labour: The State Governments have initiated drafting suitable legislation to make bonded labour illegal. This problem is linked up with rural indebtedness and steps are being taken simultaneously for liquidation of rural debts.

Liquidation of rural indebtedness with a moratorium of recovery of debt from landless labourers, small farmers and artisans: A group consisting of representatives from concerned Ministries and the Reserve Bank of India has been set up to examine the existing state legislation on the subject and to suggest a model legislation for adoption by the State Governments and to suggest steps that can be taken immediately for a moratorium on the recovery of debt from landless labourers etc. pending the passing of necessary legislation. The inter-ministerial group held a series of meetings and its recommendations will be submitted to the Governments very shortly. The Ministry of Finance have appointed a group to work out the details of a new structure of rural banking which will help to meet more effectively the credit needs of the poorer sections in the rural areas. Meanwhile, a number of States have already prepared ordinances providing for moratorium on private rural debts. The Department of Rural Development is examining the need for central legislation in this area.

Review of laws on minimum agricultural wages : Many State Governments already have some legislation on minimum wages for agricultural workers. The legislation on the subject enacted in Kerala in 1971 is considered the most progressive. The State Governments are reviewing the dimension of the problem in their States and to revise their laws on the model of the Kerala Act.

Bringing under irrigation 5 million more hectares of land and a national programme for use of underground water : A conference of State Ministers of Irrigation was held in New Delhi on 17th-18th July, 1975 which considered inter-alia the problems relating to the creation of additional irrigation facilities for 5 million hectares during the Fifth Plan under major and medium projects and utilisation of existing irrigational potential. As per the recommendations of the conference project-wise targets have been fixed for various projects. Priority is being accorded to the implementation of on going projects so as to realise benefits. Monitoring units are being set up at project, state and Central levels to watch the progress and to take remedial steps for the removal of bottlenecks in the implementation of various projects. The Department of Irrigation will carry out project-wise reviews in consultation with the state governments to work out necessary operational details for phasing of the construction of projects and assess the resources needed for their implementation.

In keeping with the policy that the benefits of economic development should reach a larger number of weaker sections in the rural areas, it has been decided to increase the number of small farmers' development agencies from the existing 87 to 160 projects in the Fifth Plan. In the last few months 42 new projects have been sanctioned and necessary funds have been released to the state governments to enable the agencies to start their work in right earnest.

The programme for the drought-prone areas has made satisfactory progress. The release of funds required by the state governments has been expedited and out of a total allocation of Rs. 25 crore during the current, year. Rs. 8 crore have already been released as a first instalment.

Industrial Production

The rate of growth of industrial production which was less than one per cent in 1973-74 went up to about 3.0 per cent in 1974-75. Although the overall rate of industrial production was not very favourable, a number of key sectors recorded the highest peak level of production in 1974-75. Thus the production of coal increased from 78 million tonnes in 1973-74 to the record level of 88 million tonnes in 1974-75. The production of saleable steel estimated at 4.9 million tonnes was the highest attained during the last five years. This has led to a virtual disappearance of the black market in iron and steel. Sugar production in the sugar year 1974-75 is expected to reach a record level of 4.8 million tonnes as against 3.9 million tonnes in 1973-74.

Public sector undertakings showed a commendable improvement in performance and a number of these undertakings such as Hindustan Machine Tools, Bharat Heavy Electricals and Mining and Allied Machinery Corporation etc. registered growth rates of over 20 per cent in output. But for the continued shortage of some critical inputs such as power and transport, and strained labour relations in the first half of the year, the overall rate of growth of industrial production in 1974-75 would have been much higher than 3.0 per cent.

The available data for the first quarter of 1975-76 point to a significant acceleration of the rate of growth of industrial production. The weighted average rate of growth of public sector output was about 14 per cent in April-June 1975 as compared to the corresponding quarter of 1974. The rate of growth remains the same even if undertakings, for which only value data are available, are excluded from this calculation. Production figures for April-June 1975 show substantial increases in the output of a number of industries as compared to the corresponding quarter of 1974 (aluminium 36%, sugar 28%, saleable steel 13%, cement 16%, jute manufactures 10%, coal 17% and electricity generation 7%). The overall rate of growth of industrial production during the first quarter of 1975-76 has been estimated at 5½-6 per cent.

There are a number of factors which indicate that the overall rate of growth of industrial production in 1975-76 will record a significant acceleration. Assuming that the hydro-electric projects will generate energy normally expected of them, for which the stage is now set, the total electricity generation in the year is expected to go up by about 20 per cent. The new capacity added will be about 2.6 million kw as against 1.7 million kw added in 1974-75. Two of the major constraints on coal production, namely shortage of rail transport and power having now been largely removed, coal production is expected to go up from 88 million tonnes in 1974-75 to 98 million tonnes in 1975-76. At this level of production, the entire domestic demand will be fully met and in addition some surplus will be available for export.

The production of saleable steel is expected to go up from 4.9 million tonnes in 1974-75 to 5.7 million tonnes in 1975-76. The indigenous pro-

duction of nitrogenous and phosphatic fertilisers is likely to increase from 1.5 million tonnes in 1974-75 to 2.1 million tonnes in 1975-76—an increase of 40 per cent. The domestic production of crude oil is expected to go up by a million tonnes.

There are now clear signs for a breakthrough in the production of crude oil within the next five to ten years. Explorations for oil in the structures known as the Bombay High have yielded highly encouraging results. In addition to Oil and Natural Gas Commission operations in the Bombay High area, oil exploration has been taken up in two other off-shore areas or basins, contracts for which on a production sharing basis have been awarded to two groups of foreign companies. A contract for a third basin off the Southern coast would be soon finalised.

A major source of increased industrial production in 1975-76 will be higher utilisation of the available industrial capacity. The new climate of harmony in industrial relations created by the Prime Minister's appeal to workers and employers after the declaration of emergency would ensure that the human factor will not stand in the way of fuller utilisation of capacity. The import policy for 1975-76 seeks to make it more responsive to the need for stepping up of industrial production and for diversion of such production to export markets.

Special emphasis has been laid on streamlining import licensing procedures and on eliminating delays in issuing licences for raw materials and components. An important innovation has been introduced for licensing of import of raw materials and components, whereby the immediate requirements of imports of industries will be met by automatic licensing. Units belonging to selected industries of high priority can also ask for supplementary licences based on each unit's export performance, production programme, stocks in hand, outstanding licences in hand and the importance of the industry in the national economy.

Industrial production will also benefit from the substantial increase of 25 per cent in the annual plan outlay for 1975-76. The outlay for power and industry (including minerals) has been stepped up by 44 per cent and 50 per cent respectively. Project reports of super thermal power stations announced as part of the new economic programme will soon be ready for submission to appropriate international financial institutions.

Production in the small scale sector will be helped by a recent decision of the government raising the investment limit for small scale units from Rs. 7.5 to Rs. 10 lakh and for ancillary units from Rs. 10 lakh to Rs 15 lakh. The improved supply of critical raw materials such as coal, power, cement, and iron and steel, and the virtual disappearance of black markets in these products would be of particular help in increasing investment and output in the vital small scale sector.

There has been a considerable improvement in the investment climate during the first quarter of 1975-76. Data pertaining to consents/acknowledgements for capital issues (excluding bonus issues) to the non-government companies indicate that during April to June 1975, sanctions for initial issues amounted to Rs. 25.7 crore as against Rs 12.9 crore during the corresponding quarter of the preceding year. Sanctions for further issues by existing companies also reveal a marked increase from Rs 9.8 crores during April-June, 1974 to Rs. 17.6 crore in April-June 1975. Taking initial and further issues together, the total sanctions during the first quarter of 1975-76 amounted to Rs. 43.3 crore compared to Rs. 22.7 crore in the corresponding quarter of last year.

Prices Food Procurement and Public Distribution of essential Commodities

India's success in controlling inflationary pressures in the second half of 1974-75 turns out to be truly remarkable when it is recalled that the first half of the year recorded the sharpest rate of increase of prices in the entire post-war period. The wholesale price index rose by an average of 2.75 per cent per month, reaching an all time peak in the third week of September 1974. However, thanks to the determined measures adopted by the Government in July 1974, the wholesale price index declined during the rest of the financial year. The index for the week ended 29th March 1975 showed a decline of 7.3 per cent as compared to the index for the week ended September 21, 1974. The annual rate of inflation (point to point comparison) which had risen to 31.9 per cent in September 1974 declined to 7.9 per cent by the end of March 1975. The consumer price index also started declining after October 1974. It fell from the peak level of 335 in October 1974 to 321 in March 1975.

During the current financial year, the wholesale price index showed a rising tendency for about two months. However, on account of vigorous measures adopted by the Government to control expansion of bank credit and to immobilise the black money held by smugglers, tax evaders, hoarders and black marketeers, prices have again started declining after the declaration of emergency. The wholesale index declined by 0.4 per cent. during the week ended 28th June. The declining tendency was sustained during the following week when despite a sharp increase in the price of coal, the overall index further declined by 0.1 per cent. The latest available data for the week ended 12th July 1975 show that the index declined by 0.9 per cent in a single week (to the level of 307.6). During this week, the index for food articles declined by 1.4 per cent while that for non-food articles fell by 0.4 per cent. In fact, indices of all major subgroups declined during the week.

The overall index for the week ended 12th July 1975 was 2.1 per cent lower than a year ago, India thus can claim to have the unique distinction of **having achieved a negative rate of inflation.** This achievement has been made possible by a combination of monetary and fiscal measures combined with vigorous action against those indulging in various economic offences. As a result of the rising tendency in the wholesale index in April and May 1975, the consumer price index increased from 321 in March 1975 to 323 in April 1975 and 327 in May 1975. However, recent reports indicate that after the declaration of emergency, retail prices of a large number of commodities including groundnut oil, vanaspati, coconut oil, mustard oil, sugar and maize have been declining.

Procurement : Procurement of kharif cereals during the marketing season 1974-75 (until 15th July 1975) amounted to about 3.5 million tonnes as compared to 2.8 million tonnes during the corresponding period of 1972-73. This is not an unsatisfactory performance considering that the production of food grains during the 1974 kharif season was, perhaps, marginally better than in 1972-73. The latest available data relating to the procurement of wheat out of the current rabi crop show that over 3.6 million tonnes have been procured so far as compared with a total procurement of 4.3 million tonnes in rabi 1972-73 season. This underlines the need for strengthening the procurement drive, by further measures against hoarders and profiteers, if necessary.

As brought out in the following table, the off take of food grains from Government stocks has been substantially higher during the period January-June 1975 as compared to January-June 1974.

Offtake of Food Grains

('000 tonnes)

	1974	1975
January	874	894
February	849	932
March	876	983
April	896	983
May	858	933
June	863	960
Total :	5216	5685

Imports of Food Grains : The Government imported about 5.5 million tonnes of food grains during 1974-75 to sustain the public distribution system. Imports during January-June 1975 amounted to 3.5 million tonnes as against 2.5 million tonnes during the corresponding period of 1974. Notwithstanding the greater offtake of food grains through the public distrbution system, thanks to larger imports, stocks of food grains with the Government agencies at the end of June 1975, amounted to 4.8 million tonnes as against about 4 million tonnes at the end of June 1974. During the current year sizeable imports of food grains are being arranged. This would help to sustain the climate of price stability and will also facilitate building of a buffer stock.

Strengthening of the Public Distribution System : The new economic programme announced by the Prime Minister lays great stress on strengthening of the public distribution system. Accordingly, steps have been taken to strengthen consumer cooperatives throughout the country for distribution of essential commodities. Manufacturers have agreed to earmark up to 20 per cent of their production in respect of vanaspati, soap including washing soap, torch cells, razor blades, safety matches for distribution through consumer cooperatives. A scheme for public distribution of essential commodities has been implemented in Delhi from 23rd June 1975. This scheme is being further developed for extension to industrial mining areas, hill areas and coastal deficit areas. There has been an increase in the production of controlled sarees and dhoties for the common man out of the enhanced controlled cloth obligation.

Its distribution through the cooperative sector has been increased by means of 2,800 retail outlets spread throughout the country, out of which more than 75 per cent are in the rural areas. Consumer cooperatives are being strengthened for arranging distribution of essential commodities on concessional terms to students' hostels in colleges and universities. The allocation of cultural paper for educational needs was raised from 23,000 tonnes in the last quarter of 1974-75 to 40,800 tonnes in the first quarter of the current financial year. Arrangements have been made for supply of white printing paper at concessional prices for publication of worthwhile books recommended by the Education Ministry.

Action against Economic Offences: Since the declaration of emergency the loopholes in the laws relating to the detention of smugglers have been plugged effectively and all the known smugglers have been re-arrested and kept out of mischief. Special legislation providing for confiscation of smugglers' properties is under preparation. In accordance with the new economic programme announced by the Prime Minister, special squads have been set up for valuation of property and for detection of tax evasion. The Forward Markets Commission has intensified its drive to curb speculative activities. State Governments have taken further steps to enforce display of prices and stocks by dealers in respect of essential commodities. All these measures have had a benign effect on the price situation.

SPEEDING UP TEMPO OF DEVELOPMENT

Fiscal Developments : The major concern of budgetary policy during the current year is to accelerate the tempo of investment without in any way undermining the recent price stability which has been achieved after great struggle in the past two years. The Plan outlay for 1975-76 has been fixed at Rs. 5,978 crore which involves an increase of 23 per cent over the annual plan for 1974-75. While avoiding large scale deficit financing, the Central budget for 1975-76 has made a selective approach in its investment policy giving priority to growth-oriented key sectors of the economy like agriculture, irrigation, power, fertilisers, coal, petroleum and essential industries like cement, paper, coal, ship-building and transport. The step-up in public sector investment will also create a more favourable climate for private investment.

The Central budget for 1975-76 also laid adequate emphasis on the stimulation of the economy through providing incentives for saving and investment. For this purpose a wide range of fiscal concessions were announced in the budget. The tax holiday concessions available to new industrial enterprises, hotels and ships were further extended for a period of five years beginning April, 1976. In compensation for the withdrawal of the concession of income tax on the profits up to 6 per cent and exemption of dividends declared by these new undertakings in the hands of their shareholders, the quantum of 'tax holiday' was raised from 6 to 7.5 per cent. To encourage investment and channelise it to high priority industries, inter-corporate dividends derived by domestic companies from new companies engaged in the manufacture of fertilisers, pesticides, paper and cement were completely exempted from income tax. In view of the importance of pesticides in increasing agricultural production, the initial depreciation allowance of 20 per cent allowed to priority industries was extended to pesticides also.

Investments in equity shares of new companies engaged in priority industries were exempted from wealth tax for a period of five years. Investment in the Units of the Unit Trust of India has been made more attractive by exemping Rs 2,000 of the income earned solely from dividends on Units and by a further exemption of Rs. 25,000 worth of Units from wealth tax. The Companies (Temporary Restrictions on Dividend) Act, 1974 has also been suitably amended. Thus while the payment of dividends will continue to be governed by the provisions of the old Act, companies are now free to declare a higher dividend if they so wish.

In accordance with the new economic programme announced by the Prime Minister, the personal income tax exemption limit has recently been increased from Rs. 6,000 to Rs. 8,000 so as to provide some relief to lower income groups. The relief provided gradually decreases as the income level progresses, with a tax relief of Rs. 44 only where the taxable income exceeds Rs. 15,000.

There has been a distinct improvement in tax collections during the first quarter of the current financial year. The collections from income and corporation taxes have amounted to Rs. 149 crore or 9.5 per cent of the full year budget estimates as against Rs. 138 crore during this quarter last year forming 9.1 per cent. In respect of excise and customs, while the absolute collections from excise at Rs. 757 crore in the

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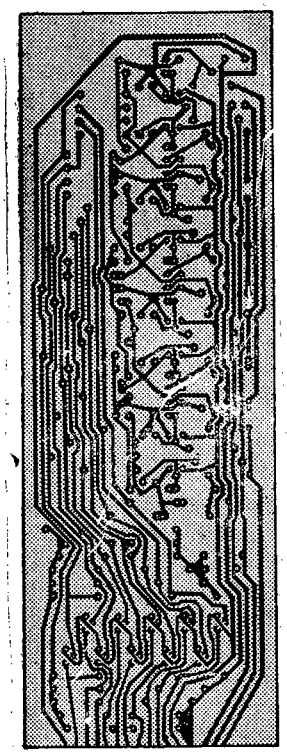

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first quarter this year compare with Rs. 661 crore collected in the same period last year, the proportion to full year estimate this year at 20.8 per cent is slightly less compared with 22.0 per cent last year.

In contrast, revenue from customs has shown further buoyancy during the first quarter this year at Rs 329 crore, and forms 25.6 per cent of the full year budget estimates compared with Rs. 289 crore or 21.9 per cent in the same period last year. With the large scale seizures by the tax administration of tax evaded money, and arrests of smugglers and black-marketeers, it could be anticipated that the tax collections during the current fiscal year might exceed the budget expectations. Further, with the distinct improvement in power supply, and better availability of inputs, industrial output is likely to recover bringing in more excise revenue.

DEVELOPMENT IN MONETARY POLICY

The declaration of emergency has imparted a sense of discipline among the spending ministries/departments and a considerable economy in expenditure can be visualised. As now, the budgetary deficit is, no doubt, quite high as compared to the corresponding period of last year. This is partly due to special factors such as the purchase of fertilisers and food for which reimbursements have not yet been received. With these recoveries, and the proceeds from the market borrowings already announced, it is anticipated that, in the coming months, the budgetary deficit would come down. Yet another favourable factor is that the external assistance promised by the Consortium countries will be higher than originally anticipated, and debt rescheduling agreed to by them would further improve the position. However, utmost emphasis will have to be laid on maximum economy in non-development expenditure.

EFFECT OF MEASURES SO FAR TAKEN

As a result of a series of measures taken during the last one year to control the expansion of money supply, **the growth rate of money supply declined to 6.3 per cent** between the last Friday of March, 1974 and March 1975, compared to an increase of 15.2 per cent in the corresponding period of the previous year. Currency with the public recorded an increase of only Rs. 43 crore in 1974-75 compared to an increase of as much as Rs. 892 crore in 1973-74. The major factors responsible for a marked decleration in the rate of increase in money supply were a lower order of increase in bank credit to commercial sector as well as in net bank credit to Government and a significant decline (Rs. 281 crore) in net foreign exchange assets of the banking sector.

The **declining trend in the rate of growth of money supply has continued** during the first three and a half months of 1975-76 (March 28 to July 11, 1975), when money supply recorded an increase of 6.1 per cent compared to an increase of 6.5 per cent in the corresponding period of the previous year. During this period net bank credit to Government (Centre and States) has increased appreciably, but this is due to certain temporary factors like delay in recoveries from the Food Corporation of India and Fertilizer Corporation of India against imports.

Bank credit to the commercial sector has been contained within Rs. 319 crore (2.9 per cent) in the current year till July 11, 1975, compared to Rs. 594 crore (6.3 per cent) in the corresponding period of last year. Also, the increase in non-monetary liabilities of the banking sector, and the decline in foreign exchange assets had a larger contractionary effect on money supply in the current fiscal year so far than in the corresponding period of last year.

In the background of the success achieved in controlling the expansion of bank credit in the 1974-75 busy season, and the continued need for restraint on such expansion, the basic parameters of the credit policy were continued for the slack season of 1975 (May 1975 to October 1975). The basic emphasis continues to be on restraint combined with a measures of selectivity in the deployment of credit, with emphasis on meeting the credit needs of agriculture, mass consupmption goods, exports, public sector units in the manufacturing sector, units in the core sector in the private sector and small scale units producing wage goods and inputs for the core sector.

No change has been made in cash reserve requirements at 4 per cent of the banks' time and demand liabilities, and the statutory and net liquidity ratios at 33 per cent and 39 per cent respectively. The extension of discretionary re-financing for food procuremnt, bills rediscounted and limits of borrowings from the Reserve Bank of India (at one per cent of demand and time liabilities as of last Friday of September, 1974) also remained unchanged. However, some liberalisation in the extension of the period for concessional pre-shipment export credit (specially for export of specified medium and heavy engineering goods), and fertiliser distribution was allowed.

In view of the need for stimulating investment in projects of high priority, such as those industries where a substantial part of the output is meant for exports, industries with short gestation period, particularly in the core sectors and mass consumption goods, small scale and capital goods industries, banks were directed to step up there medium term lending. In regard to selective credit controls banks were directed to exempt advances against paddy and rice, other than those covered by procurement levy in the States of West Bengal and Bihar, till the end of June, 1975.

During the current slack season so far (April 25 to July 11, 1975), scheduled commercial banks' credit expansion at Rs. 282.9 crore (3.3 per cent) was more or less at the same level as during the corresponding period last year (Rs. 261.8 crore or 3.4 per cent). However, food procurement credit has increased at a higher rate this year (Rs. 195.2 crore) compared to last year (Rs. 106.3 crore). In addition, bills rediscounted with the Reserve Bank have declined by Rs. 44.3 crore during the current slack season so far as compared to a decline of Rs. 16.0 crore during the corresponding period last year. Thus, gross bank credit excluding food procurement has shown a lower increase of Rs. 43.4 crores (0.5 per cent) in the slack season so far compared to Rs. 139.5 crores (1.9 per cent) during the same period last year. However, there is no room for complacency and strict credit discipline will have to be maintained in order to reconcile the requirements of accelerated growth and price stability.

FOREIGN TRADE

The Economic Survey presented to Parliament in February 1975 had set out at length a review of the salient trends in India's foreign trade in recent years as also the first eight months of 1974-75. This analysis had, inter alia, brought out that the spectacular increases in the growth of India's foreign trade in the last about two years had largely been due to the price factor rather than any substantial increases in quantum. The rise in the prices of several of India's major imports and exports had been neither uniform nor steady. While our exports benefited from increases in the world prices of many commodities, at the

same time the upsurge in international prices imposed even heavier burdens by way of additional import costs which in the overall more than off-set the advantage of increased export value realisation. In this process, India's over-all terms of trade experienced a marked deterioration by over 16 per cent during 1973-74. The trend in this regard during 1974-75 had shown no improvement.

In view of these trends in our external trade, the highly unfavourable and harsh impact of the international economic environment on India's economic development, and the developing intensity of pressures on the country's overall balance of payments, the Survey had sought to stress that for ensuring the continued viability of our balance of payments, and for meeting the steep-increase in the costs of essential imports needed by the country, a major increase in exports would have to be brought about. The Survey had accordingly attempted to outline in brief a viable export strategy along these lines and to set out the prognosis of the overall balance of payments outlook for the coming year.

Since the publication of the **Survey**, the overall data on imports and exports has become available for the full year 1974-75. Provisional figures of total imports and exports during April-May, 1975 have also become available. The figures given below bring out the overall trend in India's exports and imports during 1974-75 relative to the position in the preceding four years.

(Figures in Rs. crore)

Year	Imports	Exports	Trade balance
1970-71	1634.2	1535.2	(—)99.0
1971-72	1824.5	1608.2	(—)216.3
	(11.6)	(4.7)	
1972-73	1867.4	1970.8	(—)103.4
	(2.4)	(22.5)	
1973-74 (Revised)	2925.3 (56.4)	2523.4 (28.0)	(—)401.9
1974-75 (Provisional)	4348.7 (48.6)	3253.0 (28.9)	(—)1095.7

N.B.: Figures in brackets relate to percentage variation over the preceding year.

IMPORTS

During the year 1974-75, the total value of India's imports aggregated to about Rs. 4348.7 crore and this represented a steep increase of 48.6 per cent over the total imports in 1973-74 valued at Rs. 2925.3 crore. On the other hand, the total value of exports during 1974-75 amounted to Rs. 3253.0 crore as against Rs. 2523.4 crore in 1973-74, recording a rise of 28.9 per cent as against 28 per cent in 1973-74 and 22.5 per cent in 1972-73. As the increase in imports outstripped, by far, the growth of our total exports, in the overall the trade deficit widened from Rs. 401.9 crore in 1973-74 to as much as Rs. 1095.7 crore in 1974-75. As against this India had a surplus trade balance of Rs. 103.4 crore in 1972-73.

In the first two months of the current year—1975-76 (April and May 1975), the total value of our imports is provisionally placed at Rs. 600.7 crore as against Rs. 631.8 crore in the corresponding two months of the preceding year. In these two months the value of our imports has been lower by 4.9 per cent, or Rs. 31 crore, as compared to the corresponding two months of last year. The import figures are, however, likely to be revised upwards when full account is taken of actual imports. Export realisations, in April and May 1975 are placed at Rs 495.6 crore as against Rs. 389.6 crore in April-May, 1974, the rise being of the order of 27.2 per cent. The trade deficit over the two months April and May 1975 worked out at Rs. 105.15 crore as against Rs. 242.2 crore in April-May 1974-75.

In the light of the recent developments in world economy, it would appear that the **outlook for exports during 1975-76 is somewhat uncertain.** In view of the falling trend in commodity prices in the international markets, a slackening in the rate of growth of demand for India's exports can be expected. At the same time there is, as yet, no major respite in sight from the impact of steeply increased import costs which had imposed a severe pressure on India's balance of payments during 1974-75. However, the various export promotion efforts that are now being made should make it possible for us to sustain a modest growth of exports in 1975-76.

Considering the state of our reserves and the likely inflow of external assistance, there will be no difficulty in financing imports of essential commodities, including sizeable imports of food grains, in 1975-76. At the Aid India Consortium meeting held in June 1975, total pledges of commitments amounting to $ 1775 million somewhat exceeded the target recommended by the World Bank. However, increased aid is no substitute for more effective steps to promote our exports particularly since the medium term prospects for aid are always uncertain.

EXPORT PROMOTION EFFORTS

The government are fully conscious of the imperative need to promote exports. The growth of exports is now being planned in terms of a minimum annual rate of growth of 8 to 10 per cent in value. Several measures have recently been adopted to boost exports.

Under the import policy for 1975-76, all units which export at least 20 per cent of their production will be eligible for getting licences on the basis of the consumption of imported raw materials, irrespective of the value of the licences obtained during the previous year; they will also be entitled to preferred sources of financing. In order to increase export of nontraditional products, import entitlements have been enhanced by 10 per cent in the case of engineering goods, chemicals and allied products, leather and leather goods, cotton textiles, and ready-made garments.

Replenishment licences have been made widely transferable. Units undertaking to export can obtain advance licences, against a definite undertaking to export instead of on the basis of a definite export order which is the present position. Limits for imports of non-permissible items have also been increased, so that export production is not delayed for want of essential inputs. Exporting units can also now ask for a Letter of Authority for direct import of canalised items. The value of import licences available for spare parts has also been increased.

More recently, the export duty on carpet backing and hessian has been removed. Several items, including chemicals and certain categories of iron and steel products, the export of which was not encouraged in the past, have now been permitted to be exported.

The significance which the government attaches to the need for increase in exports and the measures to achieve them is highlighted by the recent creation of a separate Cabinet Committee on Exports under the Chairmanship of the Finance Minister, with the ministers of industry and commerce as members. This committee will provide the necessary leadership and guidance at the highest administrative level to ensure growth of exports in volume terms.

ENGINEERING INDUSTRIES

The government had also constituted some time back a committee to consider the problems of the engi-

neering industries and to suggest concrete steps to stimulate export of engineering goods. This committee made a number of recommendations which were considered by an interministerial committee. Several decisions have been taken both by this empowered committee and by the government on the report. Some of the important decisions are as follows :

(i) Automatic approval for production earmarked for exports beyond the authorised capacity.

(ii) Improved arrangements for supply of inputs for exports production. Within the resources available, the exporters will be provided with all the inputs needed, including raw materials, power and export finance on a priority basis.

(iii) The procedures for allocation of steel have been simplified, and the Iron and Steel Controller will have the sole responsibility to make allocations after the exporters' obligations are sponsored by the Engineering Export Promotion Council.

(iv) In cases where the prices of steel are revised upward by 10 per cent or more, the contracts entered into by the exporters will be protected against revised prices, provided the contracts do not contain escalation clauses to cover the price increase adequately.

(v) In respect of export of capital goods and turnkey projects the rate of cash assistance obtaining at the time of concluding the contract will be protected till the completion of the contract, as against the existing limit of 2 years for turnkey projects and 18 months for capital goods. For other engineering goods such protection will be made available for a maximum period of three years against the existing limit of one year. This protection will be applicable in cases where the price is not negotiable.

(vi) For determining cash assistance while the existing basis of marginal costing will continue, 25 per cent of the rates of such cash assistance will be added towards the fixed cost of production.

(vii) Import duty on raw materials imported against advanced licenses will not be charged if such imports are approved by the Advance Licence Committee.

(viii) Export obligations in furture will be imposed only by one authority, namely, the Licensing Committee.

(ix) The procedures regarding approval on deferred payment proposals have been simplified. The IDBI has been made the focal point for the receipt and processing of all export proposals for deferred payment, instead of applications being processed as at present at three or four points, namely by the RBI, the ECGC, the IDBI and government.

(x) In cases where IDBI financing is not required the exporters can enter into firm commitments with foreign buyers without the prior approval of the RBI and the ECGC, provided the deferred payment contracts are of a value not exceeding Rs. 50 lakh and the deferment period is up to five years.

(xi) A High powered Standing Committee on Export Finance has been set under the Chairmanship of the Deputy Governor of Reserve Bank of India to deal with general problems faced by the exporters with regard to export finances.

(xii) Decisions have been taken for liberalisation of facilities for grant of foreign exchange for travel abroad in conneclion with export contracts, making available pre-shipment credit at a concessional rate of interest up to 180 days for specified medium and heavy engineering goods and arrangements for collection of specialised data and information and the taking up of preliminary studies by consultants. □

High-Pressure Boiler-Plant At Tiruchirapalli

TIME was when approached for providing the technical know-how to set up a heavy pressure boiler plant at Tiruchi some years ago, the foreign firms poured ridicule and remarked that Indian engineers and technicians had not come of age as yet. Much water has flowed down the sacred Cauvery since then. Thanks to the co-operation of Messrs SKODA EXPORT (the erstwhile Technoexport) of Czechoslovakia, the aspirations could be fulfilled. The high pressure boiler plant of the Bharat Heavy Electricals Ltd. became a reality. The years of hard work have put the Tiruchi plant among the top ten boiler producing countries. And, what is more, the very firms which turned their back ten years ago, are vying with others for our collaboration, that too on our terms. This change bears ample testimony to the capability of our young engineers and technicians.

Fully realising that they have to run the unit ultimately, the Indian engineers associated themselves with the Czech firm in preparing the project report, the site report and then resorting to site fabrication. To provide for the smooth functioning of this unit, over 160 engineers and 1000 technicians were given advance training in various skills both within this country and in Czechoslovakia. Thus, with a ground well laid, the production could commence in mid 1965.

Teh rated capacity of 750 mw in terms of utility boilers was reached in the sixth year of production, a laudable point considering the gestation period usually needed for such industries. Because of the uninterrupted growth this plant reached the breakeven point in 1967-68 and by the fourth year of production wiped out all cumulative losses. In 1971-72 all the government loans were paid in full.

The Tiruchi unit manufactures high pressure boilers for thermal power stations and steam generators for industrial use. It also rolls out pulverising mills, dust collectors and axial and centrifugal types of fans of large capacity—all equipment needed for thermal stations. To meet the needs of fertiliser, sugar and other industries, industrial boilers of capacities ranging from 6 tonnes per hour to 100 tonnes per hour are also manufactured.

The Tiruchi unit is shaping in its present manufacturing line, process steam generators for fertiliser and petro-chemical industries, and also for oil refineries. These are designed for a wide range of fuels such as coal, fuel oil, gas, asphalt, black liquor, and for any other combination.

BHEL boilers have become an integral part of India's power map. It has supplied equipment equivalent to a power generating capacity of 2850 mw, apart from supplying 33 steam generators for process industries. The Tiruchi Unit has a 500 mw boiler as its ambitious and immediate aim. The work on its designs is under way.

The unit owes its present position to its well-trained design engineers. With the training received in design principles abroad serving as background, they develop designs to suit the varied requirements of utility and process industries. Moving with the advancement made in the designs, they have entered the nuclear designing field too. The Madras Atomic power project at Kalpakkam is to receive steam generators and intermediate Heat Exchangers from BHEL.

In the wake of the oil crunch, the unit's design engineers have been called upon to harness non-conventional fuels to meet power requirements. They are expected to evolve suitable modifications for switching over from oil fired boilers in industrial establishments to coal-fired boilers. The initial capital conversion cost might be in the range of Rs 25 lakh but there could be an annual saving of roughly Rs 45 lakh by resorting to the use of coal instead of oil.

The Tiruchi plant made a dent in the export market in a small way. As the country's leading manufacturer of valves, meeting more than half the country's needs, it secured orders from West Germany and Poland. But the big break came in 1970 when Malaysia placed orders for two 60 mw boilers in the first instance and then for another three 120 mw reheat boilers for the Tuanku Ja'afar power station at Port Dickson. The tally now is richer by one more, for Malaysia has placed orders for one more 30 MW boiler.

It is good going indeed. As a token of appreciation the Engineering Export Promotion Council awarded the best export award for 1971-72 to BHEL. Exports to the tune of Rs. 12.49 crore to a total generating capacity of 510 mw speak volumes of this laudable effort. Added to this, BHEL is likely to join hands with MAN, a West German firm, for locating two thermal units of 300 MW each and three thermal units of 200 mw each in Iraq. The feasibility of export prospects to other West Asian countries is being probed.

In BHEL, great emphasis is laid on intensive training. After getting the right man for the right job, one is given a tough and thorough training. The BHEL's training Centre at Tiruchi was adjudged the best in the south in 1968 and the best in the country, in 1972. The trainees too had reaped a good harvest of medals in all India competitions.

NPL DEVELOPS 3-D X-RAY

A technique for X-raying organs in three dimensions has been developed by scientists of the National Physical Laboratory (NPL), New Delhi. The process which is ready for commercialisation, has been developed by Dr Chander and his colleagues K.D. Kundra and R.C. Dhawan. Organs x-rayed by this method show "depth", and don't just appear flat as in conventional X-ray pictures. The new method would allow doctors, for instance, to see a bullet lodged inside a lung and get an idea about how deep it has gone.

At present "depth information" is obtained by taking several Xray pictures from different angles. The pictures are then viewed with special visual aids to get a 3-dimensional effect. The All-India Institute of Medical Sciences Hospital has decided to try out the new method. In the NPL method only one X-ray film is used to get the 3-D effect. This would reduce X-ray film consumption in hospitals. The 3-D X-ray pictures can be obtained with the existing X-ray instruments and the conventional X-ray film. The only addition is a square grid specially developed at NPL that will be placed between the X-ray film and the object to be X-rayed. The 3-D X-ray technique would be extremly useful in industry where cracks or defect inside machine parts could be located. Work on 3-D industrial radiography is not complete but is still continuing at NPL, Dr. Chander said. He said that India, the U.S. and Japan are the three countries in the world where work on 3-D Xray is going on. NPL has extended the technique of obtaining 3-D effect to ordinary photography. The impact of 3-D pictures in education, entertainment and advertising fields would be great. For instance bill board with Raj Mahal photograph in three-dimensions would be more life-like than a "flat Taj". Similarly photographs in text-books would be more realistic if they take on a third dimension. Dr. Chander said picture postcards and also postage stamps could be given a 3-D effect with the NPL technique.

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Telegrams: SALESYARD
Telex: TATAIRON-JR 026-201

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But what is woman?—only one of Nature's agreeable blunders.

—Hannah Cowley's
Who's the Dupe?
Act 2, Scene 2

Every woman should marry—and no man.

—Hugo Bohun
Lothair

A woman's whole history is a history of the affections.

Washington Irving
(1783-1857)
The Sketch Book,
The Broken Heart

Men, some to business, some to pleasure take; but every woman is at heart a rake.

—Alexander Pope
Epistle

Women are much more like each other than men; they have, in truth, but two passions, vanity and love; these are their universal characteristics.

—Chesterfield
(1694-1773) in his letter to his son.

Frailty, thy name is woman!

—Shakespeare
Hamlet

God made the woman for the man, and for the good and increase of the world.

—Tennyson
(1809-1892)

Of all the plagues with which the world is curst, of every ill, a woman is the worst.

—George Granville
(1667-1735) *The British Enchanters. Act 2*

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That show, contain, and nourish all the world.

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A woman takes your gold, then leaves you free;
You're worthless, like cosmetics, when you' re dry.

Shudraka (4th cent A.D.)
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Remembered she will bring remorse; seen, she makes the mind unclear; touched, she nearly drives one mad! Why call such a creature dear ?

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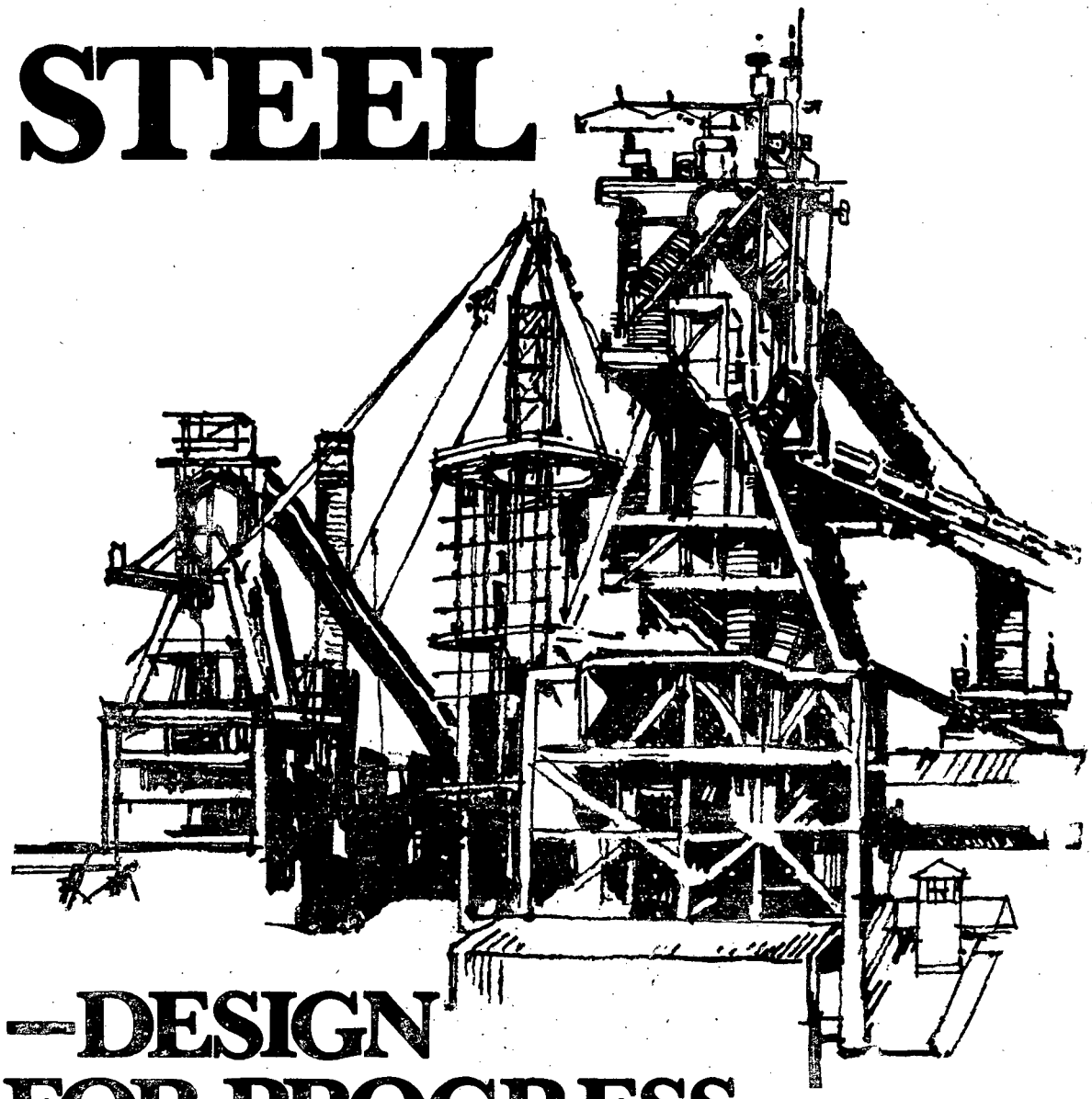
—Will Durant

WOMAN, YOU ARE BLEST

Woman, you are blest !
You have your home, your household work—
In the midst of it you keep a little gap
Through which you hear the cry of the weak.
You bring your offering of service
And pour out your love.
Woman ! you hear day and night the call of a goddess
of life, who in her mind bears the power of serving.
You have taken upon yourself the Creator's work
And are his helper.
You open the way to recovery
And ever renew the out-worn world;
For the unfortunate, the luckless,
Your patience is endless—
Their helplessness calls out your mercy.
Again and Again, the callous, the intolerant
Insult you;
Wiping your tears away
You forgive them.
With bowed head, at ingratitude's door,
Night and day you suffer wounds.
The hapless and useless one,
Whom the goddess of life throws as waste away,
You lift up,
And the heat of his humiliation
You cool with soothing hands.
To him you give worship as to a god
And your nursing care !
Quietly, bravely, in beauty's form,
You carry within you
The preserving force of the universe,
And for the fallen, the broken, the deformed,
The gracious touch of the Lovely One !

RABINDRANATH TAGORE (1861-1941)
"Recovery"

STEEL



—DESIGN FOR PROGRESS

Steel spells progress and steel plants are changing the face of India. Modern temples, Pandit Nehru called them.

Dasturs design the plants that make and shape steel. Plants large and small, to produce steel of diverse types—using Indian raw materials, with Indian know-how, tailored to suit individual requirements.

Dasturs are in the forefront of steel plant design and technology—pelletizing, direct reduction, OBM steelmaking, electric arc steelmaking, continuous casting etc. As in India, they are also actively planning steel development in South East Asia, West Asia, Africa and Latin America.

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THUS SPAKE MEN

But what is woman?—only one of Nature's agreeable blunders.

—Hannah Cowley's
Who's the Dupe?
Act 2, Scene 2

Every woman should marry—and no man.

—Hugo Bohun
Lothair

A woman's whole history is a history of the affections.

Washington Irving
(1783-1857),
The Sketch Book,
The Broken Heart

Men, some to business, some to pleasure take; but every woman is at heart a rake.

—Alexander Pope
Epistle

Women are much more like each other than men; they have, in truth, but two passions, vanity and love; these are their universal characteristics.

—Chesterfield
(1694-1773) in his letter to his son.

Frailty, thy name is woman!

—Shakespeare
Hamlet

God made the woman for the man, and for the good and increase of the world.

—Tennyson
(1809-1892)

Of all the plagues with which the world is curst, of every ill, a woman is the worst.

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International Finance

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Be that as it may, the author presents his perspective in a lucid manner, briefly focussing on the whole canvas of the changing horizon of international liquidity.

While writing the book, the author seems to have been racing against time as is indicated by the postscript which says that while the book was in press, quite a few significant developments had taken place, the most important of which was a further devaluation of the dollar by 10 per cent in February 1973.

The author is right in pointing out the mighty power of one single currency, the dollar, even in the fact of U.S. balance of payments getting worse over the recent years. Probably, this is due to the fact that the U.S. has exhibited flexibility in tackling the monetary crisis by devaluing the dollar.

Countries having larger reserves had, therefore, always to make an upward revision of their own currencies and some of them had been disproportionate. As a result of the appreciation in its exchange rate, India's debt position is said to be improving with the U.S. but at the same time, its debt obligations to other rich countries, especially Japan and West Germany, increased. On balance, however, India has been a gainer as its obligations to the U.S. are the maximum.

The system of SDRs has, according to the author, proved successful though it is found inequitous inasmuch as it gives an unduly larger weightage to developed countries in the issuance of these rights. In fact, it is the developing countries that are badly in need of SDRs on a larger scale. The author suggests that the IMF quotas should be revised in proportion to the growth of world trade at least for the reason that SDRs are linked up with IMF quotas.

A brief mention of the activities of the UNCTAD has been made in a separte a chapter. It is observed that due to an excessive dependence on developed economies, developing economies have not thought of tapping their own markets. It is here that the UNCTAD could do a lot of useful work.

The European Common Market has definitely been advantageous to its member countries in accelerating the rate of their economic growth. The U.K.'s entry into the ECM has added a new dimension to world trade but in the opinion of the author, Indian interests are not adversely affected as the special preference she enjoyed thus far from Britain was primarily in respect of primary exports which are no longer significant in the totality of India's export trade.

Unfortunately, in a book as brief as this, many issues and ideas are only hinted at. Nevertheless, it helps one to have an overview.

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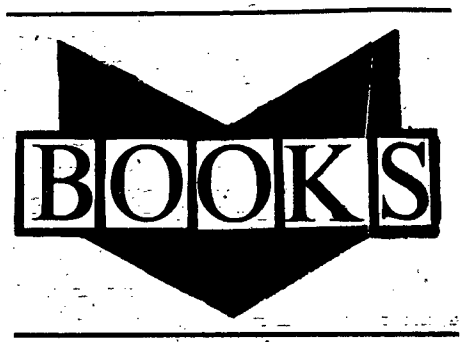

Political Socialisation

Citizen in the Making: *By Surendra K. Gupta; National Publishing House, Delhi-6; Pages 302; Price Rs. 55*

Political socialisation of citizens continues to be one of the least developed areas of socio-political research in our country, both from methodological as well as theoretical points of view. In fact, one is constrained to say that no systematic study has been undertaken on the subject in India.

Citizen in the Making, the volume under review, is a significant and pioneering study on the process of political socialisation in a semi-urban setting in India. It is an admirable study in which Dr. Surendra Gupta has tried to analyse the various processes of political socialisation. The study is based on an investigation of a select sample of school children, their parents and teachers of a high school in a district town of Uttar Pradesh, having a population of about 25,000.

The study is divided into four parts, the first two devoted to theoretical and methodological considerations and the surrounding social milieu of the school children chosen for the investigation. Both these parts would prove useful to future scholars who plan to undertake a study on a similar subject in a wider perspective. In this sample study of post-primary students, the author has made an attempt to analyse the role of the family and the teacher in the shaping of the attitudes and the outlook of his subjects.

The chapter on Family Milieu describes the family setting and the political involvement of the parents while the following one contemplates a similar exercise considering the teacher as an agent. Although, Dr. Surendra Gupta's focus of study is narrow, his treatment of the theme is systematic and thorough.

Part three discusses how the school boy perceives himself in the available setting and, brings out the discrepancies which provide important clues for explanation of the success (or otherwise) of the process of political socialisation. This discussion paves the way for the next and concluding part in which conclusions are provided. Children at the middle and high school stage are found to "have acquired some knowledge of the presence of power external to the family". Further, the children "have come to know, to some extent, about their potentialities as participant citizens in a democratic society". It would have been useful if the age at which political socialisation starts is also noted.

The author has not tried to touch the political socialisation process of the future citizens in a purely urban setting where the children are exposed to varied influences. Two important factors which have not been considered in this study are, firstly, that political socialisation is not confined to pre-adult period of the life-cycle, but it could occur almost at any phase of a person's development; secondly, that the socialisation pattern varies according to inter-systematic differences.

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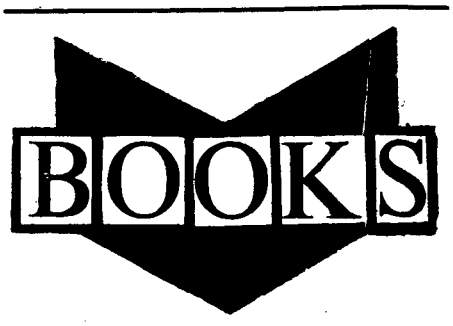

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Kubera's Orchestra

The Structure of Interest Rates in India *by Dr. Ashish Kumar Roy, World Press, Calcutta, 1975; Pages 130, Rs 30.*

THIS interesting study on the behavioural relationship among interest rates in India covers the period between two events, the nationalisation of the Reserve Bank of India 1949 and the more epoch making decision in July 1969 when 14 commercial banks were nationalised. The author makes it clear that ours is a semi-planned dualistic economy and to this extent his analysis is also limited to the delineation of the nature of Indian money market. However, the functional similarities with the money markets in U.K. and U.S.A. have been touched upon here and there.

Based on a doctoral dissertation of the Calcutta University, the study primarily seeks to assess the nature of the automatic transmission of monetary impulses or what is sometimes called synchronous movements of the call rate, the bazar rate, etc. to the prime rate i.e. the bank rate. The measurement of this movement is done by the author by working out correlation co-efficients between the movements of yields on debentures and preference shares, on the one hand and between call money rates in Bombay and Calcutta, on the other. This is by far the only empirical part of the work but the findings are quite convincing although there is a total lack of stress on the psychological dimension. The study also does not attempt to test the validity of any of the existing hypotheses. Hence, it is largely descriptive.

The first two chapters focus on the special characteristics of our money market along with its technical character and gives a description of some of the factors conditioning its growth. These factors relate to the seasonal variations perceptibly influencing liquidity in so far as these variations arise out of the dependence on the primary sector of the economy and the predominance of cash transactions. It has now been established by some of our researchers alongside their U.S. counterparts interested in promoting the new technology in agriculture that seasonality has its own impact on the portfolio behaviour of commercial banks, the credit operations of central bank and also influences the determination of the movement of interest rates. The author observes that industrialization has not proceeded far enough for the R.B.I. to dispense with the impact of the seasonality of rates and embark on continuous operations in our money market. The third chapter is entirely taken up with the operation of the causal factors leading to the movements in the rate structures. Five more chapters deal with other rates e.g. Treasury Bill Rates, Call Money Rates, yield variations on fixed dividend securities, risk bearing securities *via.* preference and ordinary shares. Lastly, there is also a separate treatment of bazar rates based on Hundi operations.

To the critical reader who is familiar with the voluminous publications of the Reserve Bank of India, the present study would at best appear to be a bland condensation of facts culled from them rather than as an independent effort at research based on standard procedures and the use of sophisticated tools and techniques. Besides, the author does not offer anything new in this study except to underline the rationale as to why the Treasury bill rates are pegged low in pursuance of the official policy of backing the State Bank. Similarly, the R.B.I's debt management operations and its influences along with the credit control policy have been mentioned as the factors that make the call rates behave and move along with the rate structure. A critical examination of the fixed dividend securities ends up with an endorsement of the system of the *Net Liquidity Ratio.* Risk bearing securities betray lack of cohesion because of the co-existence of the managed sector and a free sector—a well known phenomenon in our dualistic economy—that makes the yields of equities remain unresponsive to the monetary impulses generated elsewhere in the money market. An assessment of the integration of the rate structure and the money market in general after the nationalisation of the commercial banks is unfortunately missing in this context even as a postscript.

The author's study of bazar rates shows that they closely react to the organised sector with a high degree of association with the bank rate and other rates. Notwithstanding the fact that the State Bank has completely withdrawn from the Hundi business and that there has been greater geographical coverage of commercial banks following their nationalisation, the author opines that through increasing rediscounting facilities given to the Multanis the R.B.I.'s influence over this segment can be extended further. Overall, the study will be found useful by undergraduate students of central banking and monetary economics as it steers clear of theoretical jargon and tackles the delimited area with clarity of style and purpose.

B.N. Nair

A Life to Remember

G.L. Mehta Commemoration Volume *Edited by Shri S.L.N. Simha, Institute for Financial Management and Research, Madras-34, 1974. Pages 160; Price Rs. 35.*

This is a Commemoration Volume on a great Indian, the late Shri Gagan Viharilal Lalubhai Mehta—a man of many splendours—journalism, shipping, public service, diplomacy, technological and management training and development banking. Shri Mehta was not an expert in any particular field, but he had the ability to master the problems of industry and finance. His was a life marked by honesty, truthfulness, liberty of outlook and jest for life. Einstein said about him, "I am attracted to him by his ability of combining humility with frankness and of presenting blunt truth in amiable form."

There are twenty contributors on various subjects, who are eminent persons and knew Shri Mehta personally, namely Shri K.K. Birla, Shri R.S. Bhatt, Shri H.V.R. Iengar, Shri William Diamond, Shri V.K. Narasimhan, Shri H.T. Parekh etc. The papers are authoritative and reflect the progress made by India —an emerging giant, in many spheres of activities with which Gaganvihariji was associated.

Though this volume, covering a wide range of subjects, has been prepared at a very short notice, the volume is well worth reading for excellent observations by the elite economists in India. Students of economy will profit from browsing through this book in which the contributors have identified and analysed with considerable skill and sympathetic understanding some of the major economic problems of India.

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A Life to Remember

G.L. Mehta Commemoration Volume *Edited by Shri S.L.N. Simha, Institute for Financial Management and Research, Madras-34, 1974. Pages 160; Price Rs. 35.*

This is a Commemoration Volume on a great Indian, the late Shri Gagan Viharilal Lalubhai Mehta—a man of many splendours—journalism, shipping, public service, diplomacy, technological and management training and development banking. Shri Mehta was not an expert in any particular field, but he had the ability to master the problems of industry and finance. His was a life marked by honesty, truthfulness, liberty of outlook and jest for life. Einstein said about him, "I am attracted to him by his ability of combining humility with frankness and of presenting blunt truth in amiable form."

There are twenty contributors on various subjects, who are eminent persons and knew Shri Mehta personally, namely Shri K.K. Birla, Shri R.S. Bhatt, Shri H.V.R. Iengar, Shri William Diamond, Shri V.K. Narasimhan, Shri H.T. Parekh etc. The papers are authoritative and reflect the progress made by India—an emerging giant, in many spheres of activities with which Gaganvihariji was associated.

Though this volume, covering a wide range of subjects, has been prepared at a very short notice, the volume is well worth reading for excellent observations by the elite economists in India. Students of economy will profit from browsing through this book in which the contributors have identified and analysed with considerable skill and sympathetic understanding some of the major economic problems of India.

N.N.C.

Development Diary

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The Rs 55 crore first of the 4 hydro-generating sets of the Koyna power house stage 3 in southern Maharashtra has been "synchronised" for the first time and is at present on load test. The hydro-generating set has been designed, manufactured and supplied by the Bhopal unit of the public sector Bharat Heavy Electricals Ltd. The BHEL Bhopal are also supplying three more generating sets of the same capacity. Two of them, each with 80 mw. capacity, would be commissioned this year. The four sets of the Koyna stage 3, when fully commissioned, would generate additional 320 mw. which would flow into the state grid and benefit Bombay city, Ratnagiri district and some other areas of Konkan.

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The Himachal Pradesh Horticultural Produce Marketing and Processing Corporation (HPMC) has decided to undertake all activities pertaining to the marketing of fruits such as procurement, forwarding, transit ware housing, cold storage wholesale and processing apart from the supply of packing material to the farmers on credit. Fruit growing in the state had made a tremendous progress during the last 10 years. The growing area had increased from 1950 acres in 1950-51 to 1,14,050 in 1973-74. Similarly the production of fruits had increased from 7,000 tonnes in 1955-56 in 2,40,570 in 1973-74. By the end of Fifth Plan the production was expected to be 5,20,000 tonnes.

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Agriculture and Irrigation Ministry has suggested some special measures to maximise the cane availability to sugar factories in an attempt to achieve the production target of 4.5 million tonnes of sugar during this crushing season. Factories have been asked to make every effort to utilise the full production capacity and keep a watch on lower sugar recovery than the normal for the region. Advisory units are to be formed by the National Sugar Institute, Kanpur and the Institute of Sugarcane Research, Lucknow, to help the processing units in any adverse situation.

The total value of industrial plant and machinery exported during 1973-74 has been placed at Rs 16 crore. Of this, the export value of textile and jute machinery was of the order of Rs 2.94 crore, sugar mill machinery Rs 3.98 crore, cement machinery Rs 1.1 crore, food processing machinery Rs 1.29 crore and other machinery including excavators, tractors and earth moving equipment Rs 5.65 crore.

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With the first containerised shipment to U.S.A. of 900 bicycles of 5 and 10 speed racing and touring models, India can claim to have arrived in the world market for sophisticated bicycles. This consignment has been followed by further shipments of 1100 bicycles of the same models. These shipments form part of an order for 15.000 cycles received by a client of the Trade Development Authority from USA. Equally striking achievements have been recorded by the Indian cycle industry with the export of critical components like multi-speed free wheels coaster brake hubs, three-speed hubs, light-metal calliper brakes and manipulated tubings for bicycle frames to sophisticated markets like West Germany, USA, Belgium, France and Holand.

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Under a protocol signed recently, India and Rumania have drawn a programme of cooperation in the field of agriculture preserved food industry and water management. The protocol effective for two years provides for exchange of visits and training of scientists and specialists from the two countries. The Rumanian scientists will study techniques of intensive wheat cultivation, cotton production, silk worm breeding and reclamation of saline and alkaline land in India. The Indian scientists will study technology of sunflower, beet and wine production in Rumania. They will also study post-harvest technology of vegetables and fruits and their processing and storage besides medicinal herb and technology of reclamation of saline and alkaline land.

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The Haryana Government has successfully installed 3,000 gobar gas plants in the State in about six months. This is one thousand more than the original target fixed in the middle of last year. The target was raised to 5,000 and later to 7,000 for a year. According to Haryana Government press release 2,000 gobar gas plants would be completed very soon. The State has over 6,000 villages.

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The Vivekanand Laboratory at Almora is proposed to be developed as a major research institute of agricultural research to meet the special needs of the hill areas. The agro-climatic conditios in the hills are vastly different from those the plains Results of work in the plains, therefore cannot be applied directly to the hills.

There has been rapid expansion of rural electrification in the Ujjain district of Madhya Pradesh during the last three years. By May this year, 436 villages in th district were electrified and lines were laid for 8,377 pumps. Street lights have been provided in 102 villages. There are 308 Kms. of 33 K.V. lines, 826 Kms. of 11 K.V. lines and 1723 Kms. of L.T. lines in the district with 476 sub-station, Three major schemes, costing Rs. 2.42 crore and four small schemes are under active implementation and when completed will provide power to 297 additional villages and 743 pumps. Fifty-six per cent of the villages of the district will then have been covered under the electrification programme.

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M.V. "JAG DHARMA" a 21,800 DWT Multipurpose Bulk Carrier yet another biggest vessel so far built in India, has been launched at Hindustan Shipyard Limited, Visakhapatnam. This ship is the third one so far being constructed for the Great Eastern Shipping Co. Limited, Bombay, in Hindustan Shipyard Limited. Keel for this vessel was laid in June 1974. M.V. "JAG DHARMA" is a highly automated vessel and is designed to operate with engine room unmanned, facilitating use of minimum crew and capable of attaining a speed of 16 knots on fully loaded conditions.

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The Jammu and Kashmir State Financial Corporation has earned a net profit of Rs 10.20 lakh during 1974-75 This is 44.7 per cent higher than the corresponding figures for the previous year. The total reserves of the Corporation as on March 31 this year aggregated Rs 34.73 lakh compared to Rs 25.75 lakh forming 33.6 per cent of the paid up capital. Total loans sanctioned during the year aggregated to Rs 214.98 lakh an all-time high record. The corporation also sanctioned loans to the tune of Rs 39.58 lakh to 35 technocrats including unemployed graduates.

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The range of service of the West Bengal Dairy and Poultry Development Corporation is increasing steadily. The annual turnover of the Corporation which was Rs 125 lakh in the year 1972-73 as also in the year following, increased to Rs 238.33 lakh during the year 1974-75. The Corporation earned a profit of Rs 14 lakh during 1973-74 as against Rs 1.57 lakh in 1971-72 and Rs 3.68 lakh in 1972-73. The Dairy & Poultry Development Corporation has recently commissioned a Feed Milling Plant at Kalyani which is expected to go a long way in removing shortage of quality poultry and dairy feed in the State.

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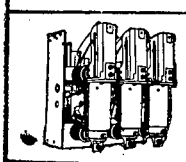
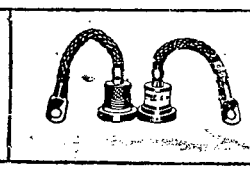
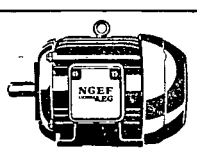

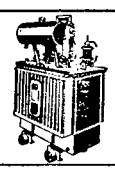
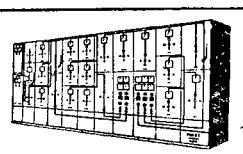

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