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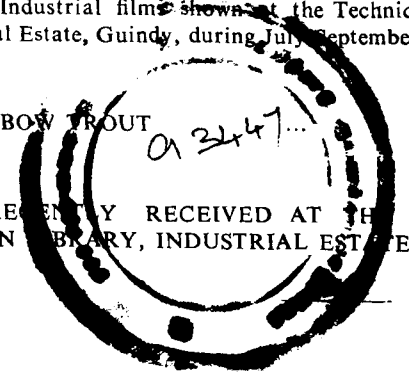
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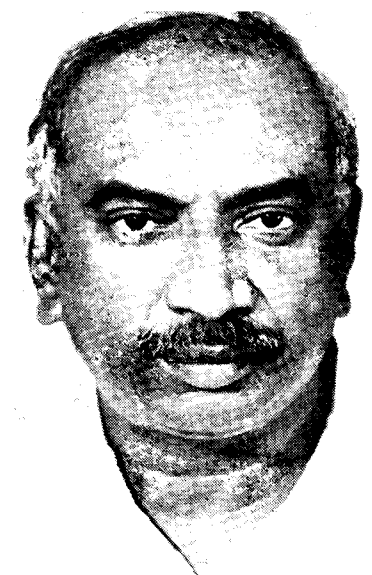
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Steel plant for Madras State



Sri K. Kamaraj, Chief Minister

SRI K. KAMARAJ, Chief Minister of Madras, who recently inspected the working of the Steel Plants in Jamshedpur, Rourkela and Bhilai, revealed to the Press that the object of his visit to those places was with special reference to the proposal for setting up a steel plant in Madras State utilising Salem magnetite ore and Neyveli lignite.

He said that the Technical Committee, appointed by the Government of India would go into the details of these project reports submitted by the various experts and make its recommendations in due course.

SRI C. SUBRAMANIAM, Finance Minister, Madras, who accompanied the Chief Minister, said that the plan for a steel plant at Salem seemed technically feasible. He observed that they had to find out which process was more economical and this could be determined only after the pilot project tests. It may be mentioned in this connection that in Germany and Australia iron is reported to be produced from iron ores which are poorer in quality than the ore found in Salem and using lignite which is inferior to that of Neyveli. As such, lignite is bound to assume greater importance as a reducing agent in the iron industry. At Jamshedpur, Sri Subramaniam said that they saw the pilot low-shaft process plant for the manufacture of pig iron using low-grade non-coking coal and iron ore. This process would have to be tried with Neyveli lignite and the idea was to carry out an experiment with 2,000 tons of Salem iron ore and 1,000 tons of lignite. Since lignite was not available at present, the Minister informed, they proposed to send 2,000 tons of iron ore immediately so that they could be tested with other non-coking coal available in the vicinity. They also proposed to send about 2 tons of lignite for laboratory tests. The pilot project test with lignite would be done only when lignite was available in sufficient quantity at Neyveli. These pilot project tests would be carried out in three or four places including East and West Germany.



Sri C. Subramaniam, Finance Minister

The Finance Minister further stated that apart from the low-shaft and electrical processes in magnetite concentration, there was another one—a new process in America—described as the “hydrogen reduction” process. He added that they should get more details about this.

Sri Subramaniam said that they saw in Rourkela a new method of producing steel from pig iron and the process was called “L.D.” process. The Minister observed that “this method has revolutionized steel production because within twenty minutes pig iron is converted into steel. It is one of the most upto-date methods.”

The Finance Minister concluded that it was for technical experts to select the most suitable process. The Minister hoped that the Project might go through the Third Plan.

INVESTIGATION OF DETAILS

SPECIAL COMMITTEE SET UP

The Madras Government, have constituted a Special Committee to examine the technical details of the investigation of Salem ores, in connection with the setting up of an iron and steel plant in Salem-Neyveli area.

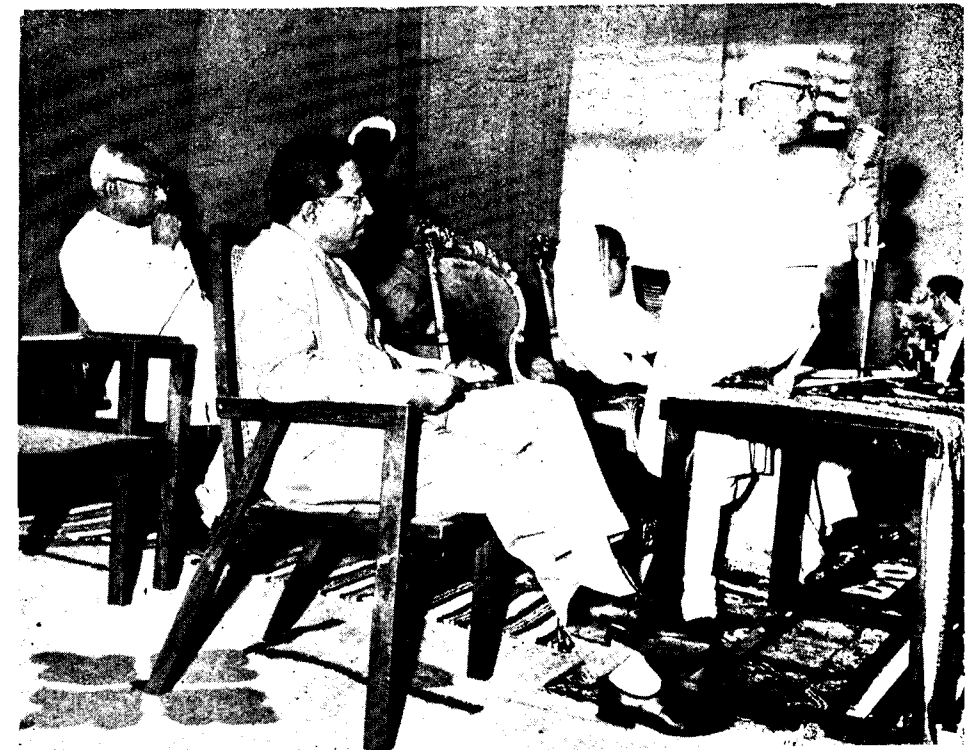
The Committee is composed of Mr. T. A. Varghese, Finance Secretary, Mr. S. R. Kaiwar, Member, Board of Revenue (Member of the Central Technical Committee) Mr. T. K. Palaniappan, Secretary, Industries Department, Mr. P. Sabanayagam, Director of Industries and Commerce, Mr. C. S. Ramu, Joint Director of Industries and Commerce (Planning and Development), Mr. R. N. Dutt, Industrial Consultant, Mr. N. K. N. Iyengar, State Geologist, and the Special Officer in-charge of the exploratory work.

The Government have also appointed Mr. C. V. S. Mani, as Special Officer, to attend to the administrative matters connected with the preliminary steps to be taken for the execution of the project.

The Central Technical Committee, has studied the report of the German Experts from the German Democratic Republic and has suggested certain further technical investigations.

It may be recalled that the team of experts from East Germany visited the Salem-Neyveli areas during last summer and submitted a report expressing the opinion that the exploitation of Salem ores with Neyveli lignite was technically feasible and profitable.

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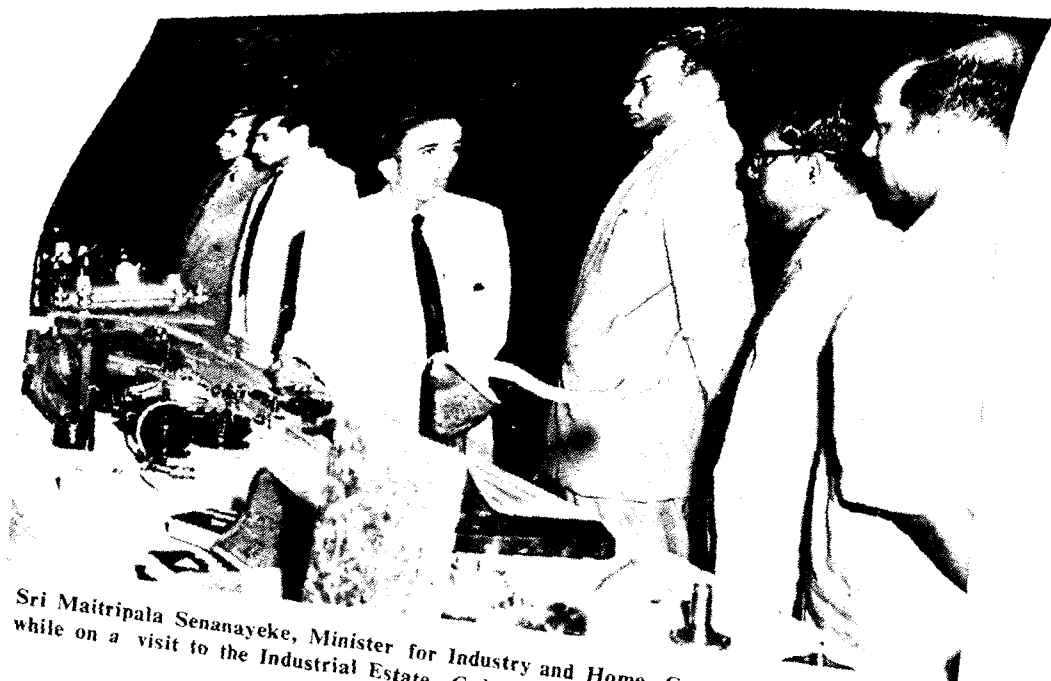
Sri Bishnuram Medhi, Governor of Madras, who inaugurated the Industrial Training Institute and Industrial Colony at Pettai on 30th January 1961, is seen addressing the gathering. Sri P. Sabanayagam, I.A.S., Director of Industries and Commerce, Madras, (seated right to the Governor) presented the welcome address on the occasion.



Sri Nityananda Kanungo, Deputy Minister for Industry, Government of India, who visited the Guindy Estate, is seen evincing interest in the products at the Exhibition Hall.



Sri M. K. Mathulla, Managing Director, Hindusthan Machine Tools, Bangalore (left), is seen in the Exhibition Hall, Guindy Estate.



Sri Maitripala Senanayake, Minister for Industry and Home, Ceylon, (third from right) while on a visit to the Industrial Estate, Guindy, is seen keenly observing the products in the Exhibition Hall.

In full appreciation of the significance and scope of Small Scale Industry development in India and with the intention of disseminating and introducing in this country her rich experience in the field, the Japan Chamber of Commerce and Industry has recently established Industrial and Technical Co-operation Office (ITCO) in New Delhi.

In their letter dated 10-8-1960, a copy of which has been received here, it is stated that the ITCO owes for its establishment and co-operation to the fullest support of the Government of Japan and is assigned by the parent organisation to contribute its best in rendering technical assistance towards the healthy development of small and medium industries in India through the under-mentioned services :

1. General consultation on technical or techno-managerial matters on behalf of the small--medium industrialists in India ;

2. Introduction and recommendation of the most suitable and efficient expert-technicians to the Indian Small--medium industrialists who are desirous of adapting Japanese technique into their production--process or processes ;

3. Any other technological consultant services relating to small--medium industries and ;

4. Arrangements, if desired, for Indo-Japanese joint ventures in the small--medium industrial sector.

The following extract from their pamphlet entitled "How to find out Japanese technicians or enterprisers" is given below for the information of the interested public.

The Industrial and Technical Co-operation Office is prepared to act as your consultant or adviser in acquiring the services of Japanese technicians, particularly for the Small and Medium Scale Industrialists, whether they are already well established or just starting. It can also arrange for the training of Indian workmen under highly qualified Japanese technicians.

In the matter of established industries that suffer from long teething troubles and experience unaccountable loss in production, factories where difficulties are encountered in improving the quality of products, new factories that are unable to bring out quality products and high efficiency as planned and those that are not satisfied in their present production and are seeking for higher efficiency and with regard to new enterprises where the machines are equipped with highly automatic devices, where products pass through a number of processes that require high standards of manual techniques, where a large number of different types of raw material are involved and processed under

highly complicated conditions and where the major part of the labour cannot be filled with skilled workers, this Co-operation Office is ready to come forward with their suggestions and advice for better results in a shorter period. Interested Small and Medium Scale Industrialists in the country can, without hesitation, utilise its consultant services on all

relevant issues by contacting its representative Mr. T. Kishimoto (International M.T.M. Practitioner, Industrial Consultant, registered by Govt. of Japan), Technical Co-operation Office, Japan Chamber of Commerce and Industry, 28, Barakhamba Road, New Delhi-1. Residential address: C/o Hotel Ambassador, New Delhi-3.



The Symbol of STRENGTH AND SAFETY

By Sri T. Somasundaram, B.A., B.E.

Dindigul is an important commercial town with a population of more than a lakh, situated within convenient approach from Madurai, Trichy, Coimbatore, Pollachi and other important trading centres of our State. In view of this strategic location, Dindigul has been well known for several generations now for Locks, Iron safes and Steel trunks. Also because of this location a large number of skilled artisans are concentrated in and around Dindigul. These hereditary artisans can make anything from a Bullock shoe nail to a rifle. Among this concentration of these artisans are to be found a large number of locksmiths. An initial survey of the Industrial potentiality of the area was conducted by the Industries Department in the years 1953 to 1954. This survey revealed that though there are so many of these locksmiths at one place there has been no attempt to standardise the designs and quality of locks. Thus each cottage of a locksmith was involved in producing locks of individual design according to the requirement of the customer from the scrap materials available. On the moral aspect, for all the extraordinary skill that these artisans possessed their standard of living was below minimum.

MACHINERY

Among the various modern machines working in the Unit mention must be made of the Pressure Die Casting Machine which is the first one of its kind to be used by a Small Scale Industry in the State.

PRESSURE DIE CASTING MACHINE

So far, the bodies, bolts and handles of various locks were gravity cast in the cottages of locksmiths and elsewhere. With the introduction of the Pressure Die Casting Machine these parts are now cast on mass production basis in this machine under pressure, thus ensuring quality, uniformity and improved finish of the concerned parts. It has been found to be possible to take out

The Department, therefore, evolved plans to resuscitate the Lock Industry and to standardize production consistent with the needs of the customer. Thus a scheme for the establishment of a workshop cum servicing centre was sanctioned by Government on 13-3-1956. The scheme envisaged a capital expenditure towards land, building and machinery to the extent of Rs. 4,00,000 and a recurring expenditure of Rs. 4,92,406. Preliminary arrangements for selection of land, purchase of machinery etc. were gone into simultaneously and the full complement of the workshop was declared open by the Honourable Sri C. Subramaniam, Minister for Finance, Government of Madras, on the 7th September, 1957.

CALLING

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★ in the City of
★ Madras and
★ Neighbourhood.

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WALLTAX ROAD :: MADRAS.

as many as 250 shots for a shift of 8 hours with this machine. Naturally as a result of this mass production and improved finish these parts are found to be very much cheaper than their crude market contemporaries.

PROJECTION WELDING MACHINE

In the Cottage Industry the keys of the various locks are forged from a single piece by hand resulting in very awkward and incongruous shapes of blank keys. In the Departmental workshop, however, the key head, stem and wards are stamped out in the various power presses achieving perfect uniformity and later the head, stem and ward are welded together in the Projection Welding Machine which is also a mass production one, capable of welding out as many as 500 keys a day.

POWER PRESSES

The Departmental Centre has a variety of power operated presses from a capacity of 5 tons upto 80 tons. The levers locking bolts, the top and bottom plates in the case of padlocks and in some cases the bodies of door locks are blanked, punched and bent to

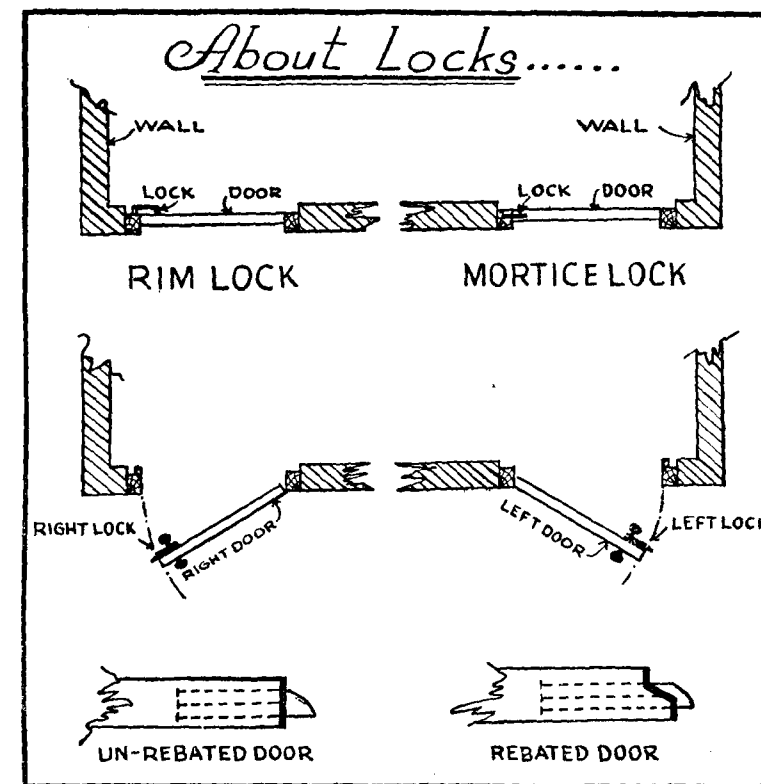
shape wherever necessary with the use of these presses.

TOOL ROOM

With the installation of the above mentioned mass production machinery a separate Tool Room has been set up with all the machinery required therein, as an adjunct to the production shop. To name a few there is a Do-all German machine, a Surface grinder, Milling and Shaping machines and of course, electrically operated tempering furnaces. The dies required for the various types of locks to be fitted up in the various production shop machinery are all manufactured at our Unit itself with the help of experienced die makers. It will be not out of place here to mention that dies to the extent of over Rs. 2,00,000 have been manufactured in this Tool Room which, modestly speaking, is a credit to a Small Scale Industry, like ours.

TYPES OF DOORS AND LOCKS

An illustrative sketch of various types of doors and the various types of locks to suit these doors is given in the next page. This sketch is completely self explanatory.



PRODUCTION

The Departmental Centre has in the past 2½ years evolved a number of designs of door locks which include Rim Locks and Mortice Locks. These locks under the Brand and name of 'D' LOK' are now on

display and sale at all the markets of the Country and have been reported to be in keen competition to any foreign or Indian make of Locks. A few designs of locks are illustrated diagrammatically in a sketch furnished overleaf.

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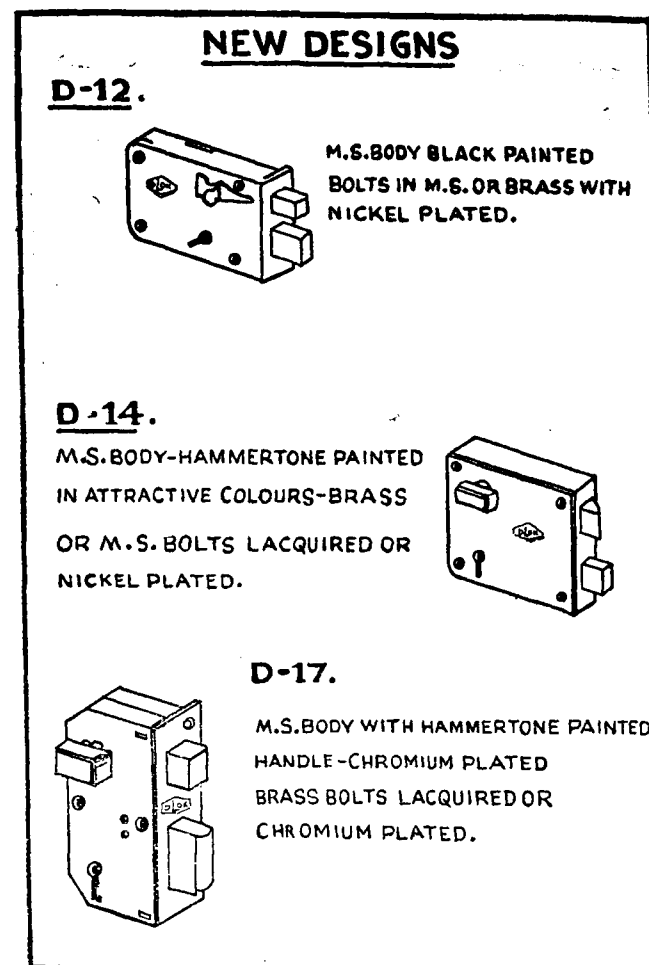
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WHY 'D' LOK IS SUPERIOR TO ANY MARKET LOCK?

A comparative study will show that a local type of door lock falls far below the standard of 'D' LOK.

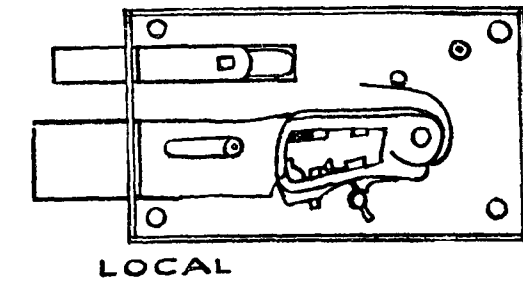
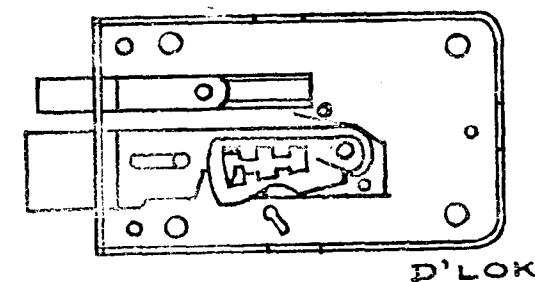
1. While the 'D' LOK body is pressure Die Cast out of brass or zinc or pressed out from mild steel case into attractive shape, the local type of lock aims only at large sizes and mostly the case is forged and welded by crude methods.

2. The levers in 'D' LOK are punched out on a predetermined Coding and the key ward is filed out to this Coding, thus ensuring a very safe measure of non-interchangeability. In the market lock, there being no Standardization, Coding has been completely left in the hands of the producer artisan who in most cases files the levers as also the key ward to achieve quicker production. Thus there is practically no standard coding in the market lock.

3. Though 'D' LOK' is not quality control marked there is very strict supervision at every stage of production and it can safely be said the 'D' LOK' is a quality controlled

lock. Evidently this cannot be looked for in market production.

4. 'D' LOK' is finished to attraction with hammertone finish or Chromium plating while the market locks are left bare.

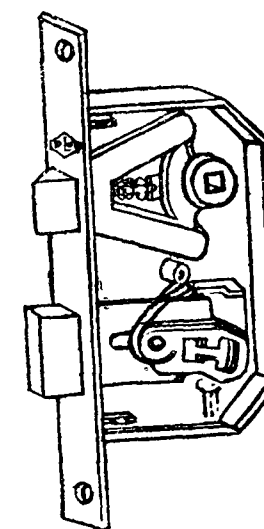


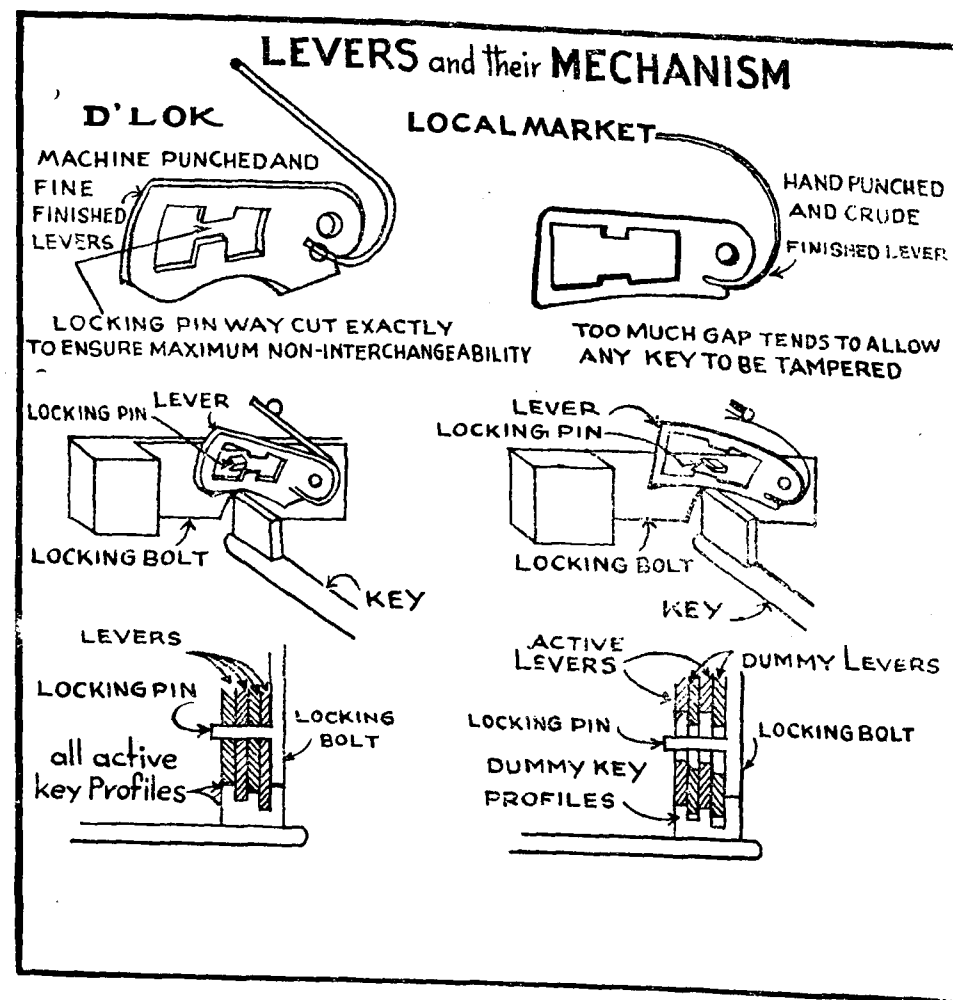
DIFFERENCE IN QUALITY

5. On a similar analysis it is found that 'D' LOK' stands comparison with any of the modern foreign or indigenous locks. The price structure of 'D' LOK' also is enviably low, for the quality that is offered to the purchaser. A price list is also reproduced here.

PRICE LIST

Sl. No.	Type	Description of Locks	Rate Rs. nP.
1.	D-9	Cabinet Locks	... 5 50
2.	D-12	Door lock (Local Pattern)	... 11 00
3.	D-14	Double bolt door lock—M. S. case (with brass knobs: (Single turn)	... 12 50
4.	D-16	Rim Lock with Spring latch (Brass knobs)	... 10 50
5.	D-17	Rim Lock with Push latch	... 10 00
6.	D-18	Rim Lock with Twist latch	... 10 00
7.	D-19	Double Bolt door lock (M.S. with brass knobs) Double turn)	... 14 00
8.	D-15	Mortice Lock (Brass)	... 18 50





SERVICING

The production of the above mentioned door locks has been undertaken only with a view to introduce new and attractive designs and stabilise the prices at purchasers' level. The main intention of the Government Centre is to afford maximum facilities to the

THE DINDIGUL LOCK-WORKERS' INDUSTRIAL CO-OPERATIVE SOCIETY.

In order to afford a proper channel for enabling the artisans to avail the servicing facilities offered at the Unit the Director

Locksmiths of the area to increase production, improve quality and earn more. With this end in view the Unit set about manufacturing all the component parts of Padlocks, Drawer locks, Almirah locks, Cabinet locks and so on. The components have for basis the standards set up by the Indian Standards Institution.

of Industries and Commerce was pleased to register an Industrial Co-operative Society for the local Locksmiths in 1958. The Society

has on its rolls nearly 100 Lock-workers as members who have all contributed Rs. 6,000/- as share-capital. The society has set up its assembly shop within stone-throw distance of this Unit.

FINANCIAL ASSISTANCE TO THE SOCIETY

The Government of Madras have granted a loan of Rs. 80,000 to the Society: towards cost of Land and Building (Rs. 24,000), towards machinery (20,000) and towards working capital (Rs. 36,000).

ADMINISTRATIVE AND TECHNICAL ASSISTANCE

As the Society cannot afford any recurring expenditure for this purpose in the initial stages, Government have sanctioned a

Manager who is a Co-operative Sub-Registrar apart from a Senior Inspector, Accountant and a Typist. On the Technical side to ensure proper production and quality, a Technical Assistant has also been offered free of cost to the Society.

WORKING

The Society purchases the component parts of various locks from the Government Lock Unit and issues to the members for assembly in the Society premises itself. The members have merely to file the locks to a finish, prepare the key from the blank to suit the lock and hand over in finished condition. Before rivetting the top plate of the locks they are examined by the Technical Assistant to ensure compliance with the standards

We have all categories of Pipes, Tubes and Fittings as well as Untested E. R. W. Tubes in various sizes

For details, please contact:

THE MADRAS CIRCLE PIPE DEALERS' ASSOCIATION, LTD.

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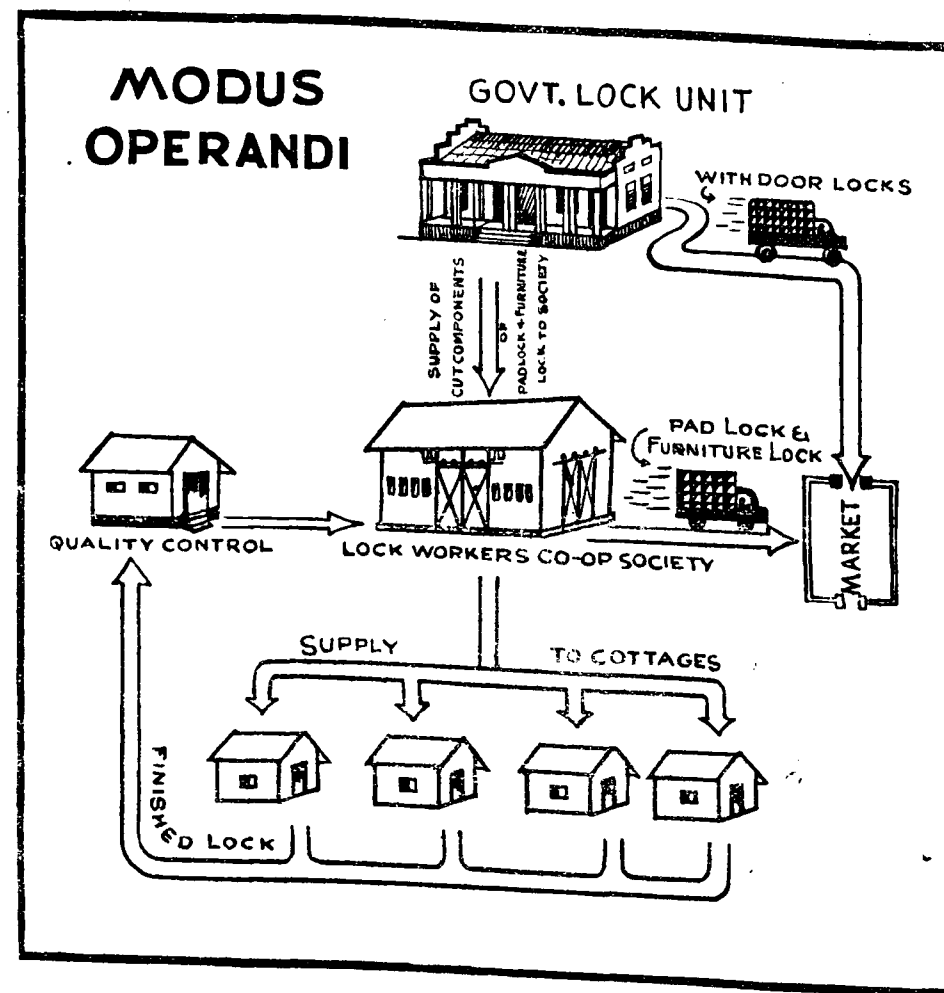
Phone: 4055 & 21680

Telegram: "GALVANIZE"

SOLE AGENTS FOR S. & L. PIPES IN SOUTH INDIA

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| 1. Shaikat Buildings, Silver Jubilee Park Road, Bangalore-2. | 4. No. 46, Bazaar Road, Mattancheri, Cochin. |
| 2. No. 1, Rashtrapathy Road, Secunderabad (Dn.). | 5. T. S. No. 10/764, Bunder Road, Mangalore. |
| 3. Rangayya Appa Rao Street, Vijayawada. | 6. No. 4/2, Race Course Road, Coimbatore-1. |



EARNING AND MORAL BENEFITS

Those locksmiths who have been enrolled in the Society have fully realised the benefits of the Co-operative enterprise against individual groping. Formerly these workers used to manufacture locks in their own cottages by getting the required materials almost always on loan from the traders. Thus their finished locks were purchased by the same traders for less than half their worth. Even this frugal amount was not always paid in full to the workers but adjusted

in part with any private loan of the workers with the traders. Thus for all day's work the workers could not earn even for one meal for himself and his family. It is this situation which has also greatly been responsible for the very poor quality in the lock produced under such circumstances.

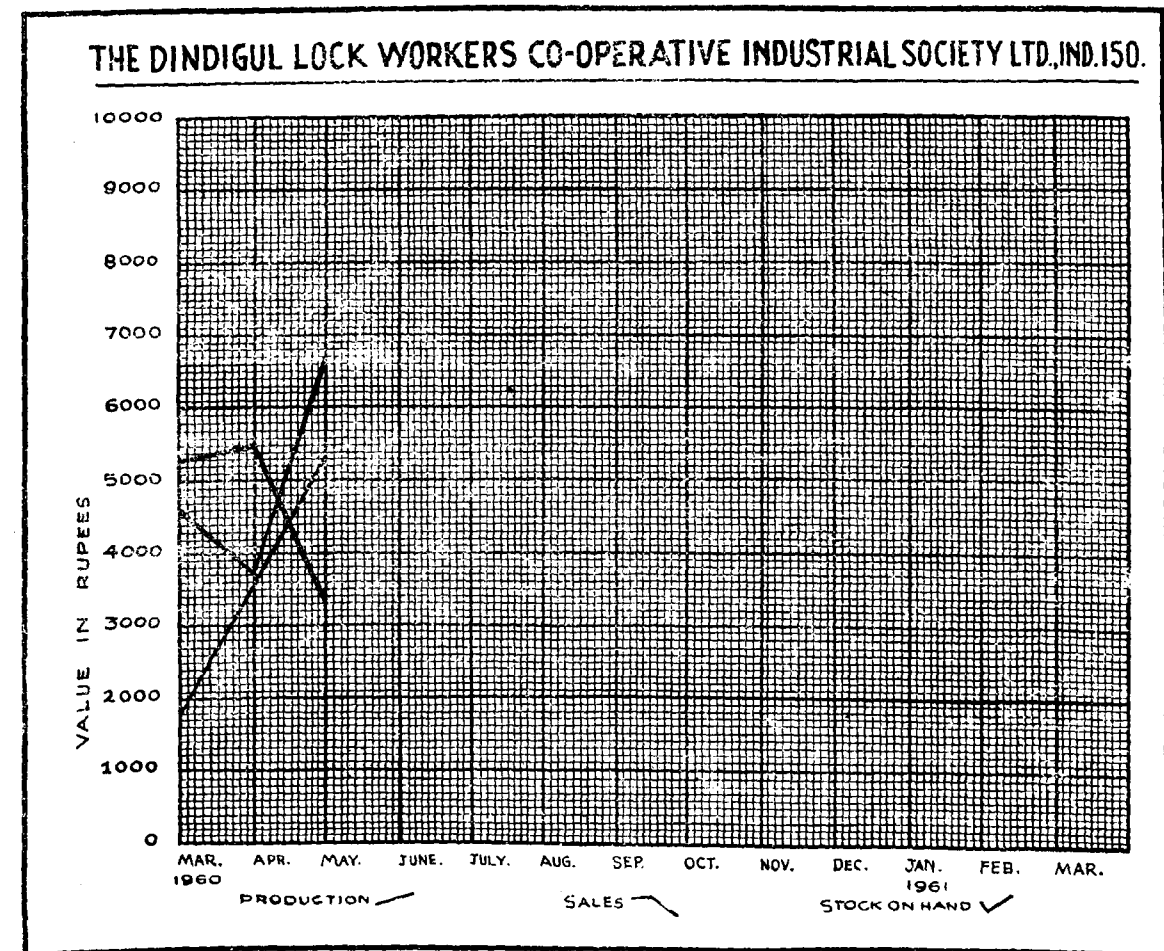
As against this picture the same worker now works in the Society with the feeling that he is an important shareholder, for only 8 hours a day; he has all the components supplied to him and merely assembles what is

given. In view of the uniformity of the component parts, the quality of the materials and the availability of the improved tools and appliances, quite often he himself is amazed at his own productive capacity. On an average a worker earns between Rs. 2-50 and Rs. 3-00 a day.

MARKETING

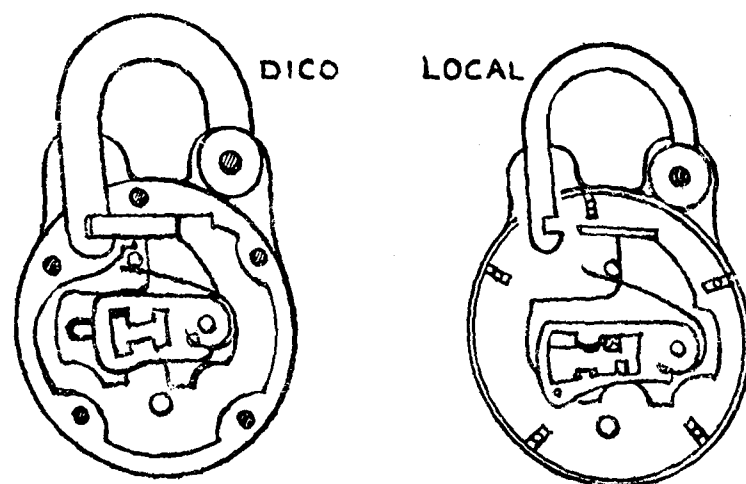
In view of the cogent working of the Unit and the Society, the Society's locks have also

earned a name in the market. In fact the Society is already a supplier of padlocks and furniture locks to the Neyveli Lignite Corporation, the State Bank of India, Madras Electricity Board, all the Departments of the Government of Madras, several banking institutions, Colleges etc. A graph showing the production, sales and stock of society locks which are marketed under the popular brand of 'DICO' is furnished below.



JAN.-MARCH 1961

13



DIFFERENCE IN QUALITY.

It may not be possible to explain all and everything in the space of an article like this. The reader is cordially invited to visit the Government Centre and see for himself how we play our part in increasing production so essential to the well-being of our people, in ensuring standards and in establishing a lively community of artisans in the area, true to the expectations of our Honourable Minister for Industries Sri R. Venkataraman who wrote in our visitors' book;

"INDIA LOOKS FORWARD TO THE ESTABLISHMENT OF SMALL SCALE INDUSTRIES IN ALL THE NOOKS AND CORNERS OF THE COUNTRY. THE LOCK MAKING UNIT IS A MODEL FOR THE ESTABLISHMENT OF SUCH INSTITUTIONS....."

I HOPE IT WILL GROW AND EXPAND."

PHARMACEUTICALS

AMRUTANJAN

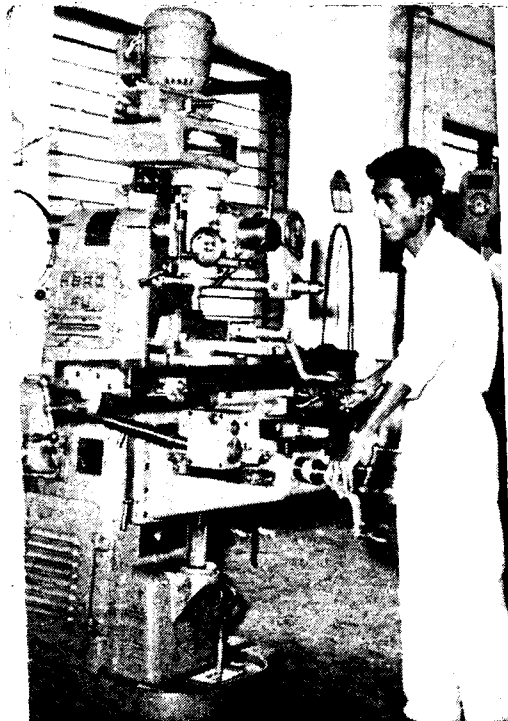
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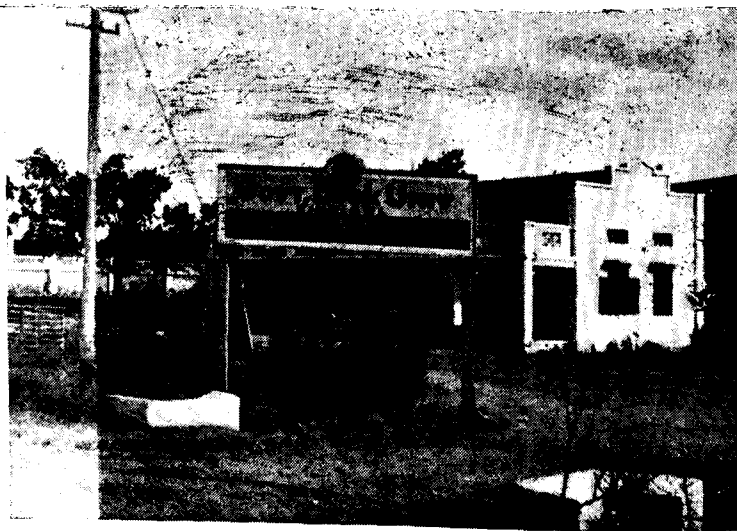
Gifts to the Queen



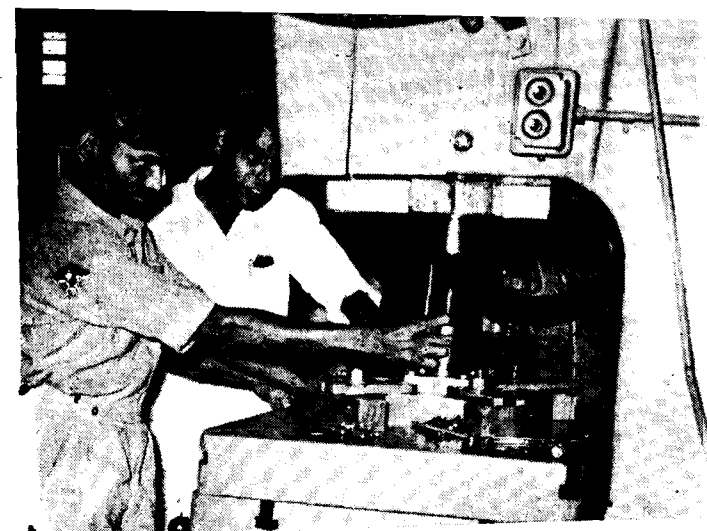
During the recent visit of Her Majesty Queen Elizabeth II and H. R. H. the Duke of Edinburgh to Madras, several novel gifts were presented to the Royal couple by the Government of Madras. The articles included a silver model of a South Indian temple **gopuram**, a soap-stone model of the shore temple of Mahabalipuram, a pair of traditional Tamilnad lamps (**kuthuvilakku**), an image of Goddess Parvathi and a bronze replica of Lord Natesa. In the picture are seen Queen Elizabeth, Sri Bishnuram Medhi, Governor, Sri C. Subramaniam, Finance Minister, Sr. Mathi Vijayarathnam, Pandit, High Commissioner for India in U.K., and the Director of Industries.



2



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GOVERNMENT LOCK UNIT, DINDIGUL.

1. A VIEW OF THE UNIT

2. MILLING MACHINE

3. TOOL ROOM MACHINES AT AN ANGLE

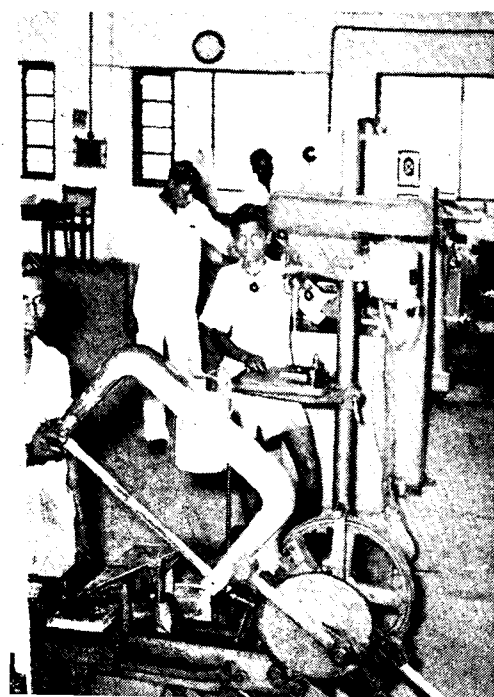
4. A PART OF THE 80-TON POWER PRESS

5. HYDRAULIC SURFACE GRINDER

6. PROJECTION WELDING MACHINE

EXTERIOR VIEW

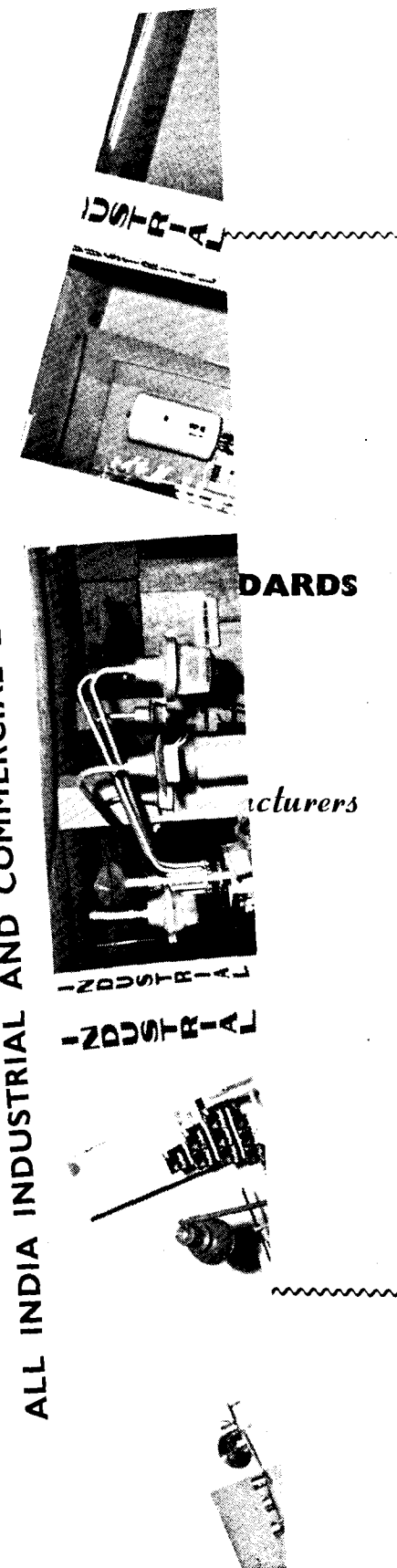
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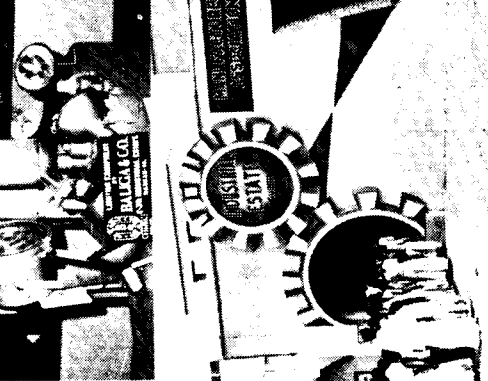
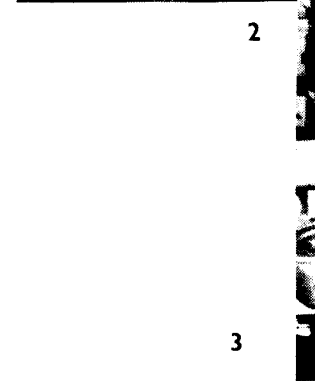
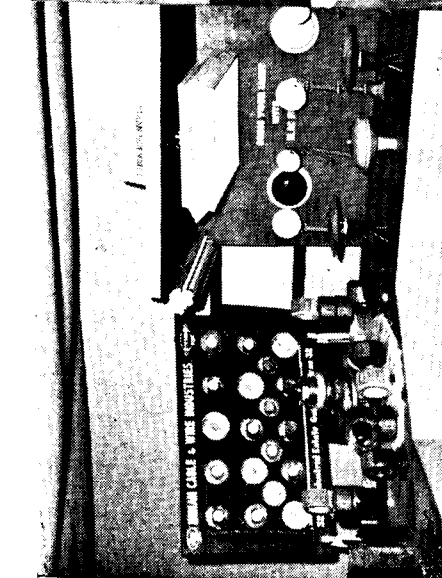
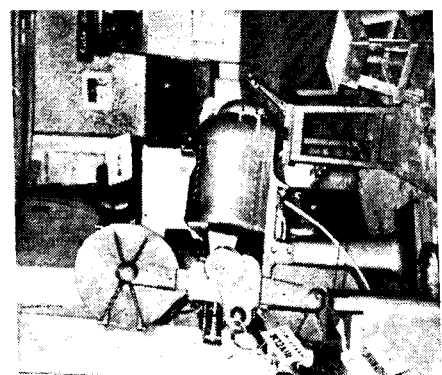


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JAN. - MARCH 1961

PRODUCTIVITY

KEY TO

PLENTY AND
PROSPERITY

India has embarked on a planned programme to liberate herself from the clutches of poverty and misery to raise her levels of production, both in Industry and Agriculture and to raise the standard of living of her people. There are two recognised ways of increasing production. One consists of investing more resources in production, the other of producing more from the same amount of resources. India is faced up with the task of raising production in the latter way and in this context, the statement of such an eminent person as the President of India, Dr. Rajendra Prasad deserves serious consideration. He says "looking at the country's economic problems, one is struck by wastage all round. If this could be stopped, there would be tremendous progress." The one factor, that can be safely and surely employed for avoiding waste and increasing production is productivity.

Of late there has been a widespread recognition and an universal acceptance of the role that productivity can play in the Indian economy in the context of her limited resources to attain multiple ends.

WHAT, THEN, IS PRODUCTIVITY?

Productivity may be defined as the ratio between output and input, both measured in real terms. Technically, productivity is the ratio of commodity produced to the resources employed in its production. Productivity depends on all the resources employed in production namely, the capital, manpower, machinery and raw-material. Productivity in Industry denotes the measures of production per man-hour. Mr. K. S. Sangha (in his article on "Productivity, its concept and measurement" in June-July, 60 issue of "Productivity.") suggests a simple formula

to measure productivity. The formula is $P = \frac{O}{M}$, where "P" reflects productivity of labour "O" the units of out-put and "M" the man-hours or efforts input. He further points out that productivity can be measured over a period of time for the same economy, or it could be worked out for various countries, provided comparable data for input and output are available.

It is a misconception that the productivity method calls for increased capital investment. In effect, it aims at increasing efficiency through a number of ways such as checking

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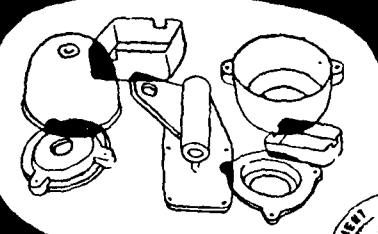
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wastage, avoiding fatigue and monotony and in the process, securing greater job satisfaction. In fine, it is war on waste in all forms.

PRODUCTIVITY—A BLESSING

Community as a whole stands to benefit by the increase in productivity. An increase in productivity results in

- (i) larger supplies of consumer and capital goods at lower costs,
- (ii) higher real earnings for the worker;
- (iii) better yield and return on capital employed by the entrepreneur,
- (iv) improvement in the general standard of living and larger employment opportunities in the long run through the establishment of export markets as a result of production of goods at lower prices, to withstand competition internationally.

CAN PRODUCTIVITY BE INCREASED?

It can and this leads us to the question of fundamentals of productivity. The most fundamental aspect of productivity, according to Dr. P. S. Lokanathan, lies in doing a multitude of things with grace and dignity. Another fundamental to which he stresses importance is based on the principle that a community or an individual can grow only from within. According to him "Productivity is life, it is not decay"

For increasing productivity, two methods are worth following :

1. Improvements in the methods of production by constant research and devising better and quicker means of doing the various jobs in the factory. If the philosophy of higher productivity has not, so far, attained a desirable momentum in our country, it is mainly due to the worker or the employer having failed to understand its ultimate benefit to the national economy, apart from personal advantages which would accrue

both to the worker and the employee. Shri Naval H. Tata attributes this to the fact that in India we do not have sufficient efficient engineers who alone could assess the respective shares of the contributions of the worker and the employer in such schemes and where they are available, they are not able to command the confidence of the workers. In a number of European countries, the development of productivity centres work study institutes and industrial research establishments have grown rapidly and India would do well to emulate them.

The second method consists in maintaining balanced and happy relations between labour and management. A happy and contented labour is a key to productivity.

The mistaken notion among the workers that productivity and employment are mutually exclusive should be allayed and it should be driven home to them that productivity and rationalisation of labour are inextricably connected, the lack of realisation of which has bogged down many a scheme. The report on Small Industries in India by the International Planning Team of the Ford Foundation about rationalisation will be relevant to our issue.

"Without rationalisation, the natural talents of Indian workers and craftsmen are being wasted in a hopeless race against modern technology. Unless and until these workers are helped to produce more goods and more wealth, neither wages nor living standards can be raised". The report adds "To Prevent rationalisation, to stop this process of modernisation is not only illogical, it will force stagnation and retrogression of Indian Small Industry.....without modernisation Indian Industries which cling to obsolete equipment are condemned to mediocrity and eventual elimination." The need for rationalisation could not be stressed better and no scheme, which ignores this

important ingredient, could ever see the prospect of success.

The Productivity Movement has made vast strides in many countries. In the West as well as in Japan, a great deal has been learnt about Productivity since Teylorism revolutionised industry's approach to production and management problems in the United States and it is now recognised by every enterprise that continuous vigilance and scientific study of organisation and production techniques can contribute to a substantial reduction in costs and increased output per man-hour. One of the most welcome aspects of the change in attitude towards productivity is the recognition by the trade Unions in the west that increases in wages must come primarily from increased productivity and that it is in their interest to co-operate with the managements in achieving higher levels of output. International organisations like the European Economic Co-operation maintain productivity agencies to make efforts in increasing productivity through co-ordination between the Government, Industry and Research organisations.

Though, in India, productivity came to be accepted as an important ingredient for progress, yet, in the absence of a central organisation, it could not make much headway. The establishment, in India, of the National Productivity Council in 1958 as an autonomous organisation and registered as a society, constituted a landmark in the history of the Productivity Movement. Its major work is to co-ordinate the activities of a large number of associations and institutes interested in industrial productivity and to provide facilities for industries in various centres for learning all about new industrial and organisational techniques and to arrange for the training of the personnel at various levels in the methods of increasing

productivity. It is gratifying to note from the Second Annual Report of the Council that the demand for information about productivity is on the increase, that the seminars and conferences organised by the Council has been well-attended, that a number of productivity teams have gone abroad and returned with valuable experience and that there is a growing demand from various industries for facilities for training in productivity techniques. There are now Local Productivity Councils functioning in 36 centres.

Inaugurating the first annual General Meeting of the Madras Productivity Council, Sri Manubhai Shaw, Union Minister for Industry, said that the National Productivity Council was now actually considering the question of establishing an All India Institute for providing training facilities for top men in the engineering profession. The Union Minister suggested that the productivity movement, which rested on the four pillars namely working classes, employers, technicians and the Government, should be extended to cover at least 50% of the Industrialists into its fold. He also suggested that the council should select some 30 Units in the City and have productivity methods, applied in them. He also pointed out that the National Productivity Council is to function in eight regions instead of the present five and that each region would have an exclusive directorate.

IMPORTANCE OF PRODUCTIVITY IN INDIA

The importance of productivity in the economic development of India can never be exaggerated. It is worth remembering what Dr. V.K.R.V. Rao says, "More than any other country in the world, we in India are faced with the problem of productivity in Industry because we do not have a plenitude of capital resources." He adds "With our

high rate of increase in population, unless productivity increases much faster than the increase in population and also sufficiently faster both to afford an increase in saving and an increase in consumption standards, our economic future is very bleak indeed". Industrialisation had begun only recently in this country which was lacking in technical know-how. In spite of the handicaps, it had to progress faster to catch up with the more advanced nations. India could have no better guide to prosperity than productivity movement.

The active interest evinced by the industrialists in productivity is a healthy sign because ultimately the survival of many of them in a highly competitive world will depend on their ability to keep abreast of the most modern techniques. In India we have the ideal conditions for the development of mass markets for the widest range of products, but these markets will not be

developed unless industries ceaselessly try to bring down their costs of production and lower prices. The real test of the success of the productivity movement lies in the extent to which it helps industries to rationalise their production techniques, their labour management relations etc.

There is the other aspect of the question too. In the great task of massive industrialisation, leadership rested on the class of managers but at present "management is the weakest link of the Indian economy". The management should be geared to face, adequately the tasks ahead in an efficient manner. The Productivity movement should be given the encouragement it is worthy of and has to be carried on by a combination of brain, brawn and bullion. If the movement is strengthened, for an underdeveloped country like India, determined and struggling hard to industrialise, there cannot be a better "friend, philosopher and guide" than the productivity movement.

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SMALL SCALE INDUSTRIES

LICENSING

IND

REGISTRATION

No formal permission or licence is necessary to start a Small Scale Industry unless, of course, it is so required under certain local laws

According to a Notification issued by the Iron & Steel Controller, Calcutta, vide his letter No. SO957 ESS/Comm/Iron & Steel, dated 14th April 1960, any Unit, where less than 50 workmen are employed, may erect, construct or expand any buildings, or works, install any plants or equipment for the production of the following categories of iron and steel, namely:

Steel castings; dog spikes, chair spikes and screw spikes; bolts (including fish bolts), nuts and rivets; black or galvanised wire whether plain or barbed; wire nails; wrought iron pressure pipes and tubes, steel pressure pipes and tubes; wrought iron fittings, malleable iron fittings and steel fittings, coated or uncoated, excluding electric conduit pipes; cast iron pressure pipes and specials; wire ropes; bars including flats, squares, rounds, hexagons and rods.

So far as small re-rolling mills covered by this notification are concerned, it is expected that they will use as raw material only the scrap, which is available locally. For this purpose no restriction has been placed by the Government on the scrap being purchased from the market. The only restriction placed

is on the finished products which shall be sold according to the prices fixed under the statute. Machinery or equipment will not be allowed to be imported in this case.

Small Scale Industries using raw material of items other than those enumerated above, including re-rolling mills, not using scrap of indigenous supply, are required to seek permission of the Iron & Steel Controllers. For acquisition, installation and working of spindles and looms for the manufacture of cotton and non-cotton textiles, Small Industries are required to seek permission from the Textile Commissioner.

If for starting a new Small Scale Industry, it is necessary to purchase machinery, which is either of indigenous type or an imported one, but available in the country, the same can be purchased, without having to obtain a licence or permission from any authority. However, when a machinery required for use is not available indigenously and must be imported, in such cases a Small Scale Industry is required to apply to the Director of Industries of the State, in which it is located or is proposed to be situated for issue of an Essentiality Certificate.

REGISTRATION FOR STATISTICAL PURPOSES

Under "Collection of Information and Statistics Rules 1959", issued by the Government of India on 1st April 1960, it is obligatory for the undertakings engaged in the manufacture or production of any article in the first schedule of the Industries and Development Regulations Act, employing ten or more workers, but not more than 49 workers, to submit to the Director of Industries of the State a statement every quarter regarding its production statistics. This return has columns regarding products manufactured, annual installed capacity on one 8-hour shift basis, number of workmen engaged, units of production etc. etc.

Small Scale Industries employing less than 10 persons are also required to get themselves registered with the Director of Industries concerned by filling up the proforma laid down for the purpose. In this proforma, columns have been provided regarding name and address of the undertaking and the year when it had been established, nature of its ownership with names of its Proprietors/Partners/Managing Agents/Board of Directors, amount invested, description and value of machinery, plant and equipment installed in factory and a brief statement in regard, to the manufacturing activities of the undertaking etc. etc., The object of this registration is to enable the Government to collect this information in respect of smaller units. The proforma has to be filled up in duplicate, copy being endorsed to the Director of Small Industries Services Institute of the State in which the Industry is located.

RAW MATERIALS

At present there is a shortage of raw materials, so much so, that the demand of even the existing units is sometimes hard to meet.

It is for this very reason that Small Scale Industries are advised to contact and consult the State Director of Industries, to find out whether they can get raw-materials for their industry, if any, when set up. Also for procuring raw-materials for their industry, if any, when set up. Also for procuring raw materials, which are controlled items, such as:—

Steel wires, Tin plates, Billets, Rods, Copper and other non-ferrous metals.

It is necessary to approach the Director of Industries for issue of an Essentiality Certificate for the import of these items.

With regard to the other raw-materials imported to the Small Scale Industries, the position is explained below:—

(i) *Iron & Steel*:—Small Scale Industries are allotted this raw material for the manufacture of finished products to be exported to other countries. Also there is a special quota out of which allotments can be made to Small Scale Industries of steel by indents on the registered stock—holders of the areas concerned at Column 3 rates.

The demand for steel of Small Scale and Cottage Industries, situated in the Industrial Estates, is collected by the Director of Industries on quarterly basis. Likewise, the allocation of steel under the "Small Scale & Cottage Industries Quota" is also made.

The demands as per statements of all Directors of Industries are then totalled up to arrive at a consolidated figure, which is referred to the Department of Iron & Steel of the Ministry of Steel, Mines & Fuel, Government of India. Based on these demands, the Ministry, having due regard to the supply position, makes a bulk allocation for Small Scale Industries and places it at the disposal of the Development Commissioner, Small Scale Industries, each quarter and the

latter, in turn, makes allocations to the Directors of Industries of each State for distribution to the Small Scale Industries under their respective jurisdictions.

(ii) *Cement*:—Each State is allocated certain quotas and the Small Scale Industries have, therefore, to look up to State Governments for their requirements of cement.

(iii) *Pig Iron*:—Having ascertained the requirements of pig iron from each State, the Development Wing of the Ministry of Commerce and Industries allots quotas out of which distribution is made by the State Government to the Industries situated there.

(iv) *Coal & Coke*:—The allotment of coal is made by the State Coal Controller. Sindri Factory is also manufacturing hard coke, which the Small Scale Industries can make use of.

(v) *Non-Ferrous Metals*:—Under the non-ferrous Metals Control Order, issued in 1958, a quota of copper is allotted to each State for use by the Small Scale Industries. Applications for copper are, therefore to be made to the State Directors of Industries. After an allocation has been made by the State Director of Industries of this item, the Small Scale Industries are required to approach the Development Officer, (Metals) Ministry of Commerce & Industry, for the issue of a necessary permit under the Law, which at present applies only to unwrought copper in the form of billets and ingots besides electrolytic copper.

The Ministry of Commerce & Industry is also allotting quotas of copper scrap, brass scrap, lead and zinc to the Directors of Industry of each State to meet the requirements of Small Scale Industries. So far as the Industries situated in the Industrial Estates are concerned, their requirements of raw-materials, components and even

controlled raw-materials from indigenous sources, such as steel, are supplied in full at least for a single 8 hour shift, working for the first one year of the operation and the Directors of Industries as also the import/export control authorities have been instructed by the Government accordingly.

PROCEDURE FOR IMPORT

Small Scale Industries are required to apply to the Director of Industries, for their requirements of raw-materials, machinery and components as 'actual users' for the grant of Essentiality Certificates, which must be submitted to the Licensing Authority at ports direct.

In cases where the requirements of Small Scale Industries for raw-materials, machinery or components do not exceed one lakh of rupees, the form will have to be completely filled up by the Director of Industries concerned, but if the total value of the import to be made is upto Rs. 25,000 Small Scale Industries need fill up only the first five items of such Essentiality Certificate.

The fourth category will be of Small Scale Industries whose requirements of raw-materials, machinery and components to be imported exceeds rupees one lakh and in such cases, the form of Essentiality Certificate will be the same as in the case of Large Scale Actual Users. Ordinarily licences are issued for items licensable to actual users. However, recommendations of Director of Industries for other items may also be considered on merits provided the ceiling allocated to the Licensing Authority is not exceeded.

For all the requirements in respect of raw-materials and components of different nature, applications can be made in a consolidated form but licences would be issued separately for different items. Essentiality Certificate issued by a Director of Industry after an

inspection of the industry in respect of raw-material will generally be endorsed to be valid both for the current and the subsequent periods, but if the E. C. has been issued without inspection, it will be accepted for one licensing period only.

On an application by the Small Scale Industries and on the recommendations thereon of the Director of Industries licences may be granted for values upto 20% over and above the previous half-year's quantity for raw-materials and components, provided these are used for extra production. This, however, would not apply to quotas, such as, for iron and steel, non-ferrous metals and other items, which are allocated to State Governments by the Iron & Steel Controllers or other authorities on a quota basis.

The basis for licensing of imported raw-materials for small industries is the same as for scheduled industries, so far as industries, common to large and small scale sectors are concerned. The only difference that now exists is that the requirements of raw-material of Small Scale Industries are considered on an adhoc basis, even when the item is not mentioned as open to actual users. Applications for licences for raw-material for the manufacture of components for supply to bigger units by the Small Scale Industries of ancillary nature are granted in full, according to the recommendation of the Director of Industries. So far as the import of machinery and equipment by Small Scale Industries is concerned, in view of the present tight foreign exchange conditions, the following guiding principles have been formulated by the Government.

(1) The applicant should make satisfactory arrangements for raising external finance himself.

(2) The Government should have credit facilities or suitable payment arrangements

with the countries from which imports are to be made.

Applications by new Small Scale Industries for import of capital goods and machinery, and also machine tools of value not exceeding Rs. 50,000 are considered by the Import Control Authorities in consultation with the Director of Industries/Joint Development Commissioner, Small Scale Industries.

For machine tools exceeding Rs. 50,000 in value, the applications are considered by the Development Officers (Tools), Development Wing, Ministry of Commerce & Industry, New Delhi. For capital goods and machinery of more than Rs. 50,000 in value by existing or new Small Scale industries, applications are considered by the Chief Controller of Imports and Exports, New Delhi and the Committees on heavy electrical plants and capital goods is consulted, whenever necessary. A sort of priority arrangement has been laid down for import of capital goods by the Small Scale Industries as follows:

- (1) Replacement,
- (2) Balancing Plant,
- (3) Expansion.

Essentiality certificate in such cases shall be issued only after inspection and in case the machinery desired to be imported is being manufactured in India, it is necessary to obtain a certificate from such manufacturers that they are not in a position to make supplies.

HIRE PURCHASE SYSTEM

Small Scale Industries requiring machinery and equipment under this system should fill up the applications and submit them to the National Small Scale Industries Corporation and only such applications shall be considered, as are recommended by a Director of Industries.

Earnest money is to be deposited by the applicants as follows:—

(a) 20% of the value for all Machine Tools (general purpose machines) with standard and special accessories.

(b) 30% for industrial furnaces.

In respect of applications for machines costing not more than Rs. 2,000 the amount of earnest money will be 50% of the above and in the case of Industrial Co-operatives a reduction of 5% is made in cases of value of the machines not exceeding Rs. 2,000.

Interest is payable at 4½% per annum in cases of machines' value not exceeding Rs. 15,000 and beyond that at 6% per annum. Industrial co-operatives will be charged 3½% and 5% on the above monetary limits.

Where the delivery is likely to take some time, the earnest money may be allowed to be deposited in two equal instalments, the first one before placing the order and the second within 15 days of intimation from the Small Industries Corporation. At the time of executing the agreement, the earnest money and advance paid or credited towards the hire-purchase price of the machinery and the balance if payable in instalments spread over a period not exceeding seven years, according to the life of a machine permits. The first instalment is to be paid on completion of one year from the date of agreement and others at intervals of six months from first instalment.

UTILISATION OF RAW MATERIALS

The All-India Small-Scale Industries Board, which concluded its session in Chandigarh, on 11-10-60, recommended that suitable administrative measures should be adapted to remove the bottlenecks in the production and movement of indigenous raw-materials and felt that a concerted effort should be made by all concerned to see that "scarce"

raw-materials were put only to important and essential uses.

The Board also recommended that an institute to promote improvement and modernisation of processes for rural crafts and small industries should be set up so that the productivity of craftsmen and artisans could be continuously improved.

Mr. Manubhai Shah, Union Minister of Industry and Chairman of the Board, presided.

The Board stressed the need for conducting an economic and industrial survey of all the districts in the country and recommended that necessary organisation with adequate strength should be built up both at the Central and State levels. It was felt that such a survey was a pre-requisite for any planned development particularly of backward areas. The Board suggested that the survey should particularly indicate the possibilities of utilisation of local raw-materials for the setting up of new industrial units.

The Board appreciated the role of the State Bank of India in making available working capital loans to small industrial units on liberal terms. There had been a hundred per cent rise in the value of loans sanctioned. Over 85 per cent of the beneficiaries from these loans were industrial units of smaller size.

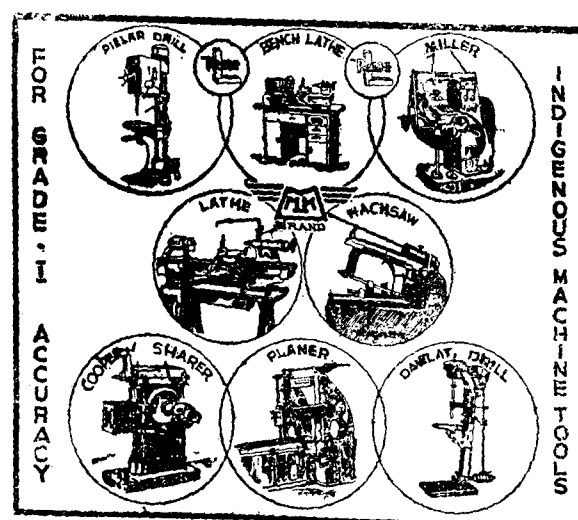
The Union Industries Minister then referred to steel supply for small industries and said: "You will be glad to know that as per our resolution passed in the Puri Board meetings, the highest priority has been accorded by the Government to one-third of our increased allotments of iron and steel for the Small-Scale industries. This will be made available to the State Governments by the Iron and Steel Controller on the topmost priority basis.

"The Government has approved of the import of 50,000 tons of merchant steel—that is sheets, wires, rods and other consumable steel—under rupee payment agreements.

"Over and above this, 20,000 tons of billets will be made available for the Small Scale-re-rolling mills. This is a major step forward, though no doubt much more will have to be done to remedy the situation in the field of steel supplies and particularly in the case of special steels, alloy steels, and different categories of steels".

Mr. Shah said that while they were

increasing the availability of raw materials, one of the fears entertained was about the misuse of raw-material components and other items, for which imports and quotas were allotted to the Small Scale Industries. No doubt these fears were sometimes exaggerated and it was common experience that the Small-Scale Industries were using in a thrifty and proper manner all that they had for their production. Mr. Shah uttered a stern warning to all those Small Scale Industrialists who may be misusing wholly or partly what was granted to them by the State Governments and the licensing authorities.



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PLASTIC GOODS INDUSTRY in Southern Region

The Plastic Goods Industry had moderately good prospects for its developments in Southern region according to a Survey Report of the Industry conducted in the region by the Central Small Industries Organisation.

The Purpose of the survey was to study the present status and problems of the Plastic Goods Industry and to assess the prospects of its future development in the Southern region comprising the States of Madras, Andhra Pradesh and Kerala.

The items covered in the survey included (i) individual or consumer goods like combs, soap cases, toys etc. (ii) industrial products like automobile fittings, protective covers for fluorescent lamps, bottle caps etc. and (iii) products consumed in Government departments like railway signal lamps, domes for electric lights in railway coaches, instrument covers etc.

INDUSTRY SET-UP

There are 35 units in this industry in the region of which 4 are large scale units. As many as 31 units are situated in Madras City. 690 persons are employed in the industry—337 in the small-scale sector and 353 in the large-scale sector.

The total production of plastic goods in the Southern region is valued at Rs. 25,02,877, the contribution of the small-scale sector being Rs. 11,77,746. Madras State alone accounts for 91.4% of the total production,

Andhra Pradesh accounting for a very negligible part of it.

Investment in the Industry amounts to Rs. 23,46,842—Rs. 6,45,499 in the small-scale sector and Rs. 17,01,343 in the large-scale sector.

DEMAND PROSPECTS

The total consumption of plastic goods in the Southern region is valued at Rs. 37,80,850.

The factors influencing demand for plastic goods are:—(1) increase in income and population, (2) development activities of the Government, (3) good export prospects due to the activities of the Plastic Export Promotion Council and (4) the price factor and availability of substitutes.

Based on these factors and the trend in sales of dealers in plastic goods, the demand for plastic goods included in the survey, is expected to increase from Rs. 37.8 lakhs to Rs. 53 lakhs or by 40.3% during the period 1958-61. The increase in demand for consumer goods made of plastic is expected at 5% per annum and that of industrial goods at 25% per annum.

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The second method consists in maintaining balanced and happy relations between labour and management. A happy and contented labour is a key to productivity.

The mistaken notion among the workers that productivity and employment are mutually exclusive should be allayed and it should be driven home to them that productivity and rationalisation of labour are inextricably connected, the lack of realisation of which has bogged down many a scheme. The report on Small Industries in India by the International Planning Team of the Ford Foundation about rationalisation will be relevant to our issue.

"Without rationalisation, the natural talents of Indian workers and craftsmen are being wasted in a hopeless race against modern technology. Unless and until these workers are helped to produce more goods and more wealth, neither wages nor living standards can be raised". The report adds "To Prevent rationalisation, to stop this process of modernisation is not only illogical, it will force stagnation and retrogression of Indian Small Industry.....without modernisation Indian Industries which cling to obsolete equipment are condemned to mediocrity and eventual elimination." The need for rationalisation could not be stressed better and no scheme, which ignores this

PLASTIC GOODS INDUSTRY in Southern Region

The Plastic Goods Industry had moderately good prospects for its developments in Southern region according to a Survey Report of the Industry conducted in the region by the Central Small Industries Organisation.

The Purpose of the survey was to study the present status and problems of the Plastic Goods Industry and to assess the prospects of its future development in the Southern region comprising the States of Madras, Andhra Pradesh and Kerala.

The items covered in the survey included (i) individual or consumer goods like combs, soap cases, toys etc. (ii) industrial products like automobile fittings, protective covers for fluorescent lamps, bottle caps etc. and (iii) products consumed in Government departments like railway signal lamps, domes for electric lights in railway coaches, instrument covers etc.

INDUSTRY SET-UP

There are 35 units in this industry in the region of which 4 are large scale units. As many as 31 units are situated in Madras City. 690 persons are employed in the industry—337 in the small-scale sector and 353 in the large-scale sector.

The total production of plastic goods in the Southern region is valued at Rs. 25,02,877, the contribution of the small-scale sector being Rs. 11,77,746. Madras State alone accounts for 91.4% of the total production,

Andhra Pradesh accounting for a very negligible part of it.

Investment in the Industry amounts to Rs. 23,46,842—Rs. 6,45,499 in the small-scale sector and Rs. 17,01,343 in the large-scale sector.

DEMAND PROSPECTS

The total consumption of plastic goods in the Southern region is valued at Rs. 37,80,850.

The factors influencing demand for plastic goods are:—(1) increase in income and population, (2) development activities of the Government, (3) good export prospects due to the activities of the Plastic Export Promotion Council and (4) the price factor and availability of substitutes.

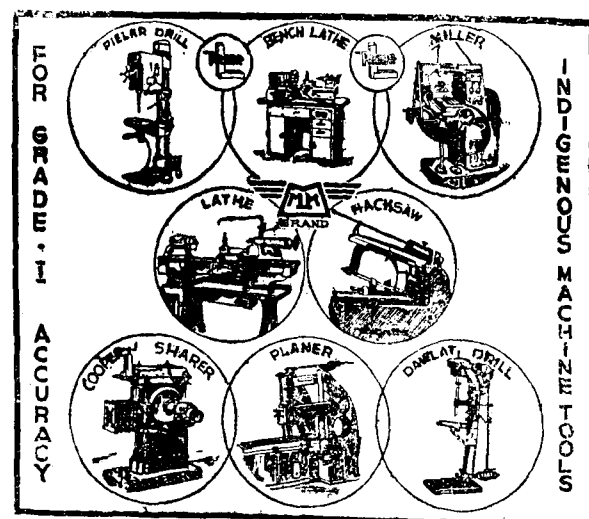
Based on these factors and the trend in sales of dealers in plastic goods, the demand for plastic goods included in the survey, is expected to increase from Rs. 37.8 lakhs to Rs. 53 lakhs or by 40.3% during the period 1958-61. The increase in demand for consumer goods made of plastic is expected at 5% per annum and that of industrial goods at 25% per annum.

"The Government has approved of the import of 50,000 tons of merchant steel—that is sheets, wires, rods and other consumable steel—under rupee payment agreements.

"Over and above this, 20,000 tons of billets will be made available for the Small Scale-re-rolling mills. This is a major step forward, though no doubt much more will have to be done to remedy the situation in the field of steel supplies and particularly in the case of special steels, alloy steels, and different categories of steels".

Mr. Shah said that while they were

increasing the availability of raw materials, one of the fears entertained was about the misuse of raw-material components and other items, for which imports and quotas were allotted to the Small Scale Industries. No doubt these fears were sometimes exaggerated and it was common experience that the Small-Scale Industries were using in a thrifty and proper manner all that they had for their production. Mr. Shah uttered a stern warning to all those Small Scale Industrialists who may be misusing wholly or partly what was granted to them by the State Governments and the licensing authorities.



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COMPETITION

The competition between small-scale and large-scale units in the region is not very severe. Real competition arises from units both small-scale and large-scale from other regions. About 51% of the total consumption in the Southern region is met by imports from other regions. Imports from abroad are negligible. Hence there is no competition from imported plastic goods.

The problem of competition from substitutes does not arise as it is the plastic industry that offers competition to other industries like glass, porcelain etc.

NEW OPPORTUNITIES FOR SMALL BUSINESSMEN

Plastic goods have a wide market. Good prospects exist for export of plastic goods to Middle East Countries. It would be advantageous for intending manufacturers to locate their units in industrial centres since close working with industrial customers in the design of products will be necessary. Favourable locations for the industry are Hyderabad, Vijayawada, Vizagapatam, Trichinopoly, Madras City, Madurai, Coimbatore and Trivandrum.

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Centrifugal Pump Industry in South India

The survey of the Centrifugal Pump Industry conducted in the Southern Region (Andhra Pradesh, Madras and Kerala) by the Small Scale Industries Organisation, has revealed that there are excellent prospects for the development of the Industry in the Small-Scale Sector.

The present gap between production and demand in the country plus annual increase in demand provides wide scope for the existing units to augment their production and to the new entrepreneurs to enter this field. The existing and new units should, however, adopt the improved techniques of production and pay greater attention towards quality.

Centrifugal pump is used for pumping liquids by Centrifugal force. It consists of four main parts viz. Base, Casing, Suction Flange and Impeller. The liquid which enters through the intake-opening of the casing, is drawn from the sides into the centre of the rotating impeller and forced out through the discharge opening of the casing.

Pumps are used for industrial as well as agricultural purposes, viz. for feeding storage tanks, pumping sewage, watering the fields, etc.

PRESENT PRODUCTION AND CONSUMPTION

There are 18 units—13 small scale and 5 large scale—manufacturing pumps in the Southern region. The units surveyed in the region produced centrifugal pumps (Horizontal spindle-type) used mainly for irrigation from wells, tanks, and rivers. The production in the industry as a whole in 1955-56 was estimated at 22,830 pumps, the

large scale sector accounting for 19,430 and small-scale sector for 3,400. Nearly 57% of the installed capacity remained idle. However the extent of unutilized capacity was less in the large scale units than in the small scale units, being only 43% in the former and 72% in the latter. All the Units surveyed did not exclusively produce pump sets but pumps formed the major part of their production. Some units manufactured electric motors and appliances like switches and starters and other automobile and textile machinery parts.

Three types of centrifugal pumps are produced in the region. They are (1) pumps directly coupled to an electric motor (2) pumps carrying two pulleys, one fast and the other loose and (3) pumps produced "Monoblock" with the pump and the motor assembled a single unit.

FUTURE DEMAND

Among the factors that govern the future demand for pumps are (i) Schemes for developing irrigation in the country (ii) Extension of power supply to rural areas and (iii) Price-level of foodgrains.

The Planning Commission has estimated an increase of 112½ to 115 per cent in the demand for pumps in the country by 1960-61 (from 40,000 in 1955 to 85,000 or 86,000 in

1960-61). The Commission has also suggested that an additional capacity of 11,000 to 12,000 should be created in order to attain self-sufficiency. An increase of nearly 75% in demand is expected by the end of Second Plan period. The demand for pumps in terms of numbers may, therefore, be estimated to be 31,500 in 1960-61.

COMPETITIVE OUTLOOK

Notwithstanding the fact that the large-scale units dominate the industry, competition from them does not have a serious effect on small-scale units. While the latter cater exclusively to the regional demand, the former market their products outside the region also. There is little or no competition from other regions.

RAW MATERIALS

The principal raw-materials required for the manufacture of pumps can be classified into two categories, namely (1) ferrous

materials including pig iron for base plate and pump body and mild steel for shafts and keys and (2) non-ferrous materials, mainly gun-metal, for impellers and bushings. Certain components like ball bearings, bolts and nuts, packing materials etc. and coke in considerable quantities are also required. In view of the shortage of pig iron all the units are forced to use scrap but this situation is not likely to continue for long.

TECHNIQUES

Various processes of production involved in the manufacture of pumps are moulding, machining, turning, fitting and welding. The machinery installed includes lathes, drilling, shaping and grinding machines.

The survey report has also made useful suggestions for effecting improvements in the existing units. A foreign expert has pinpointed certain glaring defects in the methods of manufacture being followed by the existing units and has made useful suggestions.

SEMINAR ON FINANCING OF SMALL SCALE INDUSTRIES

The proceedings of the Seminar on financing Small-Scale Industries held in Hyderabad in July, 1959, under the auspices of the Reserve Bank of India and the background papers prepared in the Bank have been published by the Reserve Bank of India for general information.

The publication is in two volumes—volume I contains the report of the proceedings of the Seminar, the Papers prepared by some of the participants for discussion, the reports of the four groups into which the participants were divided to facilitate discussion and the summary of conclusion and suggestions of the seminar. The background papers containing detailed information on the various aspects of Small-Scale Industries in India—financial, technical and operational—are published as volume II.

Besides bringing together a great deal of factual information relating to Small-Scale Industries, the report contains a comprehensive account of the views and opinions expressed by commercial bankers, industrialists etc. who participated in the Seminar. One of the major recommendations of the seminar was the introduction of a scheme for guarantee loans to Small-Scale Industries by banks and other financial institutions. This scheme which has now been sanctioned on an experimental basis for a period of two years by the Government of India, has come into operation with effect from 1st July 1960. The other recommendations of the seminar are being further processed by special committees or working groups set up by the Government or the Bank for the purpose.

FINANCE FOR INDUSTRY—A FEW FACTS

1. A number of agencies have been set up since independence to provide credit facilities to industries in the private sector whose growth is considered important for the planned development of the country.

2. Such assistance flows from the Industrial Finance Corporation, the Industrial Credit and Investment Corporation, the National Industrial Development Corporation and the Refinance Corporation for Industries.

3. Established in July 1948, the Industrial Finance Corporation had sanctioned loans aggregating Rs. 84.61 crores till June 1960, in respect of 338 applications.

4. The Industrial Finance Corporation (Amendment) Act 1957 seeks further to strengthen the resources position of the Corporation and widen the scope of its activities.

5. A large number of industries, including new concerns, which are not in a position to offer adequate security, but deserve encouragement from the point of view of the national economy, may now receive loans from the Corporation.

6. During 1959-60 alone the total amount of loans approved by I.F.C. was Rs. 17.92 crores which is a record for the twelve years the Corporation has been functioning.

7. The industries covered range from textiles, paper and rubber products to basic chemicals, glass, cement and bicycles.

8. The loans approved by the Corporation for co-operative societies represent nearly 23 per cent of the total and is an index of the assistance given by it to co-operative societies in accordance with the declared policy of Government to afford special encouragement to them.

9. The State Finance Corporations assist Medium and Small Scale Industries which do not fall within the scope of the All-India Corporation. There are besides other avenues of credit facilities for small industries.

10. The Industrial Credit and Investment Corporation of India, set up in January 1955, had sanctioned by September 1959 rupee assistance of a total of Rs. 14.05 crores to 43 companies.

11. The industries benefited cover a wide range—paper, chemicals and pharmaceuticals, electrical equipment, textiles, sugar, metal ores, lime and cement works, glass manufacture etc.

12. The World Bank had given two loans of 10 million each to the ICICI to meet the foreign exchange requirements of projects financed by the Corporation. Recently a further loan of 20 million has been announced by the Bank to the ICICI.

13. The Refinance Corporation for Industries was set up in June 1958 to provide re-lending facilities against loans given by banks to medium industrial concerns for the purpose of increased production primarily in industries included in the Plan. Refinance assistance sanctioned till March last year amounted to Rs. 2.4 crores.

14. The National Industrial Development Corporation, set up in 1954, also acts as an agency of the Government for the grant of special loans for the rehabilitation and modernisation of the cotton textiles and jute industries.

15. Taking the base as 100 in 1951, the gross index of industrial production rose to 151 in 1959. At present, the index is almost touching 168.

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problems of foundry

SERVICE TO ENSURE EFFICIENCY

Foundries play an important role in nearly all branches of industrial and consumer goods manufacture. In order to build a foundry, which will operate on an economical basis, the foundry design must be adapted to the type and quantity of castings to be produced. This is a basic condition for ensuring low production costs and as a result, rapid amortization of the investment involved in erecting the foundry. Proper planning and equipping of a foundry on the basis of careful investigation of the local conditions and production requirements, assures a maximum number of good castings at low cost, and guaranteed market for the services of the foundry

Many foundries have common problems like very high coke consumption in cupola as 1:2 to 3 coke metal ratio. Blow holes, shrinkage cavities, scabs, sand defects etc., in the castings are the other problems. A foreign expert and another technical officer attached to the Small Industries Service Institute, Hyderabad, visited some of the foundries and the suggestions and advice tendered by them to increase production by adapting improved techniques will be of immense use to foundries having such troubles. The following are their practical hints put in a nutshell.

MELTING EFFICIENCY

The melting efficiency in foundries can be improved by employing coke metal ratio in the neighbourhood of 1 : 6 to 7 and by sand conditioning and moulding methods with properly located and correct size of risering which usually result in good

castings without shrinkage cavities and blow holes.

COMMON PROBLEMS

The Common feature in many foundries is the poor design of cupola and blowers. The foreign Consultant and Officers of the Small Industries Service Institute, have prepared good standard designs of cupola and blower drawings which were found to be in good demand by both the old and new foundries to whom blue prints were supplied. In addition, the Institute also supplied standard drawings for sand conditioning mixers.

A few instances of good results obtained in selected foundry units are mentioned below :—

COKE METAL RATIO

A firm in Secunderabad had three cupolas whose melting rates were below normal capacity. The melting rates of all

of them increased twofold as a result of the modification made in the pipe connection as suggested by the technical experts of S. I. S. I. Facing sand practice was followed by the unit on the basis of the suggestion of these experts. New additions to floor moulding sand and proper mixing of sand were demonstrated. As a result, surface finish of the castings improved considerably and the casting rejections which were formerly 40% dropped by about 10% coke metal ratio followed in cupola operation was corrected to 1:6.

ELIMINATION OF REJECTION

A Hyderabad unit had a cupola of old design with two wind pipes, connected underneath the surface of the earth by a drain. Due to choking of the drain by earth, the melting rate of the cupola was very low. The drain was examined and defects eliminated. The charging door to cupola was raised by about 2 feet. Subsequently during trial operations of the cupola, the melting rate and metal temperature improved considerably. The Proper location and size of risering resulted in the complete elimination of the rejection so far as shrinkage defects were concerned.

In another unit in the same town, many of the castings produced, were found to contain shrinkage cavities and blow holes. Moulding technique with swirl gates and ingates and runner constructed on the top and bottom boxes respectively with properly located and sized feeders eliminated most of the defects noticed earlier.

A foundry in Ayanabad had poor melting operation with low coke metal ratio and low melting rate. With coke metal ratio of 1:6 both melting rate and temperature of the tapped metal had been improved. The firm was given demonstration with correct tap hole construction and living of cupola

walls with locally available materials. The risering techniques advised on the centrifugal pump casting moulds showed good results in as much as these were no defects.

DEFECT IN DESIGN

A foundry unit in Bangalore had installed a new cupola but it was not giving the rated melting and the resulting metal was very dull. It was found out by the technical officers of the S. I. S. I., Bangalore that the cupola was faying two many numbers of tuyeres, the cross-section area of which was completely out of proportion with the effective diameter of the cupola. The tuyere area was charged and then the plant was operated. The cupola was charged systematically and it gave a very satisfactory performance eliminating all the defects which were being encountered previously. While formerly the unit was getting only cold metal from its cupola operation, it is now producing extremely good metal resulting in higher production with lesser wastage by way of rejects.

The following short paper on the problems of a small foundry was read by Shri T. G. Ganesan of M/s Rama Metal Works, Industrial Estate, Guindy, during the group meeting held in connection with the All India Seminar on Industrial Estates, on 20-9-1960.

"My foundry is a small non-ferrous foundry, which, thanks to the very great help of the Department of Industries, Madras, I was able to start in this growing model Industrial Estate on 21st January 1959. Before I started this foundry, I was an instructor in a Government Industrial Institute in Bombay City. The idea of my starting a small foundry in Madras was mooted and I started it in one of the Units in the Industrial Estate at Guindy.

I started the foundry with what I considered the minimum equipment. There are

now three furnaces—two pit furnaces, one coke fired and the other oil fired and one tilting crucible furnace with 400 lbs. capacity. These have been sited under an asbestos shed in the back yard and they have been placed in a line on one side, while the other side is occupied by coke cellar and a moulding pit. The pouring is done in the main shed where fitters and turners also work.

FURNACE REQUIREMENTS

The first problem of a foundry is the problem of space. The work of a foundry man is to give clean, accurate castings of unimpeachable quality, free of flaws and defects. To obtain such castings, certain definite conditions regarding building and equipment have to be fulfilled, not to speak of the techniques of pattern making, moulding, melting and pouring with which the foundry Engineer should be fully conversant. Where several kinds of castings have to be produced and where the non-ferrous alloys used are of several varieties, one furnace will not be enough. It will be of increasing advantage to have more than one furnace, an efficient oil fired tilting furnace with temperature control and at least two pit furnaces fired by coke and oil. Each alloy needs a different technique. Temperature maintenance is one more problem. A rough estimate of the temperature by eye, which is so common, is not reliable enough, i.e., the temperature will be under-estimated in good sunlight while it will be over-estimated on cloudy or rainy days. Unless the man in charge of the melting is well experienced, castings will become bad. So at least one furnace with proper temperature control is a necessity.

SPACE PROBLEM

Every furnace should be provided with a hood to evacuate the fumes and other pro-

ducts of combustion. The hoods should be so designed and carefully installed that they are capable of being brought over the furnaces and also close to them and at the same time of being moved out of the way when desired. In the case of melting furnaces, they should not prevent the furnace operator from properly charging the metal, standing on the furnace platform. The operator's head must not be inside the hood. The hoods should be provided with effective exhaust fans. All this means sufficient space and height. A small building with a low roof will be hell even for a small foundry. It is absolutely necessary that comfortable working conditions should be provided. It will be ideal if the building is of such shape and size that these furnaces work without being very close to one another and has sufficient ventilatory arrangements to cope with the normal fumes, smoke and heat which would be evolved from the furnaces, properly designed and operated.

These furnaces should be sited and placed in a line, and they should be at least 6 ft. from the wall to allow the furnace man to move behind the furnaces. While in the case of coke fired furnace smoke and dust nuisance is to be combated, in the case of oil fired furnaces the troubles from fumes, smoke and dust will be very great. There is also the danger of zinc fumes from the overheated metal and if they are located in a small area, the heat will sometimes be unbearable and become a difficult problem to deal with. The heat which radiates from the furnace will badly affect the moulders and other workmen in the shop. So it is quite necessary that the melting place should be away from the place where the workmen are engaged. Obviously, to meet all the requirements, more space is required.

NEED FOR GOOD METAL

The next problem is the problem of raw materials. Perfect brass castings can be obtained only by the use of pure metal. Of course, the metal is one of the factors in perfect casting. There are other factors like patterning, the position of the runner risers and feeders, proper melting, proper use of fluxes and proper pouring. These are technical details to be attended to by the expert in charge of the foundry. These emphasise the need for placing a foundry, even a small one, in charge of an expert engineer and not a maistry as is seen in many places. Even an expert foundry will find all his techniques defeated if the metal is not good. The alloy should be pure, from known standard materials and of good solid character. The use of all available random scrap of unknown composition is to be thoroughly depreciated. Of course, simple castings can be produced with scrap but they will have nothing to do with quality. Here in Madras there is no reliable source of supply of proper metals. Standard alloys have to be got from distant places like Bombay and Calcutta. The cost of transport adds very much to the cost of production, not to speak of the difficulty in getting the material in time. This raw material problem can be solved if the small foundries can get the home scrap from the ordinance factories.

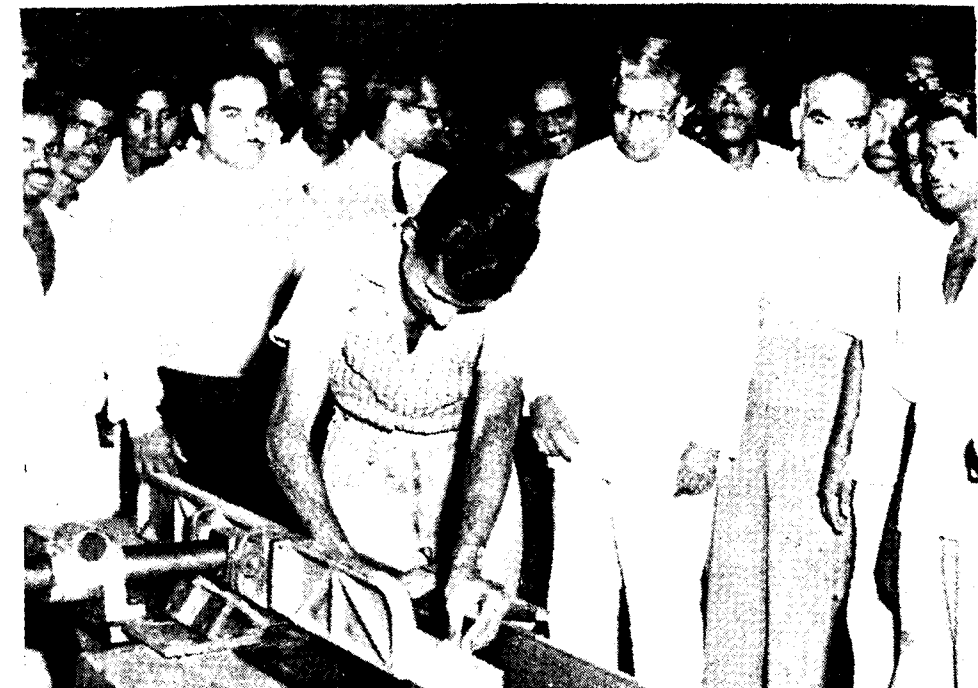
PATTERN SHOP NECESSARY

The next problem is pattern making. While big engineering workshops can afford to employ pattern makers of their own, small foundries like mine cannot. A pattern making shop is, therefore, an essential need. In Bombay, there are pattern making firms and they do all the patterns with precision and speed, and supply their customers. Simple construction of a pattern is a very skilled job. It is a work requiring more brain than brawn. The pattern maker should be one with experience, and should know to read blue prints and such points as how the pattern is parted, where the runner is placed, how a perfect expulsion of air can be obtained, and where shrinkage cavities are likely to occur. Without a skilled pattern maker, the exacting requirements of accuracy cannot be fulfilled in a foundry.

Lastly comes the very important question of making the small foundries ancillaries to large scale engineering works in the city. At present the position is very unsatisfactory. There is a scramble for job works among the many foundries in the city and this is not a healthy state. There are large engineering workshops which require a number of small parts to be made for them and there are also small foundries which can supply them, that this work of co-ordination should be undertaken and successfully done.



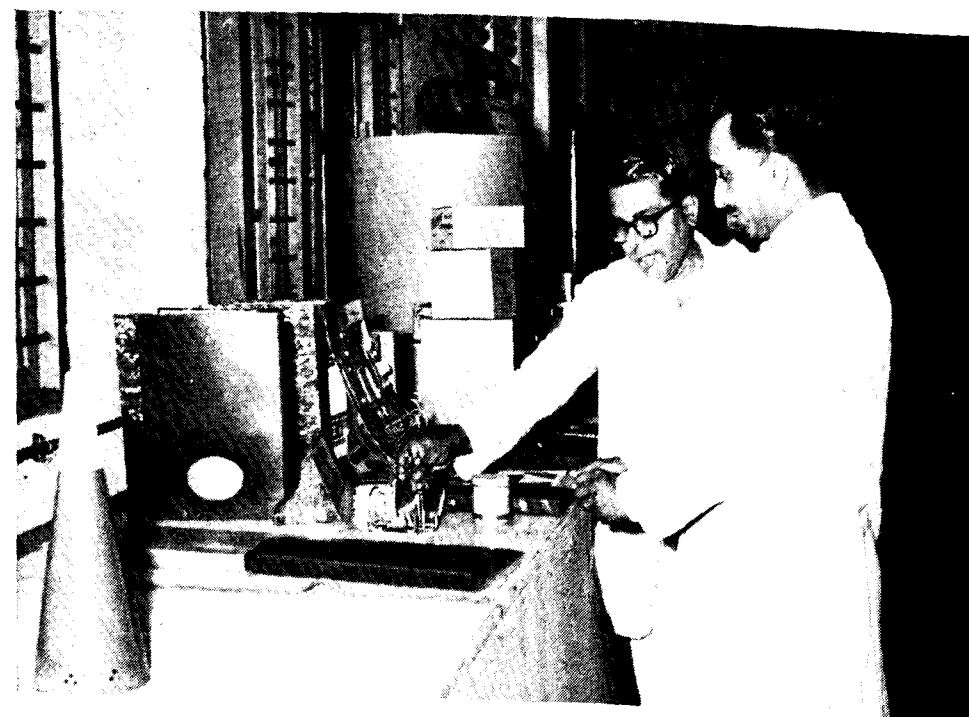
Sri R. Venkataraman, Minister for Industries, inaugurated the Reid Co-operative Timber Workshop at Tiruvattiyur on 10th January 1961. Picture shows the Minister addressing the gathering.



The Minister is seen above keenly observing a demonstration by a workman on that occasion.



Sri P. Ranga Reddy, Minister for Planning, Andhra Pradesh, is seen evincing interest in the products at the Guindy Estate Exhibition Hall.



Sri M. N. Naghnoor, Deputy Minister, Government of Mysore, during his recent visit to the Guindy Estate, is seen observing some of the products of the private units.

HOT FACE INSULATION REFRACTORIES

PROCESS DEVELOPED AT

CENTRAL GLASS AND CERAMIC
RESEARCH INSTITUTE, CALCUTTA

INDIAN PATENT No. 59456

Insulating refractories are mainly of two types—packing material used as the outermost layer on the outside of a furnace to conserve inner heat, and hot face insulating refractories used directly against high temperatures inside the furnaces.

The service conditions are entirely different. The packing material is required to stand only the temperature which may be reached at the back of the refractory lining of the furnace. This temperature seldom touches 1000°C and varies widely, depending mainly upon the maximum temperature inside the furnace and the thickness of the refractory walls of the furnace. Mica and vermiculite bricks are examples of this type.

On the other hand, hot face insulating refractories should be able to stand high temperature upto about 1500°C inside the furnace and should be mechanically strong and stand load at the operating temperatures of the furnaces. They should not also contract much during their continued use

inside the furnace. High porosity and low thermal conductivity consistent with other properties mentioned above are thus essential qualities of this type of refractory.

In spite of a reasonable demand, hot face insulation refractories are not made in India to any appreciable extent; only one or two firms are producing very small quantities.

Investigations have resulted in a process for the manufacture of hot face insulation refractories from different types of kyanite which occurs in abundance in India as the main basic raw material. The usual facilities available in a normal refractory plant are considered sufficient for the manufacture of such refractories.

The refractories developed are comparable to the hot face insulation refractories imported into India from USA and UK. Properties of the hot face insulation refractories developed at the Institute in comparison to those of the USA and UK are given in Table I.

JAN. - MARCH 1961

TABLE I

Properties of hot face insulation refractories

Property	C G R I	U S A	U K
Apparent porosity (%)	68-73	72	72
Bulk density (lbs./cu. ft.)	46-45	45	48
Reheat shrinkage (%) at 1540°C for 24 hrs.	0.65—0.91	0.7—1.27	ND
at 1600°C for 24 hrs.	1.35	2	ND
Refract. underload ta (°C)	*1265 to 1425	1200	1350
Deformation (%) under load of 10 lbs. per sq. inch at 1200°C for 1½ hours	1.0 to 1.47	4.76	1.39
Crushing Strength (psi)	*150-300	150	240
PEC (C)	1810	1754	1710
Service temperature (C)	1600	about 1550	about 1550
Thermal conductivity BTU/hr. ft. 2 inch) at mean temp. (°F)	1.805/730	1.985/716	2.4/1000

* Depends upon the firing temperature of the bricks. ND=not determined.

Parties interested in undertaking the commercial development of the process are invited to correspond with :

The Secretary,
NATIONAL RESEARCH DEVELOPMENT
CORPORATION OF INDIA, MANDI HOUSE,
LYTTON ROAD,
NEW DELHI - 1.

DETAILED PARTICULARS REGARDING CAPITAL OUTLAY, COST OF PRODUCTION ETC. FOR THE PRODUCTION OF HOT FACE INSULATION REFRACTORIES ARE FURNISHED BELOW. THESE FIGURES ARE WORKED OUT ON THE BASIS OF THE FOLLOWING.

1. NUMBER OF WORKING DAYS: 300 PER ANNUM
2. PRODUCTION: (a) OUTPUT PER WORKING DAY— 10 TONS
(b) OUTPUT PER ANNUM —3,000 TONS

CAPITAL OUTLAY FOR THE PROJECT

	Rs.
(a) Buildings : (area 10,000 in sq. ft. at Rs. 10 per sq. ft.)	1,00,000
(b) Plant and machinery	2,50,000
(c) Laboratory equipment, accessories, essential spares and other sundries	50,000
(d) Furniture and office equipment...	5,000
(e) Installation and erection charges (10% of plant and equipment).	25,000
(f) Internal and external transport facilities (if required)	25,000
Total	4,55,000

INVESTMENT ON BLOCK

Working capital to cover cost of raw materials, consumable stores, spares, fuel, labour and supervision etc. based on three months working costs ... 2,00,000

Total capital outlay for the project. ... 6,55,000

COST OF PRODUCTION

Particulars	Quantities required annually.	Rate	Per	Amount per annum
PRIME COST				
A. Raw Materials	Tons.	Rs.		Rs.
(a) Cyanite	3,000	200	Ton.	6,00,000
(b) Plastic clay	1,500	30	Ton.	45,000
(c) Combustibles	2,000	20	Ton.	40,000
(d) Binder	150	200	Ton.	30,000
		Total of 'A'		7,15,000
B. Utilities				
(a) Electrical power (for process)	400,000 (KWH)	0.09	KWH	36,000
(b) Water	1,000 × 1,000 Glns.	0.50	1000 Glns.	500
(c) Coal	1,500 Tons.	50.00	Tons.	75,000
(d) Engineering at 5% on plant				12,500
Services at 3% on buildings				3,000
		Total of 'B'		1,27,000
C. Labour and Supervision				
(a) Direct labour :	1-Technologist at Rs. 600 per month			7,200
	3-Formen at Rs. 250 p.m.			9,000
(b) Direct supervision :	10-Skilled labourers at Rs. 150 p.m.			18,000
	25-Un-skilled labourers at Rs. 100 p.m.			30,000
		Total of 'C'		64,200
		Total Prime Cost		9,06,200
OVERHEADS				
D. Factory Overheads (Variable)				
(a) Indirect labour				
(b) Indirect supervision and administrative expenses				40,000
(c) Rent, rates, insurance, taxes, etc. (2% on total capital outlay)				13,100
(d) Stationary and allied expenses				1,000
(e) Other welfare amenities (10% on labour and supervision)				6,400
		Total of 'E'		60,500
E. Factory Overheads (Fixed)				
(a) Depreciation at 10% on plant and equipment				25,000
at 5% on Building				5,000
(b) Interest on working capital at 6%				12,000
		Total of 'F'		42,000
		Total Overheads		1,02,500
		Total Cost (Prime & Overheads)		10,08,700
		Cost Per Unit (Ton)		336

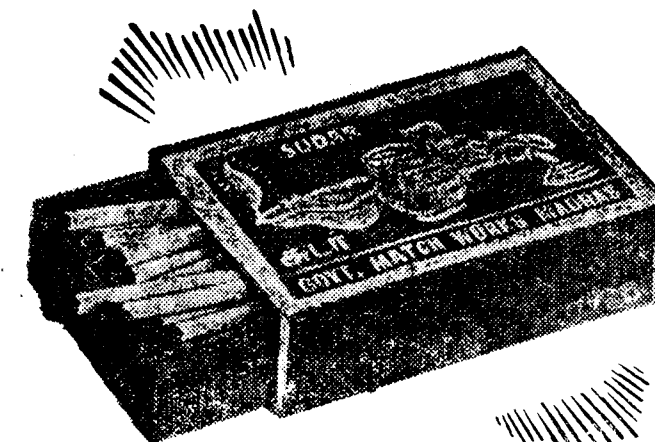
Sudar

MATCHES

40's

&

60's



Manufactured by :

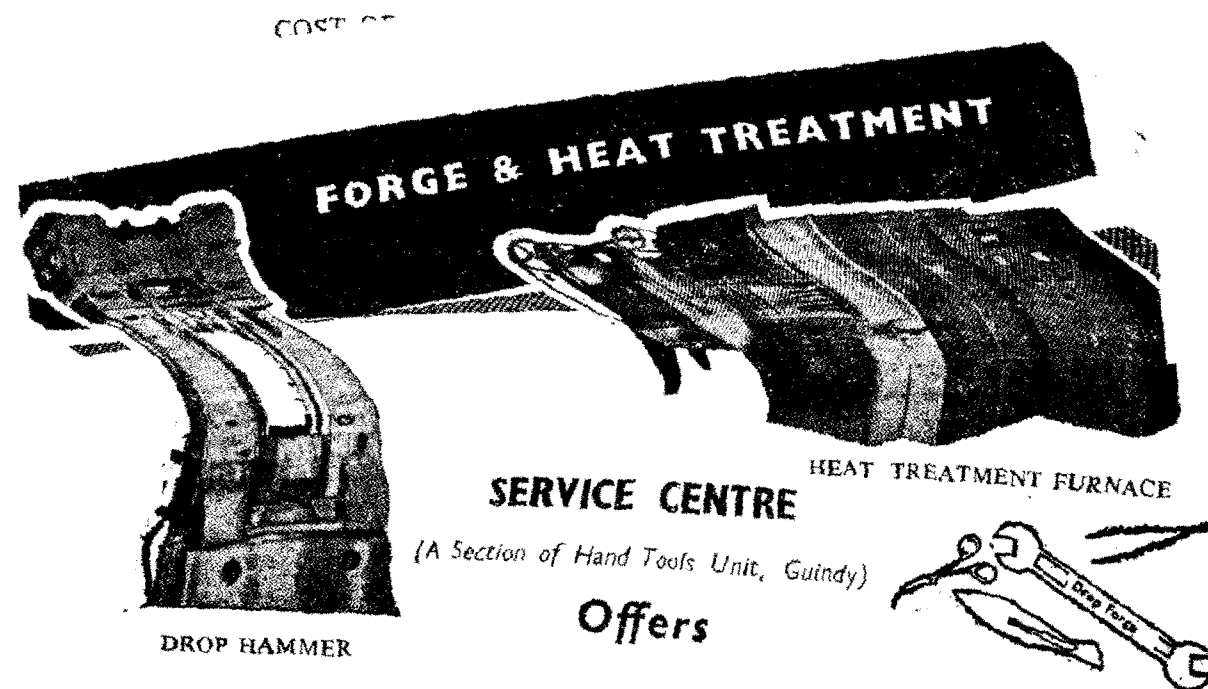
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MADRAS



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- ★ Annealing & Normalising
- ★ Oil Hardening & Tempering
- ★ Case Hardening, etc.

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IND-COM JOURNAL

PROJECT REPORT

PRESENT POSITION

1. India Produces about 1.7 million tons of cotton seed per annum. Of this barely 6% is crushed for oil in spite of the fact that cotton seed can yield a high quality edible oil. The Planning Commission has fixed a target of 30,000 tons per annum for cotton seed oil production by the end of the Second Five Year Plan as compared to the present production of 9,000 tons. It is estimated that more than 10% of the cultivated land in India is under cotton acreage.

Further to this report, the Government of India have increased the target of production for cotton seed oil. The order of Government of India for the compulsory usage of certain percentage of cotton seed oil in the manufacture of Vanaspathi will increase the local demand for cotton seed oil.

VARIETIES OF COTTON SEED

2. The trade varieties of seed cotton grown in Madras State and near about include Cambodia, Tirunelvelies, Karunganni, Salem, Northern Mungari, Western Warrangal, Cocanada and Chinnapathi. The total estimated production of cotton seed in Madras State is about 2.0 lakh tons. A good amount of

information is available regarding the oil content of the various trade varieties of Indian cotton seeds. Desikan and Murti of the Oil Technological Institute, Anantapur, have given the analysis of 50 different samples of cotton seed from all over India. The oil content of the samples vary from 13.1% to 22.8% (moisture basis). Lint content varies from 1.1% to 17.3%. The maximum oil content (moisture free basis) was found to be in Madras Uganda seeds from Koilpatti (24.8%). Such data are of value to the crushers of cotton seed for selecting the proper types of seed for oil extraction.

PLANT AND MACHINERY REQUIRED FOR THE INDUSTRY

3. A plant for the production of cotton seed oil will comprise of the following operations: (1) Cleaning of cotton seed (2) Delinting of the seed (3) Hulling and decortication of the seed (4) Rolling of cotton seed meats and (5) Extraction of oil by hydraulic processing, expeller processing or by solvent extraction, (6) Refining of the oil and further processing. The pre-treatment operations are essential for producing a good quality oil and cake and they also yield by-products such as lint and hulls which have market value.

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Ready made plants are available for cleaning, delinting, cleaning of the linters, dehulling, decortication of the seed and separation of the cottonseed meats from hulls. Messrs. Voltas Ltd. are in a position to give quotations for such plants manufactured by Messrs. Carver Cotton Gin Co., U. S. A. Decortication and dehulling plants are also available from Indian manufacturers. Messrs. Hanuman Oil Mills, Khamgaon, Bombay State, are in a position to design and fabricate such plants.

For extraction of oil from the cotton seed meats, expeller processing is probably the most popular, even though there are plants specially in U.S.A. based on hydraulic pressing and solvent extraction. Recent trend is however to the use of solvent extraction plants mostly due to the larger quantity of oil that can be extracted by this process. Expeller processing gives a yield of approximately 11 to 12 pounds more of oil per ton of cotton seed than hydraulic processing but requires considerably more power than hydraulic processing. A modern expeller unit uses 60 h.p. and has a capacity of about 20-24 tons/day of 24 hours. In expeller processing the quality of the cake is much improved by detoxification of gossypol during the cooking stage prior to screw pressing.

SOLVENT EXTRACTION THE NECESSARY AUXILIARY

4. Solvent extraction of cotton seed oil entails some difficulties in the refining of the oil so produced, but the larger yield of oil that can be obtained by the process has favoured the trend for its adoption. Solvent extraction has also much scope in extracting oil from cotton seed varieties bearing low oil content. Combination of the two processes, namely prepressing with

subsequent solvent extraction is also in vogue. In the scheme submitted, only expeller processing has been taken into account. It is advisable to add a solvent extraction unit to combine with the expeller unit for the economic working of the industry. One ton of cotton seed will approximately yield 300 lbs. of cotton seed oil, 900 lbs. of decorticated cake, 900 lbs. of hulls and 160 lbs. of cotton linters, the rest being trash and dirt. By addition of a solvent extraction unit, the oil yield will be considerably increased.

WORKING OF INDUSTRY

5. It may be observed that such a plant will require a provision of Rs. 28 lakhs towards buildings and machinery and based on the average prices of products and raw materials shows a profit of Rs. 35 per ton of cotton seed crushed (without taxation). Average gross profit per day will be Rs. 3,500 and assuming the crushing period to be limited to 200 days in a year, this will amount to Rs. 7 lakhs per year on a capital investment of Rs. 28 lakhs on machinery and buildings. It may, however, be noted that this is only a tentative estimate and will vary with the price structure of the various commodities involved. By intelligent planning, it may also be possible to effect an economy in the estimate for machinery etc. as it is possible to get some of the machinery required fabricated in India probably at much lower cost. Cotton seed oil industry is one of those for which raw materials and resources are plentiful in this country. The by-product cake is also a very useful cattle food. It will be in the interest of better utilisation of agricultural resources of the country to develop the cotton seed oil industry and it will also help in earning a considerable amount of foreign exchange as the oil is in great demand.

IMPORTANT FACTORS EFFECTING THE INDUSTRY

6. The industry has still to face a great many adds. The price of cotton seed varies a great deal throughout the year. The demand for cake is only seasonal for internal consumption or export to other countries. Buying of the seed may have to be limited to certain periods only and the industry may have to buy all its requirements in certain seasonal periods only resulting in the need for storage of cotton seed for extended periods which may involve certain amount of deterioration of the seed. The conditions of proper storage of cotton seed to avoid deterioration have also been fairly well worked out. It therefore is to be hoped that this potential wealth of this country be utilised properly with the help and encouragement of the State and Central Government.

It may be possible for the cotton seed crushers of smaller capacity than 100 tons per day also to work their plants profitably, as small crushers can avoid much of the administrative overheads even though for the stability of the industry as a whole larger units may be recommended. The smaller crushers can buy seeds with low lint content (thus avoiding purchase of delinters) as not much difficulty is felt in the disposal of the cake that may be obtained through such seeds. Small capacity plants can be made locally at a very low cost. It may also be observed here that as cotton seed crushing is seasonal, these units should be allowed to crush other seeds during the off season in order to avoid any shut down of their plants.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

7. We have to reiterate—

(1) The industry is seasonal and as such purchase in time of raw material and proper storage is necessary.

(2) Buying of seeds with high oil content at low prices is essential and unless a careful and experienced buyer is in charge of purchases, it may not be possible to work the industry in a profitable way. Besides seeds, oil and cake are highly speculative commodities and experience is necessary in getting the best market for the finished product.

(3) The manufacturer should before starting the industry consider the low cost of outlay in purchase of indigenous machinery and investigate how far it will offset for loss in profit due to the lower yield of oil. If solvent extraction is used in combination, even such oil as may be left over can be recovered.

ACKNOWLEDGEMENT

8. Based on the data given by Messrs. Hanuman Oil Mills, who have been cotton seed crushers for some considerable time an estimate has been made for the capital requirements and for probable profits for a plant crushing 100 tons of cotton seed per day. This is shown in Appendix I.

We are grateful to Sri N. G. Agarwal of Messrs. Hanuman Oil Mills, Bombay, Sri K. Viswanathan of Messrs. East Asiatic Co. Ltd., and Mr. C. E. Gupta of Messrs. Voltas Limited for the technical information given by them in the preparation of this report and to Sri K. Chandrasekharan for preparation of flow diagram.

Chairman	...	T. S. Narayanaswami
Member	...	Dr. G. S. Laddha
"	...	Dr. P. P. Reddy
"	...	S. Ramaswamy
"	...	T. S. Sankaran
"	...	C. R. Ramachandran

(Sub Committee for Chemical Industries)

APPENDIX I

Buildings & Land:

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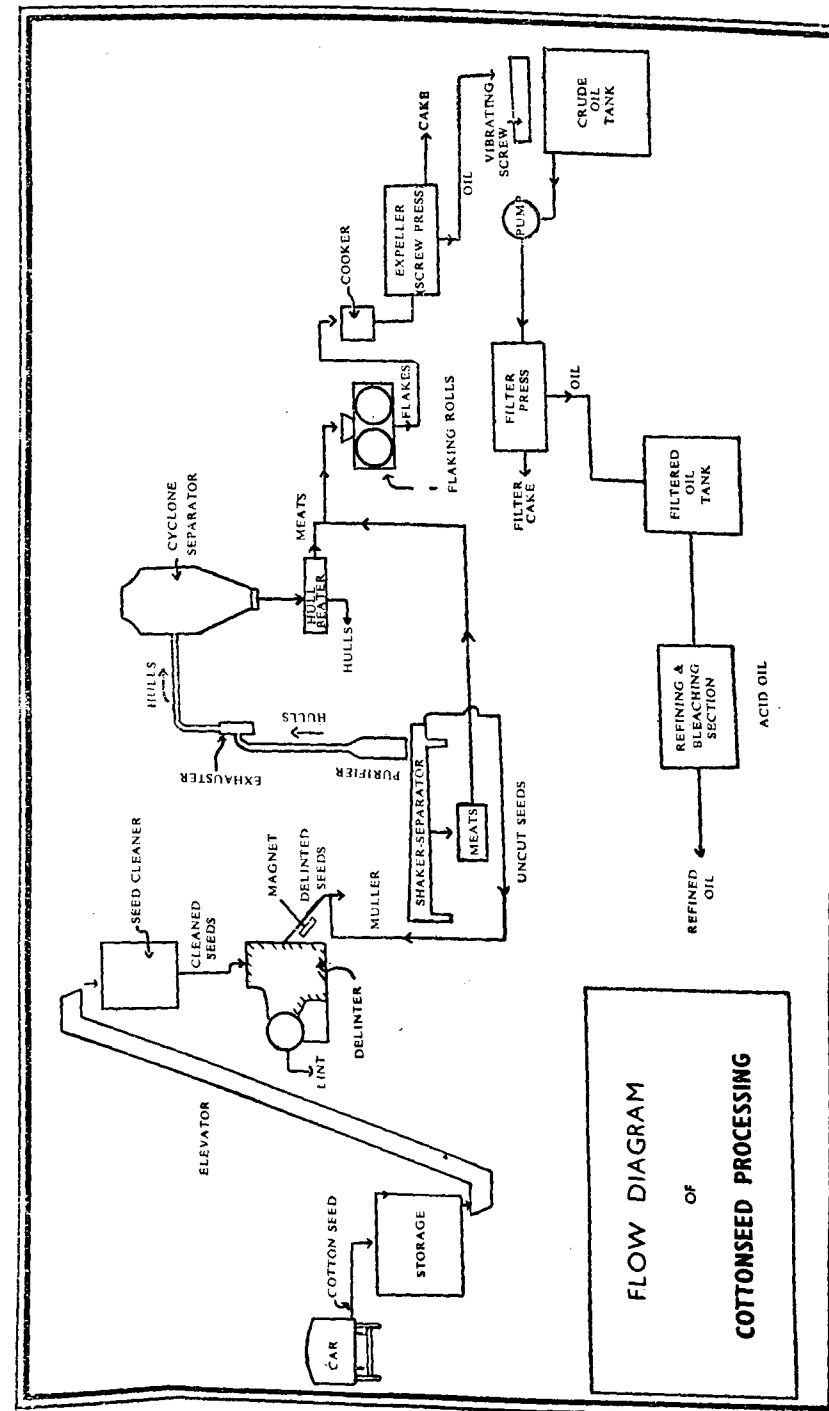
PROBABLE PROFITS ON 100 TON/DAY PLANT

Net Profit Rs. 4,625 - Rs. 1,075 = Rs. 3,550 per 100 tons. Rs. 35.50 per ton of cotton seed crushed.

PRICES OF THE FOLLOWING COMMODITIES AS ON 2-12-1958.

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finishing of East India Tanned Hides and Skins



It can be seen from the figures published by the Agricultural Marketing Department, Government of India, that before the formation of separate Andhra State, the Madras State was the largest producer of cattle hides and sheep skins in this country. Though Uttar Pradesh is the largest producer of goat skins followed by Bengal and Bihar, yet most of these skins, including cow hides and a certain percentage of Buff hides and sheep skins produced in these States, come to Madras tanners for tanning. The nature is bountiful in producing vegetable tanning material such as Avaram Bark and Myrobalams in Madras and adjoining States, which are famous for imparting their characteristic colour and tanning properties to the skins which are very much appreciated in foreign countries and have developed an export trade for more than a century. England has been the largest purchaser of these tanned hides and skins known as East India Tanned Hides and Skins and she has developed her tanning and leather finishing industry to the extent that she is now the largest exporter of finished leather in the world. The leather industry in Madras has been in the hands of Small Scale and Cottage tanners working with small capital. Secondly there has been very little demand of their products in India and was considered a surplus to be exported

abroad, where they are used as a necessity of life due to the cold climate. The Small Scale and Cottage tanners on account of limited capital and demand of quick turnover have been selling their products to the exporters and shippers on an outright sale basis, and also shipping them on consignment basis getting advances from the shippers on the goods delivered. The goods so consigned are auctioned in London and are bought by the English tanners and also by the Continental and U. S. A. tanners. The prices fluctuate depending upon the market conditions of demand and supply.

India, has within the last 20 years developed the Chrome Tanning Industry, a highly technical work, and has become an exporter of finished chrome leather to England, on outright sale basis, by the tanners in Calcutta, Kanpur and Madras. Recently on account of the ban on slaughter of cows, the quality of chrome leather produced by our country has gone down very much which has adversely affected and reduced its export. It is the slaughtered hides which give a good class of chrome leather. The hides from the fallen animals are dissipated with wrinkles and loose grain and cannot be used for the manufacture of good full chrome leather. These hides have to be treated with the vegetable tanning process as is being done in the Madras East India

kip tanneries. This process of tanning fills upto a great extent the looseness of the texture and grain. These hides are now being exported as East India tanned kips to U. K., where they are retanned by Chrome tanning and finished.

Now with the establishment of Leather Technological Institutes in India and the availability of technical personnels, these Madras East India kips and skins which are being exported in semi-tanned condition can be processed, finished and exported according to the needs of European Countries.

As the Industry is worked by the Madras Small Scale and Cottage Tanners they cannot afford to invest capital to set up a tannery for processing these hides and skins. It is suggested that a Joint Stock Limited Corporation, subscribed by the East India tanners and aided by the Government should be set up to build up a factory in the beginning to start processing a part of the hides and skins now exported in semi-tanned condition. An economical limit will be to process a minimum of 500 hides and 500 skins a day.

If the proposal for setting up a project of this nature is accepted in principle, then with the help of the experts necessary plans could be drawn up, and the estimates for the building, plant and machinery and other necessary data may also be submitted.

The financial aspect of the proposed project:—

The total investment can be estimated as below:—

	Rs.
Land	1,00,000
Buildings	5,00,000
Plant & Machinery	5,00,000
Working Capital	21,00,000
Total	32,00,000

The same plant can be used for the production of finished leather from the East India kips, goat and sheep skins.

The finished leather in both these cases is sold on square feet basis.

(a) Kips average 8 lbs. measuring 24 sq. ft. is sold at Rs. 20 (Rupees Twenty only) per hide, say 80 per sq. ft. on an average.

(b) Goat skins average 4½ sq. ft. is sold at Rs. 6 per skin, say Rs. 1.30 per Sq. ft. on an average.

(1) Finished leather from kips:

i.e. from 500 kips per day

By sales

To cost of 500 kips @ Rs. 20 each (giving average 24 sq. ft. of leather per hide)	Rs. 10,000	Finished leather @ Rs. 1.25 per sq. ft. (average) 500x24x1.25	15,000
To cost of labour .10 per sq. ft. 500x24x.10	1,200		
To cost of Chemicals @ .16 per sq. ft. 500x24x.16	1,920		
To overhead cost @ .6 per sq. ft. 500x24x.6	720		
	13,840		

(2) Finished Leather from goat skins:

i.e. from 5000 skins per day

By sales

To cost of 5000 skins @ Rs. 6 each (giving average 4½ sq. ft.)	Rs. 30,000	Finished leather @ Rs. 1.55 per sq. ft. (average) 5000x4½x1.55	34,875
To cost of labour .3 per sq. ft. 5000x4½x.3	675		
To cost of Chemicals .10 per sq. ft. 5000x4½x.10	2,250		
To overhead cost @ .3 per sq. ft. 5000x4½x.3	675		
	Rs. 33,600		Rs. 34,875

(Average cost per sq. ft. Rs. 1.49)
PROFIT.....Rs. 1,275.

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The Superintendent,

GOVERNMENT WOOD WORKING UNIT,
INDUSTRIAL ESTATE

GUINDY, MADRAS-32.

A UNIT OF THE DEPARTMENT OF INDUSTRIES, GOVT. OF MADRAS.

JAN. - MARCH 1961

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DEVELOPMENT OF RAMNAD REGION

RECOMMENDATIONS OF INVESTIGATION TEAM

A survey of Ramanathapuram District was undertaken by the Economic Investigation Team of the Small Industries Service Institute, Madras, with a view to assessing the scope for the Development of the existing and new industries during September-October, 1959 indicated that there was scope for the development of some small-scale industries in the district.

Though this district is in a disadvantageous position in respect of good climate, rural transport, good supply of water, availability of electricity, coal or other power resources; in agricultural, forest or other raw materials; and lastly in respect of local and nearby large marketing centres, it however does offer the advantages of (i) plentiful supply of man-power; (ii) a variety of old skills (aritsans), (iii) supply of limestone amongst the mineral resources; (iv) seaweeds and chank fisheries; (v) palmyrah leaves; (vi) coconut fibre and marine fisheries, all of which can be usefully exploited for the development of industries in the district.

Based on the above analysis the following industries appear to hold good prospects for development in the district: (1) Pyrotechnic aluminium powder, (2) Ginning mill parts, (3) Wooden furniture, (4) Crown corks (5) Fireclay products and (6) Aluminium hollow-ware.

Facilities like free land for new units, offer of work-sheds at subsidized rates and easy availability of electric power and good water may prove to be inducement and stimulus for these industries to be set up there.

The following specific suggestions are made in the survey report for improving the following industries in the district;

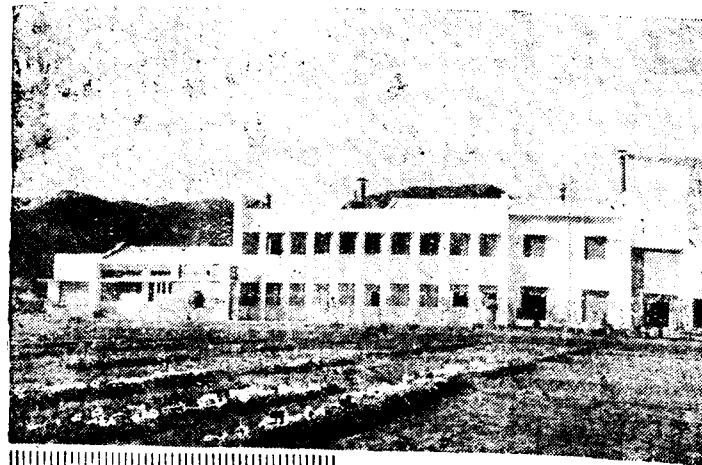
(1) **Light engineering industry:** Frequent visit to the foundries in the district by the Technical officers from the Small Industries Service Institute is needed to improve techniques of production.

(2) **Tin products industry:** The quota allotment of tin sheets in specific cases where there is a real need may be increased.

(3) **Fountain pen nib industry:** The manufacturers should form a Co-operative sales organisation among themselves so as to avoid unhealthy competition.

(4) **Leather and canvas goods:** (i) In order to enable the industry to procure materials like tanned goat skins, rubberised waterproof cloth, jute canvas, zip fasteners colours and dyes and gold leaves, the local Assistant Director of Industries and Commerce, may help the units of the industry in forming an Industrial Co-operative Society at Ilayangudi, (ii) The Government of India may grant Actual Users' Licence to

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the Co-operative Society, if formed, for importing materials like zip fasteners, snap fasteners, gold leaves and colours and dyes, (iii) The National Small Industries Corporation may supply dyeing machines as required by some of the units, (iv) The State Industries Department and the State Bank should consider applications for working capital loans.

(5) **Photographic sensitive paper:** The State Bank should extend financial assistance to the industry.

(6) **Chank fishing and shell collection:** A Training centre for the manufacture of bangles, rings, etc., from chanks, as proposed by the State Government, should be started.

(7) **Boat-building:** The Assistant Director of Industries & Commerce, Ramanathapuram, should help the boat builders at Tondi to form an Industrial Co-operative Society.

(8) **Mat-weaving:** The Railway authorities should consider opening an out-agency booking office at Ilayangudi in view of its importance as a mat-weaving and leather goods centre.

(9) **Palmyra leaf products:** The Block Development Officer, Rameswaram, should help the workers in the Industrial Co-operative Society.

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The Government of India have accepted the Tariff Commission's recommendation that protection to the power and distribution transformer industry should be continued at the existing rate of duty, i.e. 10 per cent AD VALOREM for a further period of three years ending December 31, 1963, and that the protective duty should be made applicable to power and distribution transformers upto 10,000 KVA and 132 KV on the H.T. side, and parts of such transformers not otherwise specified.

The Government resolution on the Commission's report, which has been published states that the Government

have also accepted the recommendation regarding the continuance of the present practice of assessing transformer oil imported with transformers to duty at the same rate as is applicable to transformer oil imported separately and steps will be taken to implement it in due course.

The Government have taken note of the recommendations of the Commission for a thorough scrutiny of applications for the import of transformers upto 10,000 KVA and 132 KV on the H.T. side, classification of imported power and distribution transformers by voltage, etc. Steps will be taken to implement them as far as possible.

PROTECTION TO INDUSTRIES

EXTENSION FOR FOUR ITEMS—TEXTILE MACHINERY & CYCLES INCLUDED

The Government of India have decided to continue protection granted to the bicycle industry, the cotton textile machinery (spinning ring-frames, spinning rings, fluted rollers and automatic looms) industry and the industry manufacturing bare copper conductors, aluminium conductors, steel reinforced and all aluminium conductors.

Protection granted to aluminium manufacturers and aluminium incude form, including

ingots, bars, blocks, slabs, billets, shorts and pellets is also to be continued.

Protection to the bicycle industry, the cotton textile machinery industry and the aluminium conductor industry is extended for three years and in the case of the aluminium industry, it is extended for a period of four years, i.e., upto December 31, 1964.

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According to a Commerce and Industry Ministry announcement the protection granted to the bicycle industry would be continued at the existing rates of duty for three years i.e., upto December 31, 1963.

Textile machinery industry: Protection granted to this industry will be continued at the existing level of duty of ten per cent AD VALOREM for a further period of three years, that is, upto December 31, 1963.

Conductor industry: While Government have accepted the Tariff Commission's recommendation to the continuance of

protection to aluminium conductor steel reinforced and all aluminium conductor manufacturing industries at the existing level of duty of 35 per cent AD VALOREM for a further period of three years, upto December 31, 1963, protection to bare copper conductors and electrolytic copper rods manufacturing industries has been discontinued with effect from January 1, 1961.

On de-protection from January 1, 1961, the existing rate of protection duty of 35 per cent on bare copper conductors and electrolytic copper rods industry, has been fixed as revenue duty.

NEW SCHEMES FOR HIRE-PURCHASE OF MACHINERY

The National Small Industries Corporation has introduced two new schemes for the supply of machinery to small-scale units on hire-purchase basis. A sum of \$ 10 million has been provided from the U. S. Development Loan Fund to the Corporation for the import of machines under these schemes. The D.L.F. credit is convertible into any foreign currency, except that purchase of machines valued at about Rs 2.5 lakhs will have to be made from the U.S. Under one of the schemes, the applicants will have to pay 20 per cent of the value of the machines in advance to the corporation and furnish guarantee for the remaining 80 per cent which will be payable in four equal annual instalments. The second scheme provides

for the supply of machines on payment of 20 per cent of their value at the time of the Corporation's acceptance of the application. An additional 20 per cent of the value of the machines will be payable before the delivery of the machines and the balance of 60 per cent will be recovered in five equal annual instalments. Since the introduction of the hire-purchase scheme in 1956, the Corporation has supplied nearly 4,000 machines, valued at more than Rs. 3.5 crores. In all, about 4,000 applications covering 12,500 machines worth Rs. 12.58 crores have been accepted by the Corporation. Orders worth over Rs. 7 crores have so far been placed in respect of both imported and indigenous machines.

MANUFACTURE OF ALUMINIUM CONDUCTORS

The Government of Madras have in a communication to the Chambers of Commerce stated that there is scope for setting up units for the manufacture of

aluminium conductors in the State and the Government would afford all facilities to entrepreneurs who come forward to take up manufacture of these items.

NEW UNITS FOR THE MANUFACTURE OF PAINTS

The Government of India have decided to permit the setting up of new units, upto a total fresh capacity of 20,000 tons, for the manufacture of paints and varnishes.

A recent survey carried out by the Commerce and Industry Ministry and Planning Commission and the estimates made by the Development Council for oil-based and plastic industries, have indicated that in the context of increasing requirements of paints and varnishes during the Third Plan period,

there is scope for the establishment of additional capacity in the Northern and Southern Regions.

Of the 20,000 tons fresh capacity proposed to be established, half will be in the Northern Region comprising the States of U. P., Punjab, Rajasthan, Jammu and Kashmir, Himachal Pradesh and Delhi. The other half will be in the Southern Region comprising Madras, Andhra Pradesh and Kerala.

AUTOMOBILE INDUSTRY

In the field of automobile industry, the survey says, there is considerable scope for the manufacture of a large number of ancillary items. As against the current year's estimated production of about 50,000 vehicles, the Third Plan target envisaged is much higher—1,00,000 vehicles. Among the ancillary items which need to be manufactured indigenously are magnetoes, distributors, coil springs, fuel injection equipment, forging, sealed beam units etc.

While the production of diesel engines has been on the rise, the demand is nevertheless outstripping the supply and there is

need for developing further industrial capacity for five H. P. to 200 H. P. high speed diesel engines. Besides the production of mobile cranes, petrol and Kerosene engined fork lift trucks has also to be taken up.

The instruments industry is another field where there is extensive scope for setting up fresh industrial capacity. It has been estimated that during the Third Plan period we would be requiring at least Rs. 15 crores worth of instruments of different types annually. Domestic production at present is not significant.

ENGINEERING COMPONENTS

SCOPE FOR SETTING UP MORE UNITS

There is considerable scope for setting up new units to fill the gap in the domestic production capacity of several engineering industries like machine-tools, industrial machinery, automobile and ancillary industries, instruments industry and electrical equipment, according to a survey by the development wing in the Union Ministry of Commerce and Industry.

The survey has stressed that there are a number of items in these fields, which are

either not produced in the country or are produced in insufficient quantities.

For machine-tools, the country's requirements by the end of the Third Plan would be about Rs. 50 crores annually. As against this the present production amounts only to about Rs. 6 crores annually. An annual production of at least Rs. 30 crores has been envisaged for the Third Plan period and it is clear that a major effort has to be made to reach this target.

TRANSISTOR RADIO

LICENCE TO MAKE 3.5 MILLION SETS

As against an estimated demand of five million transistor radio sets by the end of the Third Five-Year Plan, the Government had issued licences to factories with a total manufacturing capacity of 3.5 million sets during the period. Mr. Manubhai Shah, Minister of Industry, told Mr. P. S. Ambalam in the Lok Sabha.

More factories for the production of transistor sets were likely to be licensed, he added.

The Minister told Mr. C. R. Pattabhiraman that the Government were keeping

in touch with Japan and other countries where transistor sets were produced on a large scale. It was proposed to take positive steps for the manufacture of pocket and portable transistor sets within the reach of the ordinary citizen in the Third Plan.

Mr. Shah earlier said, that it was proposed to stop the import of all radio components by the end of 1961.

It may be mentioned here that M/S. Electronic Industries, Industrial Estate, Guindy, Madras, are progressively manufacturing Transistor Radios.

PRODUCTION OF RADIO PARTS

While the radio industry has increased its production, the survey says, the output of components in this industry has not kept pace with this rise and there is scope for development in respect of potentiometers, resistors, band change switches, transformers, trimmers, etc.,

There is also a vast field to be covered in respect of railway signalling equipment. Domestic production in this line is very limited at present.

The shortage of cables, particularly paper

insulated cables, of which huge quantities are required by various project authorities, indicated the expansion possibilities in this field. These are at present being imported on a large scale and with the expansion of domestic production, imports could be reduced, resulting in saving of valuable foreign exchange.

Ancillary electrical equipment on a large scale would be required by the three heavy electrical plants which would be in production by the middle of the Third Plan period.

CHEAP RADIO SETS

Cheap radio receiving sets were expected to be available in the market by the end of this year, Mr. Manubhai Shah, Minister for Industry, said in the Lok Sabha on 17-11-'60. The sets would be priced at Rs. 125 each.

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RAJAPALAYAM.**

**A UNIT OF THE SMALL SCALE INDUSTRIES
GOVERNMENT OF MADRAS**

CEYLON PRIME MINISTER AT GUINDY



Srimathi Sirimavo Bandaranaike, Prime Minister of Ceylon, visited the Industrial Estate, Guindy on 23-12-60. The distinguished visitor went round the Estate and saw some of the interesting Units. In the picture above Sri P. Sahanyagam, I.A.S., Director of Industries and Commerce, Madras, is seen presenting to the Premier a beautiful replica of Lord Nataraja, made of glass by the Government Glass Factory at Guindy.

"WITNESS TO THE PROGRESS....."

This very interesting industrial part is another witness to the progress India is making towards the increase of productivity.

Frank Martin,
New York.

"INTERESTING VISIT....."

Thank you for such an interesting visit.

Mary Fennelly,
New York.

"WONDERFUL PROJECT"

Many thanks for showing us this wonderful project.

M. G. Hastings,
Los Angeles.

We thoroughly agree.

Wilfred E. Varieur,
New York.

Wonderful to see the organisation that exists here.

E. J. Wackett,
New York City.

"MOST INTERESTING....."

Most interesting experience. Wish all success.

Maithripala Senanayake,
Minister of Industries, Home and Cultural Affairs, Ceylon.

"THE PACE OF PROGRESS....."

It was a pleasure to note the pace of progress that Madras Government is making in Small Scale Industries. I congratulate and wish greater success in this behalf.

M. N. Naghnoor,
Deputy Minister, Government of Mysore.

"PROSPERITY OF THE BULK....."

Very impressed. The prosperity of the bulk of the people can come only through such units.

M. K. Mathulla,
Managing Director, H.M.T., Bangalore.

"MUCH IMPRESSED....."

We are very much impressed with what we saw in Industrial Estate.

U. K. Gya,
Leader of Burmese Trade Mission.

"UNKNOWN IN THE U.S....."

This is an experiment unknown in the U.S. but you seem to be doing a fine job with it.

J. F. J. Tuber,
U.S.A.

Very Impressed. Thank you.

John W. Christy,
Development Loan Fund, U.S.A.

ROLE OF SKILLED WORKERS IN INDUSTRIAL PROGRESS

Dr. Theodor Heuss, former President of the Federal Republic of Germany, while delivering a lecture under the auspices of the University of Madras at the Senate House on 19-11-'60, observed that skilled workmen are and always will be the core of all reliable industrial progress anywhere in the world.

The distinguished visitor narrated that, how South Germany, his homeland, which was a hundred years ago economically poor and industrially backward had now a completely changed picture on account of the pursuit of a policy of systematically training skilled artisans by private industrialists like Friedrich List and Ferdinand Steinbeis. He stated that the establishment of industrial demonstration centres where workers could become familiar with the

internationally used technological tools and their products, the starting of industrial continuation schools for the purpose of encouraging the people of the villages and towns to have regular evening classes and the facility afforded to the interested workers to attend international exhibitions had all resulted in the formation of skilled workmen's class who proved to be the core of industrial progress. He also pointed out that the small artisan workshops set up by such workers in many places later developed into industrial firms which achieved world reputation after a few decades.

Dr. Heuss said that he was deeply moved by India's generously conceived and indefatigable efforts to improve villages through National Extension Service and Community Projects.

MANUFACTURE OF LEATHER GOODS INDUSTRIAL ESTATE FOR MADRAS

Functional Industrial Estates have been proposed to be set up in Madras and Agra exclusively for the manufacture of leather goods including footwear during the first year of the Third Plan, Shri Manubhai Shaw, Union Minister for Industries, said in the Lok Sabha on 17-11-1960.

The scheme for the Estate in Madras is being formulated by the State Government and the land required would be acquired during the current financial year. Details of the scheme for the Estate in Agra are awaited from the U. P. Government.

TRAINING CENTRE FOR TAILORING AND EMBROIDERY ESTABLISHMENT AT PARIKKAL ORDERED

The Government have ordered the establishment of a Training Centre for Tailoring and Embroidery at Parikkal in Tirunavur Block, South Arcot District and

have sanctioned an expenditure of Rs. 2,500 non-recurring and Rs. 3,750 recurring for this purpose.

RECORD NUMBER OF APPLICATIONS

During the half-year ended 30th September 1960, the Import Trade Control Organisation received a record number of 2,16,073 applications, as compared with 1,78,762 during the corresponding period last year. The disposal of applications kept pace with receipt and the number of pending applications. In addition, the Organisation also dealt with a large volume of correspondence on the question of policy, interpretation of rules and regulations, appeals, etc., from the trade associations. The number of such communications during the period was over 7,50,000. A

close watch was kept in order to prevent malpractices. Fortyone firms were blacklisted during this period for contravention of the Import and Export Trade Control Regulations. In order to simplify the procedure and ensure speedier handling of applications, large number of items were licensed on a yearly basis. The "repeat-value" licensing scheme introduced during the period October 1959—March 1960 was continued. Facilities were also extended for import of essential raw materials and equipment by the indigenous industries during this period.

PURCHASE OF INDIGENOUS GOODS

The total purchases made by the Government of India from indigenous manufacturers have gone up from Rs. 42 crores in 1953-54 to Rs. 61 crores in 1958-59. In 1959-60 it amounted to Rs. 153 crores out of the total purchases worth Rs. 182 crores. This information was furnished by Mr. N. E. S.

Raghavachari, Director-General of Supplies and Disposals, in his speech at the fifth meeting of the Western Regional Purchase Advisory Council held in Bombay recently. The foreign exchange component in the Government's purchases fell by Rs. 13 crores in 59-60, as compared with the previous year.

FINANCIAL ASSISTANCE FOR PROMOTING INVENTIONS

The Government of India, have set apart a sum of Rs. 2 lakhs for giving award and financial assistance during 1960-61 to artisans, technicians and others with inventive skill. This was decided at a meeting of the Inventions promotion Board held in New Delhi on 22nd June, 1960. Prof. M. S. Thacker, Secretary, Ministry of Scientific Research and Cultural Affairs and Director-General of Scientific and Industrial Research, Presided.

It was also decided to constitute a committee of specialists to consider applications for such awards and assistance. The Secretary of the Board will entertain further applications.

The Inventions Promotion Board was set up by the Union Ministry of Commerce and Industry some time back to encourage inventions in the sphere of small industries. The Board would also assist the inventors to develop their ideas which have technical potentialities.

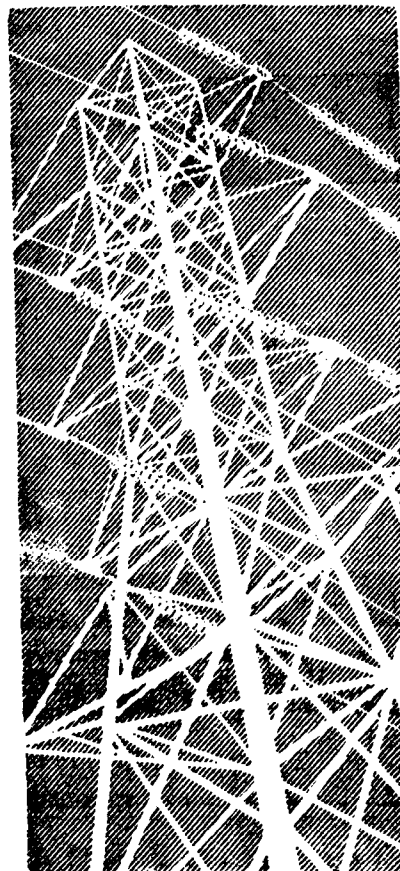
A Brief Note on How the ISI Certification Marks Scheme Operates

Under the authority vested by the Indian Standards Institution Certification Marks Act, 1952 and Rules and Regulations framed there under the Indian Standards Institution grants licences to manufacturers to apply the ISI Certification Marks on their products in token of conformity of the products to the Indian Standards concerned. Before a licence is granted, the Institution deposes a technically qualified inspecting officer for inspecting the factory of the applicant. He gathers first-hand information about the manufacturing processes and the controls which are exercised during production, and also determines whether adequate testing facilities are available in the factory for checking the incoming raw materials and the outgoing product, and for carrying out necessary tests at different levels of control during production to ensure compliance with the standard specifications concerned. He draws random samples from production line, which are subsequently sent to approved laboratories for testing. Only after the Inspector's report and test reports of samples and found fully satisfactory, the Institution grants a licence, annexing therewith a Scheme of Testing and Inspection which the licensee has to follow rigidly. The scheme includes a sampling plan which takes into account the importance of the various characteristics in batches likely to

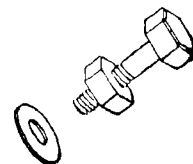
result and the number of tests that should be conducted at various levels of control. The scheme also prescribes maintenance of adequate records about quality control during production in prescribed forms.

2. In addition to the checks exercised by the licensees themselves, ISI carries out periodical inspections of the factories of the licensees and of their production records to ascertain whether the scheme prescribed in the licence is being adhered to or not. Further more, ISI draws random samples of the products from the factories. These samples are tested in the factories as well as in independent laboratories. Surprise inspections are carried out by ISI and samples drawn during such inspections are tested. Samples of ISI marked goods are also obtained from the market from the parties to whom supplies are made by the licensees and these samples are subjected to tests. Thus ISI maintains a constant watch over the quality of the marked goods. In addition, the Institution rigidly examines each point regarding the performance of a licensee during the preceding operative periods of the licenses, before renewing a licence for a further term.

3. As for the misuse or abuse of the ISI Mark by the licensee or others, the ISI Certification Marks Act and its Rules and

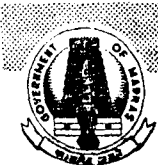


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Regulations extend powers to ISI and to the Government of India to take suitable action against the offenders. The Act prescribes fines upto Rs. 10,000 and forfeiture to Government of all goods for improper use of the ISI Certification Mark. Furthermore, a licence can be suspended or cancelled by the Institution if it is satisfied that the licensee concerned has used the Standard Mark in respect of any article or process which does not conform to the relevant Indian Standard, or the licensee fails to comply with the terms and conditions of the licence.

As a further safeguard for the consumer, ISI has made it obligatory for all licensees that if goods bearing the ISI Mark do not conform to the Indian Standards concerned, the licensees will be required to replace them free of cost.

5. Because the Certification Mark is allowed to be applied only after proper inspection and ensuring continuous check of quality during the process of production, the Certification Marks Schemes are more economical, for they pay for themselves and more, by eliminating defectives, reducing wastages, bringing uniformity in production

etc. It has also been established that continuous check on a production provides a better safeguard against defectives than batch sampling methods. To the buyer in particular, the ISI Mark indicates not only a third-party guarantee for the conformity of the products to the Indian Standards Concerned, but also an indication about the goods having been produced under a pre-planned system of control.

6. Since the ISI Certification Marks Scheme ensure that chances of finished goods failing to conform to the Indian Standards concerned and remote, the buyer can accept certified goods with a greater degree of confidence and without the need for any further inspection. The scheme is also conducive to build up consumer's confidence in the producer and improvement of buyer-seller relationship.

7. The ISI staff of inspectors and others are specially trained under experienced officers. Their number varies naturally with the workload, in the past few years, as the work increased, new inspectors were added and this process is found to continue in the future. The operation of ISI marking is a self supporting venture but experience shows that it is also self generating.

Metric Copper Wires and Conductors

The Indian Standards Institution has recently published IS: 1594-1960 Metric Sizes of Copper Wires and Conductors for Electrical Purposes. Consequent on the decision of the Government of India to introduce metric system of weights and measures in this country, it became imperative for the electrical cable industry to evolve rational sizes for wires and conductors in the metric system. This standard gives the diameters of copper wires for electrical purposes in metric system. It also gives the

sectional areas with the number and diameter of wires of copper conductors for use in insulated cables and for overhead transmission purposes.

The present cable manufacturing practices in this country follow mostly the British practices and the existing Indian Standards, based on corresponding British Standards, are in the "fqs" system. The conductor sizes specified in this standard are derived from the CEE series as well as the sizes in vogue at present in this country. This step has

been taken with a view to bringing about the minimum amount of dislocation in the cable industry in this country in changing over to the metric system, although the advantages of adapting a series which follows a geometrical progression are fully

realized. It is, however, hoped that with the efflux of time, the needs in this country will tend towards an ideal series and that, at a later date, it will be possible to delete many of the sizes representing the present practice.

Indian Standards Specifications on Electroplating

The Indian Standards Institution has published the following Indian Standards Specifications regarding electroplating:

(i) IS: 1067-1958 — Commercial Silver-plating.

(ii) IS: 1068-1958—Copper, Nickel and Chromium, Electroplated Coatings.

The above standard specifications will be very much beneficial to the small scale electroplating industry. Their implementa-

tion in the production schedule of small scale electroplaters will help in improving the quality of their electroplating and also the consumer acceptance of the Standardised product would be more rapid. All small scale electroplaters who are interested in standardising their electroplating according to the IS standards mentioned above, should contact the Director, Small Industries Service Institute, in their respective regions for technical advice.

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BRASSWARE & CUTLERY INDUSTRY, KUMBAKONAM.

**A UNIT OF THE SMALL-SCALE INDUSTRIES,
GOVERNMENT OF MADRAS.**

ASSOCIATION RECEPTION



Sri P. Sabanayagam, I. A. S., Director of Industries and Commerce, Madras, was felicitated by the members of the Industrial Estate Manufacturers' Association, Guindy, on 12th January 1961. In the picture above, the Director is seen addressing the gathering on the occasion.



The group photograph shows the Director with the office bearers and members of the Association.

FRENCH DELEGATION



At New Delhi: A four-member French Delegation called on the Union Minister of Commerce and Industry, Sri Lal Bahadur Shastri and discussed details about the establishment of a prototype production-cum-training centre for precision instruments at Guindy



At Madras: The members are seen with Sri T. K. Palaniappan, Secretary, Industries, Labour and Co-operation Department, Madras, at the Industrial Estate, Guindy.

ASSOCIATION ACTIVITIES

The Federation of Associations of Small Industries in India which was formed in September, 1959 at the meeting of the representatives of Small Industries Associations from all over India held in New Delhi at the instance of the Small Scale Industries Board, has started functioning regularly with its independent office at 12-B/4, Utrri Marg, Rajendra Nagar, New Delhi-5.

Since its inception the Federation is engaged in studying the various problems that are confronting the Small Scale Sector and is representing to the Government effectively the view-points of the Small Scale Industry particularly in respect of procurement of essential raw materials and the application of various industrial laws. In the matter of application of the Provident Fund Scheme to small factories, the Committee of the Federation met the Union Minister for Labour in November last and discussed with him various issues involved. The Committee pleaded that the newly started units in the Small Scale Sector be exempted for some time from the application of the Scheme and the contribution from the employers be substantially reduced. The Committee also requested for the waiving of the administrative charges from the employers of small units. The Federation now understands that the newly started

small units will be exempted from the application of this Scheme for 5 years and that the percentage of contribution will be less in case of small scale units compared to large scale units.

The Federation also took up the question of difficulties experienced by some of the members in respect of Hire Purchase Scheme of the N.S.I.C. and suggested simplification of the forms prescribed for this purpose. The N.S.I.C has accepted the suggestion of the Federation and the form has been simplified.

On its attention being drawn to the difficulties experienced by the Non-ferrous metal manufacturers in respect of import of electrolytic copper, zinc, lead and scrap, the Federation took up this question with the Chief Controller of Imports and Exports who assured that he would look into the matter of non-availability of lead and zinc for which quotas were allocated. As for the future imports of metals he suggested the members to approach the State Trading Corporation and the Metal Controller. Accordingly the Federation is pursuing the matter with the concerned offices.

Since its inception the membership of the Federation has gone upto 145 and it is fast increasing, holding out hope that the

Federation will soon be a truly representative and a dynamic body in the Small Scale Sector of the industry.

The Federation has sought representation on various Government bodies where representatives of similar bodies have been

nominated in order to enable it to place before the Government the view-points of the Small Scale Industries in a more effective manner. It has already been accorded a representation on the National productivity Council.

MYSORE SMALL-SCALE INDUSTRIALISTS AT GUINDY

Small-Scale Industrialists of Mysore State, numbering 30, visited the Small Scale Industries Association at its premises in Guindy on 27-10-'60.

As a result of discussion between the visitors and the members of the Association, it was agreed that it was not advisable to have zonal organisations of State Associations, and that it would be far better to give the Federation of Associations of Small Scale Industries of India, started some nine months ago, full opportunities for tackling the various problems that beset small scale entrepreneurs.

Mr. C. R. Sundaram, Honorary Director, National Small Scale Industries Corporation, presided over the discussions.

Mr. R. Ganesan, President of the Association, referred to the difficulties that confronted them in obtaining raw-materials and in regard to the hire purchase system. He, however, added that in the last five years especially, the State and Central Governments had rendered them every help.

Mr. J. K. Mullick said that the Government in Madras were all out to help the small industrialists. At the same time, the members of the Association should display more initiative in helping themselves.



A FACTORY HAND INVENTS A WATER PUMP

Necessity should not always be the stimulant for invention. Some inventions owe their origin to the inner urge which impels imaginative people to contrive newer, better and more useful things. Some timely encouragement and help is all they need.

This is illustrated by the story of Karam Singh, a simple, unassuming factory worker who, however, has an imaginative bent of mind. Karam Singh is the author of a new type of water-pump—called "Washer Pump".

This new device is capable of lifting more water than the traditional rahat (Persian wheel). Not only the "Washer Pump" costs less than the rahat but also it is more economic to operate and maintain.

INSPIRING EXHIBITS

The imaginative mind of Karam Singh was fired by what he saw in one of the huge exhibitions which are put up in Delhi during the winter. He saw some agricultural imple-

ments on display in one of the pavilions and felt the urge within himself to devise implements suited to Indian conditions which would reduce the labour of the farmer and help him produce more. He also noticed that some of these implements were semi-mechanical and with a judicious combination of mechanical and animal or human power useful results could be achieved.

Karam Singh gave up his employment in one of the factories in the capital so that he could devote more time to the study of the exhibits. Spending long hours in the exhibition he made sketches and took photographs of the implements on display. By the time the exhibition was over Karam Singh had taught himself how to design newer and better implements. Incidentally the scoffers who consider such exhibitions as a mere waste or a *tamasha* have here a lesson to learn.

Karam Singh was now ready to put his newly acquired knowledge and his inventive faculty to some creative use. It was then that he encountered serious financial difficulties because even the small amount of money required to conduct a few experiments was not forthcoming.

The answer to his difficulties was co-operative effort. Fellow workers came forward to form an industrial co-operative society devoted to engineering and manufacturing work. Working overtime Karam Singh and his band of enthusiastic workers completed the new Washer Pump device in the course of a few months.

WASHERS LIFT WATER

What are the special features of this pump and how does it constitute an improvement on the rahat? The pump has a pipe of 4" diameter through which water is lifted from a well. A chain is operated by a wheel at the top of the well which in turn is set in motion by a freewheel which can be operated by a bullock or a man (and with proper attachments even by an electric motor). The chain, to which are fitted washers at every five feet, is passed through the pipe.

When the chain is set in motion the washers push water up through the pipe. As the washers come up, water flows into a container placed near the top of the well from where the water can be diverted for irrigation or taken for other uses. As the chain keeps on moving the water is continu-

ously lifted by the washers and a constant water lift is thus maintained.

The experiments conducted on the Washer Pump so far show that 5,000 gallons of water can be lifted per hour as compared to the capacity of the rahat of 3,000 gallons an hour. It is stated that the Washer Pump can be manufactured using only one-third of the quantity of iron required for making the traditional rahat. The cost of the Washer Pump is estimated to be Rs. 375, besides another Rs. 110 to meet the cost of the pipe. This, it is explained, is 40 per cent less than what a Persian wheel would cost. Production on a large scale is expected to result in further reduction of the cost.

ENQUIRIES AND ORDERS

Four experimental Washer Pumps have been made. These have been sent to different organisations for further tests and experiments. Already the Co-operative Society has received a number of enquiries and a couple of orders.

The Co-operative has, at present, a membership of 30 workers who have put in Rs. 100 each as their share. They hope to raise credit from lending institutions and are seeking loans from the authorities.

The inventor Karam Singh is a displaced person from West Pakistan. Making tools has been his occupation, first in Kapurthala and then in New Delhi. He lives in one of the new colonies built by Government for displaced persons, with his wife, five children and his parents.

LIGNITE DUST AND CHAR AS SUBSTITUTES FOR SLACK COAL IN BRICK KILNS

Brick kilns in South India can look forward to a solution of their fuel problem caused by the shortage and high prices of

slack coal and fire-wood. Recent investigations at Neyveli have established the suitability of raw lignite dust and lignite char for

firing bricks. Based on calorific value, the former is required in the same quantity as slack coal, while a saving of 21.5 per cent is effected in the case of the latter. In quality, the bricks fired with these fuels are comparable to those obtained with slack coal.

The most common fuels used in South India for firing bricks are firewood and slack coal. The supply of slack coal to the brick kilns is, however, not adequate and it costs about Rs. 70 per ton; supplies of firewood are also dwindling and the cost varies between Rs. 50 and 60 per ton. With the discovery of large lignite deposits and the projected establishment of an Integrated Lignite Project at Neyveli, lignite briquette chips and carbonized lignite char fines may

become available for the brick burning industry. The investigations reported were undertaken to test the performance of dried raw lignite and lignite char as substitutes for slack coal in brick kilns.

Following encouraging results obtained in a small kiln at Neyveli, large scale tests with raw lignite and lignite char were carried out in a Hoffman kiln located near Sethiathope, about 8 miles from Neyveli.

The study on the suitability of lignite char and raw lignite dust as substitutes for slack coal in brick kilns showed that the consumption is about 21.5 per cent less in the case of lignite char as compared to slack coal. The consumption of lignite dust is about the same as that of slack coal.

NEWSPRINT—GRADE PULP FROM PAPER MULBERRY

Pulps for newsprint grade paper can be produced from paper mulberry (*Broussonetia papyrifera*) by an improved cold caustic soda process of German Origin in which shavings are used in place of chips. The yield is high (84 percent) and the sheets from the pulps have markedly improved properties compared to those obtained from mulberry chips.

Unlike some foreign countries, India does not possess adequate and easily accessible resources of conifers for her newsprint industry. The newsprint factory at Nepanagar in Madhya Pradesh, the only newsprint factory in India, uses mainly a broad-leaved species, namely, salai (*Boswellia serrata*). The new process has been investigated at the Forest

Research Institute, Dehra Dun, for its suitability for adoption in India for pulping mulberry.

The investigations indicate that pulps in high yields with satisfactory strength properties and brightness for making newsprint grade paper can be obtained from paper mulberry shavings by the new process. The pulp yields decrease and strength properties improve with increasing amount of caustic soda used for soaking. The brightness, however, remains almost unchanged. With increase in the period of soaking from 1 to 4 hours, the pulp yields decrease but strength and brightness properties remain unaffected.

PRODUCTION OF MAGNETIC FLUID AND ITS USE IN NON-DESTRUCTIVE TESTING

Investigations at the National Physical Laboratory, have led to the development of two processes for production of magnetic

fluid. One of these is more suitable for large scale production while the other is economical even when worked on a small scale.

separate items with a total area of 1,00,000 square feet and weighing 100 tons will be polished electro-chemically.

The scientist who developed the process Mr. P. Allan Charlesworth, a director of the firm, said that he had sought a way of polishing stainless steel by the reverse of electroplating. "The irregularities in the metal surface" he said, are removed by electro-chemical solution instead of mechanical abrasion, to leave a smooth surface which by altering the processing conditions can be varied as required from a bright and highly lustrous, down to a mat silver finish.

"This is electro-polishing. It had already been done in the metallurgical laboratories for decades for the polishing of a very small samples of metals and alloys. But this was an expensive process and the problem was to develop it in an economic way. I decided that the greatest scope for development lay with stainless steels and other stainless

alloys because the mechanical polishing then necessary to produce the final polished surface was both costly in labour and unpleasant to perform. After considerable research the technique was developed and patented throughout the world. The stainless steel article is immersed in a chemical bath and an electric current is passed through it, but the process reverses that of the well-known electro-plating bath, and a thickness of metal, usually less than one two-thousandths of an inch, is removed.

"Economically the process is the cheapest known method of polishing stainless steel; it is highly resistant to atmospheric corrosion (a test section has been weathering in London for two years); there is no limit to the size of the article to be electro polished. The process is now being used by the British car industry, for food and dairy equipment, for photographic equipment, chemical engineering and atomic energy fields and in almost every other industry".

CHEMICAL PROCESS FOR COLOURING METALS

A new chemical process which will colour the surfaces of all types of metal in a single treatment is now ready for commercial application in the U.S. The coatings are claimed to be resistant to acids, alkalis, and solvents and to be more economical than colour anodising of painting. The coatings are applied in an aqueous solution at room temperature and can be applied by roller coating, dipping or spraying. The only pre-treatment required is thorough cleaning and rinsing, as for any finishing system. "Curing" time, ranging from 350 to 425

degrees Fahrenheit, can be as little as a few seconds, depending on the amount of heat applied. Two of the coatings available are clear and provide a satin finish. They are claimed to have good corrosion resistance and to be a suitable substitute for organic finishes. The colour coatings can be applied to aluminium, zinc, carbon, steel, stainless steel and magnesium and are available in a hard, solvent-resistant grade and a ductile grade. Colours available include red, brown, green, blue, black, grey and bronze.

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A plant with a capacity of 1,000 lb. per month using the letter process is estimated to involve an outlay of Rs. 8,000 and the cost of the fluid produced would be not more than Rs. 4 per gallon which is one-sixth of the market price of the imported product.

Metallurgical and engineering goods Industries in India need annually about 8,000 gallons of magnetic fluid for non-destructive testing and quality control. The country's requirements for these fluids have hitherto been met entirely by imports. With rise in industrial production during the Third Five-Year Plan, India's requirements for magnetic fluid are estimated to go upto 12,000 gallons.

Magnetic particle inspection using a magnetic fluid is one of the most widely employed methods of non-destructive testing of ferro-magnetic materials, such as iron, steel, nickel and cobalt base alloys. The technique permits the detection of faulty materials and very fine surface and subsurface defects, such as cracks, inclusions, forging flaws and fatigue signs, which cannot be detected by visual or radiographic means.

Some of the industries which employ magnetic fluid are iron and steel, machinery and tools, chemicals, automobiles, bicycles, aircraft, ball and roller bearings, motor car and diesel engines, cutlery, shipping and railways.

MANUFACTURE OF SUGAR BY SOLVENT PROCESS

The use of organic solvents for the extraction of sugar forms the basis of a new process reported recently. The solvents act on the cane juice as a dehydrating, precipitating, and selective separating agent. The process is rapid, simple and economical and valuable byproducts like chlorophyll, cane wax and glucose syrup are obtained.

Raw cane juice is first treated with normal or secondary butyl alcohol or ethyl acetate; the sucrose is then precipitated using acetone. The use of the former solvent can be eliminated by using sugarcane slices.

Since practically the whole of the sucrose gets precipitated, formation of molasses is eliminated. The process is simple and comprises only about 3 operations. Within

10 minutes the juice is defecated, decolourized and purified, and the sucrose is precipitated in about 15-20 minutes. Chlorophyll, cane wax and edible glucose syrup, which are valuable commercial commodities, are obtained as by-products.

The solvents used are cheap, easily obtainable, non-toxic and can be really recovered by distillation and reused. The use of lime, carbon-dioxide, sulphur-dioxide, super-phosphate, bone char or activated charcoal, kieselghur, etc., in the traditional method is dispensed with; multiple effect evaporators and vacuum pans can also be eliminated. The process can be worked on both small and large scale. Consumption of bagasse is less and a large portion of it can be conserved for the production of newsprint and other products.

TRANSISTORISED TRANSLATION SYSTEM

To solve the problem of interpreting the many speeches and lectures which formed a part of the British Railways Electrification Conference recently held in London an entirely new equipment was used for the first time. Five hundred special transistorised receivers were available to the delegates. They were completely self-contained in a casing, the top of which formed the phone itself. A small switch enabled the listener to select any one of the four languages being transmitted.

The translation of a speech was broadcast simultaneously by four interpreters operating from four soundproof booths specially constructed to enable them to sit,

hear and see what was happening outside. The transmitters, microphones and monitoring devices were all housed in the booths and transmissions in four languages were broadcast over a loop of wire surrounding the perimeter of the conference hall.

There was no necessity for a delegate to stay in his seat to hear the translation, nor did he need the phone attached to a fixed point. He could even wander around the hall and still listen into the language of his choice. This system known as the Multi-tone Translation System, uses streamlined receivers weighing only seven ounces which have been specially designed to be easily and comfortably used.

TILE CUTTER TO SAVE TIME AND COST

A unique, time-saving device is now being manufactured by a Bath firm in England. It is a glazed tile-cutter which, it is claimed, saves both time and labour costs. In fact, it is claimed that it is possible to save the cost of the device on one job.

Made entirely of sheet metal, with a locking device on the guide setter, it is possible to keep the guide in one position for cutting. The tile is placed, face downwards, on the cutting table, and simply

pushed over a special cutter wheel, which scores a mark on the surface of the tile, and a clean break is then obtained by pressing it across the edge of the angle on the guide setter.

The cutter wheel, which has an extremely long life, is easily replaceable, and it is possible to cut six-inch and four-inch tiles upto half an inch thick, at a rate, depending upon the operator, of about 12 per minute. The cutter is extremely robust, and is rustproof.

NEW TECHNIQUE FOR ELECTRO-POLISHING STAINLESS STEEL

A. U. K. company which has in recent years developed a revolutionary new technique for the electro-polishing of stainless steel, has won the electro-polishing contract for what is understood to be the

largest stainless steel building in Europe, a 35-floor—387 ft. high office block, claimed to be the biggest in London, to be erected in Millbank. The firm has already begun work on the contract under which 33,000

Karam Singh was now ready to put his newly acquired knowledge and his inventive faculty to some creative use. It was then that he encountered serious financial difficulties because even the small amount of money required to conduct a few experiments was not forthcoming.

The answer to his difficulties was co-operative effort. Fellow workers came forward to form an industrial co-operative society devoted to engineering and manufacturing work. Working overtime Karam Singh and his band of enthusiastic workers completed the new Washer Pump device in the course of a few months.

WASHERS LIFT WATER

What are the special features of this pump and how does it constitute an improvement on the rahat? The pump has a pipe of 4" diameter through which water is lifted from a well. A chain is operated by a wheel at the top of the well which in turn is set in motion by a freewheel which can be operated by a bullock or a man (and with proper attachments even by an electric motor). The chain, to which are fitted washers at every five feet, is passed through the pipe.

When the chain is set in motion the washers push water up through the pipe. As the washers come up, water flows into a container placed near the top of the well from where the water can be diverted for irrigation or taken for other uses. As the chain keeps on moving the water is continu-

ously lifted by the washers and a constant water lift is thus maintained.

The experiments conducted on the Washer Pump so far show that 5,000 gallons of water can be lifted per hour as compared to the capacity of the rahat of 3,000 gallons an hour. It is stated that the Washer Pump can be manufactured using only one-third of the quantity of iron required for making the traditional rahat. The cost of the Washer Pump is estimated to be Rs. 375, besides another Rs. 110 to meet the cost of the pipe. This, it is explained, is 40 per cent less than what a Persian wheel would cost. Production on a large scale is expected to result in further reduction of the cost.

ENQUIRIES AND ORDERS

Four experimental Washer Pumps have been made. These have been sent to different organisations for further tests and experiments. Already the Co-operative Society has received a number of enquiries and a couple of orders.

The Co-operative has, at present, a membership of 30 workers who have put in Rs. 100 each as their share. They hope to raise credit from lending institutions and are seeking loans from the authorities.

The inventor Karam Singh is a displaced person from West Pakistan. Making tools has been his occupation, first in Kapurthala and then in New Delhi. He lives in one of the new colonies built by Government for displaced persons, with his wife, five children and his parents.

LIGNITE DUST AND CHAR AS SUBSTITUTES FOR SLACK COAL IN BRICK KILNS

Brick kilns in South India can look forward to a solution of their fuel problem caused by the shortage and high prices of slack coal and fire-wood. Recent investigations at Neyveli have established the suitability of raw lignite dust and lignite char for

firing bricks. Based on calorific value, the former is required in the same quantity as slack coal, while a saving of 21.5 per cent is effected in the case of the latter. In quality, the bricks fired with these fuels are comparable to those obtained with slack coal.

The most common fuels used in South India for firing bricks are firewood and slack coal. The supply of slack coal to the brick kilns is, however, not adequate and it costs about Rs. 70 per ton; supplies of firewood are also dwindling and the cost varies between Rs. 50 and 60 per ton. With the discovery of large lignite deposits and the projected establishment of an Integrated Lignite Project at Neyveli, lignite briquette chips and carbonized lignite char fines may

become available for the brick burning industry. The investigations reported were undertaken to test the performance of dried raw lignite and lignite char as substitutes for slack coal in brick kilns.

Following encouraging results obtained in a small kiln at Neyveli, large scale tests with raw lignite and lignite char were carried out in a Hoffman kiln located near Sethiathope, about 8 miles from Neyveli.

The study on the suitability of lignite char and raw lignite dust as substitutes for slack coal in brick kilns showed that the consumption is about 21.5 per cent less in the case of lignite char as compared to slack coal. The consumption of lignite dust is about the same as that of slack coal.

NEWSPRINT—GRADE PULP FROM PAPER MULBERRY

Pulps for newsprint grade paper can be produced from paper mulberry (*Broussonetia papyrifera*) by an improved cold caustic soda process of German Origin in which shavings are used in place of chips. The yield is high (84 percent) and the sheets from the pulps have markedly improved properties compared to those obtained from mulberry chips.

Unlike some foreign countries, India does not possess adequate and easily accessible resources of conifers for her newsprint industry. The newsprint factory at Nepanagar in Madhya Pradesh, the only newsprint factory in India, uses mainly a broad-leaved species, namely, salai (*Boswellia serrata*). The new process has been investigated at the Forest

Research Institute, Dehra Dun, for its suitability for adoption in India for pulping mulberry.

The investigations indicate that pulps in high yields with satisfactory strength properties and brightness for making newsprint grade paper can be obtained from paper mulberry shavings by the new process. The pulp yields decrease and strength properties improve with increasing amount of caustic soda used for soaking. The brightness, however, remains almost unchanged. With increase in the period of soaking from 1 to 4 hours, the pulp yields decrease but strength and brightness properties remain unaffected.

PRODUCTION OF MAGNETIC FLUID AND ITS USE IN NON-DESTRUCTIVE TESTING

Investigations at the National Physical Laboratory, have led to the development of two processes for production of magnetic

fluid. One of these is more suitable for large scale production while the other is economical even when worked on a small scale.

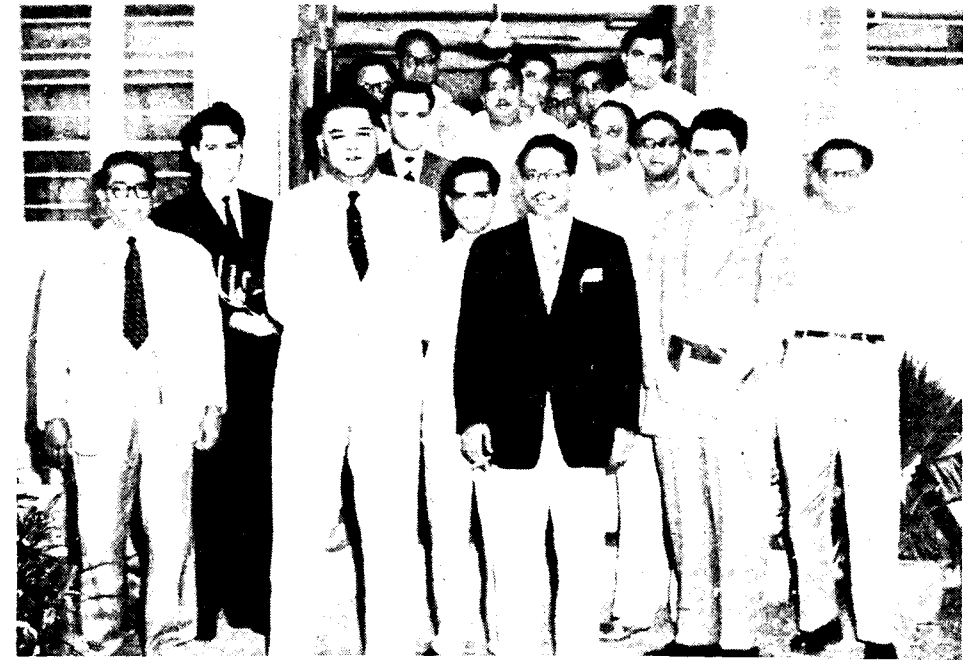
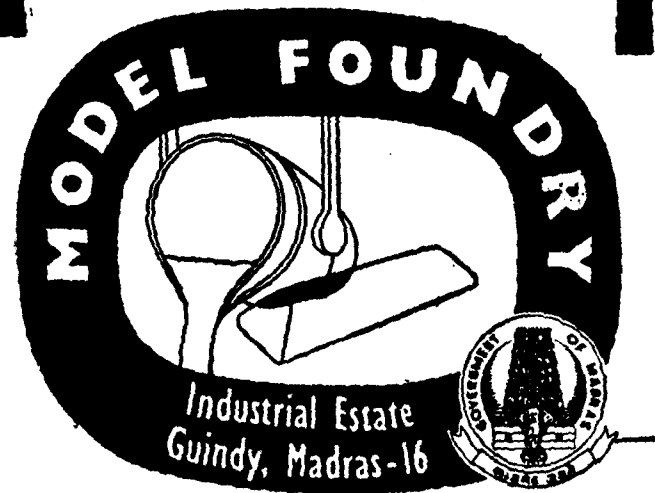
Foundry Services

to meet
the needs of Industries
in and around Madras

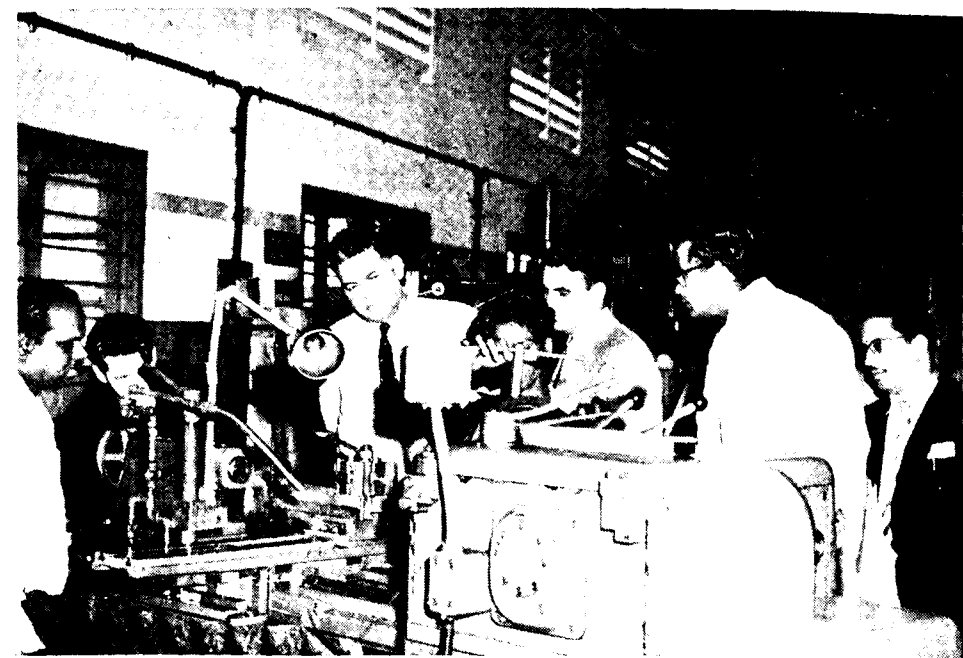
Equipped with
2½ Tons Capacity Cupola
Moulding Machines
Core Blowers
Pattern Shop
with
necessary
machinery
and laboratory
facilities

undertakes all types of
ferrous castings

For details please contact
THE SUPERINTENDENT



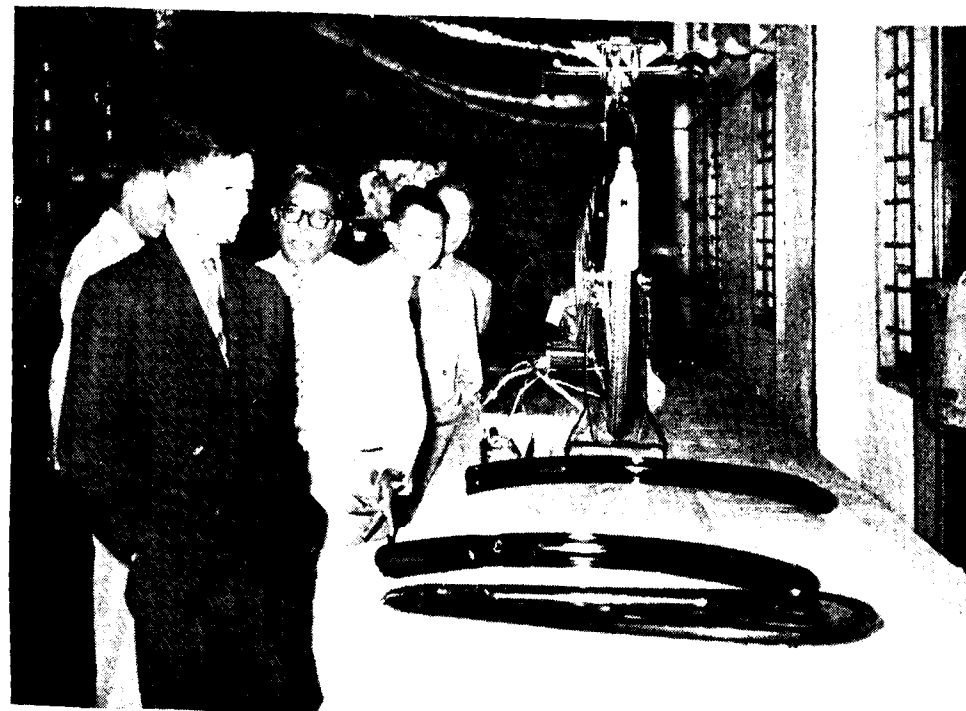
Mr. G. Redulescu, Rumanian Minister for Commerce, (third from left) visited the Industrial Estate, Guindy, when he came to Madras. Picture shows the distinguished visitor with Sri P. Sabanayagam, Director of Industries and Commerce, Madras and the Departmental officers and industrialists.



The Rumanian Minister at the Government Tool Room Shop.



Sri P. C. Bhattacharya, Chairman, State Bank of India (centre) with the Industrialists of the Industrial Estate, Guindy.



A Burmese Trade Delegation led by U. Hla Gyaw, Parliamentary Secretary, State Agricultural Marketing Board, Burma, visited the Industrial Estate, Guindy. Picture shows U. Hla Gyaw and other members of the Delegation in the Exhibition Hall.

Departmental Activities

TANJORE

Six factory units consisting of one B double and two C double units completed by the Construction branch, have been taken over along with garage, first aid post, canteen etc. Allotment of the factory units to the industrialists is under consideration. This Colony is expected to function shortly.

TIRUCHI

Besides the 14 factory units originally constructed and allotted, eight more units consisting of 2 A double and 2 B double units have also been completed and handed over to the administrative branch. The allotment of these additional units to private industries is almost completed. Of the existing units, five have started production and others are also expected to commence production shortly.

MADURAI

Besides the 12 units originally constructed and allotted, 6 additional units consisting of one B double and 2 C double units have been recently handed over by the construction branch. Allotment in respect of the five out of the additional six units has also been finalised. Of the existing units, seven have gone into production.

Construction work in respect of 4 A Super units and B Super units is also in good

progress, and is expected to be completed by December.

The Union Minister for Industries, Sri M. M. Shah, visited the Colony on 18-9-1960 and appreciated the working of all the private and departmental units functioning in the Colony. The Industrial Colony was also, visited by the State Minister for Industries Punjab and the Director of Industries, Punjab who also appreciated the functioning of the Colony.

VIRUDHUNAGAR

All the 15 units completed have been allotted and occupied. Among the units occupied five units have gone into production and the remaining units are also expected to commence production shortly.

The Union Minister for Industries, Sri M. M. Shah, visited the Industrial Estate, Virudhunagar also on 18-9-1960 and was very much impressed with the Estate.

PETTAI

All the eight units originally constructed have been occupied and out of these except one unit, all the others have started production. The four 'B' Super units, constructed have also been completed and their allotment is under consideration.

19-9-1960 and has written as follows in his inspection remarks:

"This is one of the best organised centres for small and village industries that I have seen in the whole country. My congratulations to the workers, technicians, staff and Director".

The Union Minister for Industries, Shri M. M. Shah, also visited this Colony on

MARTHANDAM

All the 4 D type units and one special D type unit have been allotted and occupied.

RUBBER PRODUCTS & MOULDING COMPANY

ENGINEERS IN RUBBER

Post Box 11202

::

CALCUTTA-14

★

MAKERS OF INDUSTRIAL PRODUCTS IN
RUBBER, SYNTHETIC RUBBER & EBONITE

★

WHEELS FOR TRUCKS AND TROLRIES, WASHERS,
LINING OF PIPES AND VESSELS, MOULDINGS
FOR CHEMICAL INDUSTRY, VALVES, BUCKETS,
DIAPHRAGMS, PRINTERS' ROLLERS, TEXTILE
ROLLERS, RLY. FITTINGS AND P.V.C. MOULDINGS.

MODEL COMBINED CARPENTRY AND BLACKSMITHY UNIT, PETTAI, TIRUNELVELI

The main object of this unit is to familiarise modern machineries in improving quality. During the quarter the unit is progressing in all the ways of training, demonstration and production.

The buildings for wood seasoning plant is under construction and the work is in progress. It will function shortly.

35 trainees are given training in all the machines (20 in Blacksmithy and 15 in Carpentry) and they are being paid a stipend of Rs. 30 per mensem.

VANS

The Blacksmithy and Carpentry vans of this unit are sent on tour to various Blocks of this district for conducting demonstrations. The artisans are inspired and given training in the use of modern power operated machines and tools.

The production and sales of the unit is increasing. The production and sales figures for the quarter ending 30-9-1960 are furnished below:—

Month	Value of Production	Sales
	Rs. nP.	Rs. nP.
July	44,167.70	42,922.20
August	50,244.72	42,411.72
September	53,806.82	38,816.06

The local artisans and Small Scale Industries units are availing the facilities of servicing. The different kinds of servicing facilities are offered, such as welding, turning, machining, repairs, punching, dies, and jigs, drilling, shafting, brazing, painting and planing.

GOVERNMENT GUTS SECTION, COONOOR

Seasonal conditions were suitable for silkworm rearing and mulberry. The period under review recorded a rainfall of 16.27"

The mulberry gardens attached to the section yielded a quantity of 5,148 lbs. of mulberry leaves which were used for rearing 466 disease free layings. A quantity of 68,945 foreign race seed cocoons and 4,095 guts in

various grades was produced during the quarter.

52,100 silkworm guts in various grades were supplied to different medical institutions. This includes a quantity of 18,750 14" strong silkworm guts supplied to the Medical Stores Depot, Madras. The value of sales during the quarter ending 30-9-1960 is Rs. 3,274.15 plus Rs. 689.45 (value of Cocoons produced) = Rs. 3,963.60.

SERVICE CENTRE FOR BRASSWARE AND CUTLERY INDUSTRY, KUMBAKONAM

During the Quarter the centre has produced articles to the value of Rs. 26,190.85 and sold goods to the value of Rs. 21,509.01 (including servicing rendered).

Though servicing is the main object of the scheme regular production work has also been taken up simulta-

niously with the aim of running the unit profitably since response for servicing from local artisans and private industrialists is not upto the expectations. Wide publicity has been made by advertising in the familiar magazines, exhibitions, through Cinema Slides and displaying of advertisement Boards etc. in order to keep the public informed and get them the Servicing facilities on a large scale.

GOVERNMENT TEXTILE MILL PARTS UNIT, INDUSTRIAL COLONY, MADURAI

The main idea in establishing the Service Centre is to help the textile mills in the Southern region. The facilities rendered to the industrialists and mill owners is by carrying out the jobs that cannot be normally carried out by them for want of modern machineries and other facilities. This unit is having a foundry which undertakes all types of light and medium castings both ferrous and non-ferrous.

2. Imparting training to 2nd batch of Harijan trainees is in progress.

3. One Hydraulic Eitel press transferred from Palani Unit has been erected and working to step up production.

4. Action has been taken for fixing selling agents at various places for improving sales. The duster produced in this unit has been approved by the Agricultural Department. The mass production will be taken up soon. Sample sprayer is being produced.

The particulars of production during the quarter ended 30-9-1960 are furnished below :—

Month	Value of Production	
	Rs.	nP.
July, 1960	...	10,218'80
August, 1960	...	9,827'92
September, 1960	...	10,114'37

A. MASTHAN SAHIB & SON,

(MASTHAN BUILDING)

25, EVENING BAZAAR RD.

::

MADRAS-3

★

Whole Sale & Retail

DEALERS AND MANUFACTURERS OF COTTON, COIR AND JUTE ROPES, BENGAL TWINE NIWAR—TAPES, WOODEN PULLEYS AND WHIPS, HESSAIEN—CLOTH, COTTON—WASTE, CANVAS TWINE AND SOFT TWINES, COIR BRUSHES, CURRY COMB etc.

★

EXPORTERS, GOVERNMENT CONTRACTORS AND SUPPLIERS

SERVICE CENTRE FOR PRESSED

METAL PRODUCTS, MADRAS-1

This Service Centre has been started with a view to give assistance to the Small Scale Industrialists in the modern and economic methods of production.

2. Modern machines have been installed in this workshop.

3. The particulars of production for the period from April to September 1960 are given on the side.

April	...	Rs. 23,206'41
May	...	„ 20,656'06
June	...	„ 20,288'81
July	...	„ 20,877'31
August	...	„ 25,270'23
September	...	„ 22,706'91

1,33,005'73

GOVERNMENT INDUSTRIAL TRAINING INSTITUTE, VIRUDHUNAGAR

The Institute was started in July, 1956 and it has rendered 4 years and 2 months of useful service in imparting Craftsmen Training to less qualified students of teenage.

The Institute which was originally located in a rented building was shifted to its permanent buildings constructed adjoining to the Industrial Estate at Sulakaraon on a plot of 7½ acres on 15-9-1958. In Six Workshop Units, the main trades are located.

TRADES

Training is given in the following six trades

1. Carpenter
2. Lineman & Wireman
3. Machinist
4. Fitter
5. Turner and
6. Moulder

The duration of the course is 18 months exclusive of 6 months inplant training. During the previous year, under report, selections were made in February, 1959 and November, 1959 for the above six trades. As usual selection was made by a Selection Committee consisting of representatives of

Industry, Labour, M. L. A.s' and Employment Officer. The Joint Director of Industries and Commerce was the Chairman and the Principal was the Secretary of the Committee. There was provision for admission of 104 and 144 trainees in these two selections. Out of 176 candidates interviewed in February, 1959, 84 were selected and joined in February, 1959. Out of 231 candidates interviewed in November, 1959, 118 were selected and joined in November, 1959.

During selection of August, 1960, Session, the Deputy Director (Training) was the Chairman of the Selection Committee. With the 44 additional seats sanctioned in G. O. Ms. No. 1039. dated 23-6-1960, I. L. C. (Spl.) Department, the strength of the Institute has been increased from 248 to 292 from August, 1960 session.

The additional seats have been sanctioned in the following popular trades :—

1. Carpenter	...	16
2. Wireman	...	16
3. Turner	...	12
Total	...	44

In August, 1960 session, 278 candidates were interviewed and 153 joined among the selected candidates.

1. Carpenter	...	28
2. Moulder	...	18
3. Machinist	...	13
4. Wireman	...	35
5. Fitter	...	34
6. Turner	...	25
Total	...	153

The second batch of trainees admitted in May, 1958 session under the Craftsmen Training Scheme completed the 18 months course in October, 1959. In the All India Trade Test held in October, 1959, out of the 99 candidates appeared 94 came out successfully in the Trade Test. Private candidates were also permitted to appear for the examination. Out of the Institute candidates, who failed in the Last Trade Test, 7 appeared for the Trade Test in October, 1959 and 6 passed. The Third Batch of Trainees admitted in February, 1959 session appeared for the All India Trade Test held in July, 1960. The trainees who passed the trade test are being sent to various firms for 6 months inplant training. After completion of the inplant training, Craftsman Diplomas are awarded to the trainees.

Stipends to the value of Rs. 25 P. M. is paid to one third of the sanctioned strength in each trade. The students who undergo inplant training are also paid stipends till they complete inplant training. The students of Cabinet Making section were paid wages at Rs. 0-62 nP. per day of attendance till June, 1959 under the old pattern state

scheme. Competency Examination was conducted in June 1959 and June 1960 to give a change to the trainees who were admitted in the old Industrial School (State Pattern) (June, 1959 Examination) and who failed in their Examination (June 1959 and July, 1960 Examinations)

Sanction has been accorded in G. O. Ms. No. 981. I. L. C. (Spl.) Department dated 2-6-1960 for the provision of staff quarters to the essential staff and the work of acquisition of land and construction of quarters is likely to be taken up in the first year of the 3rd Plan period.

A full time Medical Officer has been appointed and he has joined duty on 10-9-1960.

A Sum of Rs. 2.5 Lakhs has been sanctioned for the construction of a hostel with 80 seats for the trainees of this Institute and the work has already been started and the hostel buildings are likely to be finished by 31-3-1961.

A hostel is started for this Institute in a rented building at Sulakarai Village. Arrangements are being made for the provision of cubicles and wall black boards to the Workshop Units of this Institute by the construction branch.

Orders have been placed to the various firms for supply of Technical Books by the Director of Industries and Commerce and the books are being received from the firms which will be very useful for developing the knowledge of both the Technical Staff and the Trainees. Play-grounds have been made available and sport activities are also keen.



TRADE AGREEMENT WITH CZECHOSLOVAKIA

A new Trade and Payments Agreement between India and Czechoslovakia has been concluded in Prague. The agreement which comes into effect from 1st January 1961, will remain valid for a three year period.

Shri K. R. F. Khilnani, Joint Secretary, Government of India and Mr. F. Hamouz, First Deputy Minister of Foreign Trade, Government of Czechoslovakia signed the agreement on behalf of their Governments.

In the course of the discussions, which proceeded in a cordial and friendly atmosphere, opportunity was taken by the two delegations to review the course of trade between the two countries in the past year and explore ways and means of expanding the same. As a result of the agreement, it is expected that trade between the two countries will show a considerable increase.

The new agreement provides a framework for expanding trade between the two countries on the basis of equality and mutual benefit. Both countries have agreed to grant each other Most Favoured Nation treatment and other trade facilities to enable closer commercial and economic relations. Payments relating to commercial and non-commercial transactions between Czechoslovakia and India would be effected in Indian rupees.

Schedules listing the goods available for export from either country to the other have been included in the Agreement. Among the articles listed for export from India to Czechoslovakia are cotton textiles and fabrics, jute manufactures, coir yarn and manufactures, woollen textiles, vegetable oils and hydrogenated oils, spices, tobacco, tea

and coffee, processed and semi-processed hides and skins, shellac and shellac products, mica, manganese and ferro-manganese, chemicals and pharmaceuticals, handicrafts and handlooms, tinned fruits, plastic goods, sports goods, engineering goods, cashewnuts, deoiled cakes, cinematograph films, books, magazines pictures, etc. The items of

import from Czechoslovakia would be iron and steel products, special steel, alloy steel writing and printing paper and newsprint, various types of machinery and machine tools, capital goods, dyes intermediates and chemicals, diesel generating sets, tractors and tractor parts, ball and roller bearings, tyres tubes, mild steel products etc.

TRADE AGREEMENT WITH TUNIS

The Government of the Republic of India and the Government of the Republic of Tunisia, being desirous of developing closer trade relations between the two countries on the basis of equality and reciprocity have entered into a *trad Agreement* on the 5th of October, 1960,

India's total exports to Tunis amounted to Rs, 15,89,555 during 1959 and Rs, 1,33,019 during January-June, 1960. The list of Indian

products for exportation to Tunisia are: Tea coffee, pepper, raw hides and finished leather, jute sacking, wollen fabrics, cotton piece goods, silk fabrics (pure and artificial), spectacle frames, pharmaceutical products (other than those the import of which is allowed freely or is prohibited) rubber tyres and tubes for cars, lorries and bicycles. Electric equipment (other than those the import of which is allowed freely) and electric fans.

EXPORTS TO AUSTRALIA

Fresh Fruits:—An extract of the letter from the Chief Quarantine Officer (Plant) Department of Agriculture, Sydney, wherein the quarantine restrictions applicable to import of fresh fruits such as mangoes and bananas from India into Australia have been furnished is reproduced below for the information and guidance of trade.

Extract:—Mangoes may be imported from India if they are accompanied by a certificate from the Plants Protection Service in India stating that the fruit has been subject to one of the following treatment:

1. Fumigation with Methyl Bromide at a concentration of 2 lbs. per 1,000 cubic feet of space for 3½ hours at 80°F.

2. Fumigation with Ethylene Dibromide at the rate of 1 lb. per 1,000 cubic feet of space for 2 hours at 70°F.

3. Stored for 21 days at 31° F plus or minus one degree. All fruit would be inspected on arrival in Australia and if found to be infested it would be retreated.

It is necessary for you to realise that there has been no past experience in this country of the above treatments on mangoes and therefore the exporter will have to accept all responsibilities regarding the effects of treatments on the quality and market value of the fruit concerned.

With regard to bananas it is though unlikely that such fruit would come from India but in case the bananas would have to be dead green on arrival or alternatively they would have to be accompanied by a certificate similar to the one prescribed for mangoes. Coloured bananas arriving without a certificate will have to be destroyed.

LACE GOODS

A list of Australian Importers of Lace Goods is furnished below for the information of the trade.

1. Stevan Krstic, 178 Collins Street, Melbourne, C. 1, Vic.
2. Donald McCallum Pvt. Ltd., 379, Kent Street, Sydney, N. S. W.
3. G. N. Phillips & Co. Pvt. Ltd., 136, Pitt Street, Sydney, N. S. W.
4. Robert Reid & Co., Ltd., 341-347, Flinders Lane, Melbourne, C. 1 Vic.
5. Snow Gunnings & Evans Pvt. Ltd., Broughton House Clearence & King Sts. Sydney.
6. J. T. Sound Pvt. Ltd., 367-373, Elizabeth Street, Hobart, Tasmania.
7. The Pagodo Handicraft Pvt. Ltd., 184, Day Street, Sydney, N. S. W.
8. Oriental Lace., Co., 237, Murry Street, Perth, W. A.
9. Sargood Gardiner Ltd., 83-87, York Street, Sydney, N. S. W.
10. D&W Murry (Aust) Ltd., 111, York Street, Sydney, N. S. W.
11. S.Kay & Co., Pvt. Ltd., 315, Flinders Lane, Melbourne, Vic.,
12. Williams C. Jasper, 308, Flinders Lane, Melbourne, Vic.

It may however please be noted that this office does not accept responsibility for the financial standing of the firms mentioned.

TOYS AND DOLLS

During the past two years attempts have been made to promote Indian toys and dolls in Australia. But the effort has been limited for want of wider range of samples from India. Only clay dolls, cloth dolls and horn-birds and some cheap wooden toys were received from two Indian exporters. These were shown to trade. The response has not at all been favourable. The opinion expressed by them about these dolls is summed up as under.

- | | |
|--------------------------------|--|
| 1. Clay dolls | No demand in Australia. |
| 2. Cloth dolls | It is difficult to sell these dolls since plastic dolls are in demand. |
| 3. Horn birds and wooden toys. | Indian prices are high. It is difficult to sell even cheaper things from other sources in this line. |

In the Indian exhibition held at the Sydney Industries Fair in July 1959, costume dolls received from an Indian firm in Delhi were displayed. The response was not encouraging. However requests to lend Indian dolls for display at various local fairs etc. are continually being received. This indicates that there is some interest. The great bulk of import demand is mainly in mass produced lines such as injected moulded dolls and vinyl dolls which are exported from U. K. and as are exported by Japan.

Import Statistics:—Imports of toys are mostly from U. K., Japan, Germany, Italy and Hongkong. The total import during 1958-59 amounted to about £ (A) 2½ million. Imports from India are only under the following three items:—

Items	Total Imports	Imports from India
1. Dolls of any material—non-dressed and parts of dolls	£ (A) 107,422	£ (A) 16
2. Other toys mainly of wood	£ (A) 139,785	£ (A) 1,722
3. Other toys excluding those mainly of textile, metal, wood, rubber, plastic etc.	£ (A) 141,266	£ (A) 1,068

A list of Australian Importers of Toy Goods is furnished below for the information of the trade:—

AUSTRALIAN IMPORTERS OF TOY GOODS-INDENTING HOUSES,
WHOLESALE IMPORTERS, SOME OF THEM ARE RETAILERS

- | | |
|---|--|
| 1. H. B. Lucas Pvt. Ltd., 93, Bridge Street, Valley Brisbane, Q' land. | 6. S. Hoffnung & Co., Ltd., 153-157, Clerence Street, Sydney, N. S. W. |
| 2. Farleigh Nettheim Pvt. Ltd., 1-15, Foveaux Street, Sydney, N. S. W. | 7. Mackaness & Avery Pvt. Ltd., 187, Sussex Street Sydney, N. S. W. |
| 3. Mick Simmons Ltd., 712-722, (George Street, Haymarket, Sydney, N. S. W. (also large retailers) | 8. Paterson Laing & Bruce Ltd. 282, Flinders Lane Melbourne, Vic. |
| 4. Colton Palmer & Preston Ltd., 53, Currie Street, Adelaide, S. A. | 9. H.W Rice Pvt. Ltd., 333, George Street, Sydney N. S. W. |
| 5. Hartleys Limited, 270, Flinders Street, Melbourne C. 1 Vic. | 10. Robert Reid & Co., Ltd., 341-347, Flinders Lance, Melbourne, C. 1 Vic. |
| | 11. Rosenstamm Pvt. Ltd., 61-65, King Street, Perth, W. A. |

For

PAINTS, VARNISH & DISTEMPERS

— Contact —

MEETHA PAINT WORKS
GUINDY :: MADRAS-15.

SUPPLY OF PACKING MATERIALS

SUPPLY OF BALING HOOPS/BOX-STRAPPINGS
REQUIRED FOR EXPORT OF COIR PRODUCTS,
CASHEW KERNELS SEA FOODS & FROG LEGS.

Consequent on certain representation made to the Government of India about the difficulties in getting supplies of baling hoops and box-strappings required for export of coirproducts, cashew kernels, sea foods and frog-legs it has been decided to provide immediate relief to such exporters by issuing licences to the extent of three months requirements calculated on the basis of the export made during the calandar year 1959 against the recommendations of the Coir

Board, Cashew Export Promotion Council and the Deputy Chief Controller of Imports and Exports, Eranakulam, respectively.

Manufacturers of coir-products, cashew kernels, seafoods and frog-legs if they are interested, may prefer applications through the office of the concerned sponsoring authority in the form and manner prescribed for their bare minimum requirements for one quarter, duly supported by relevant documents such as IVC, chalan etc.

U. S. IMPORTS OF GOAT SKINS

Extract from the Report for August, September and October, 1960, published by the Consulate-General of India, New York.

United States imports of goatskins during May, June and July 1960 were as follows:

U.S. IMPORT OF GOATSKINS

Dry

(In Thousands)

	May '60 lbs. \$	June '60 lbs. \$	July '60 lbs. \$
INDIA	447 337	675 556	566 468
Total incl. Imports from other countries.)	2495 1952	3030 2382	1995 1528

VEGETABLE TANNED

	May '60 lbs. \$	June '60 lbs. \$	July '60 lbs. \$
INDIA	Sources not Specified		
	28	49	41 76
Total incl. imports from other countries.)	4 7	32 54	44 81

GREEN PICKLED

	May '60 lbs. \$	June '60 lbs. \$	July '60 lbs. \$
INDIA	117 69	89 70	253 158
Total (incl. imports from other countries.)	431 240	298 186	404 253

INDIA'S SHARE IN U. S. IMPORTS OF
GOATSKINS WERE AS FOLLOWS

Dry

May 1960	18%
June 1960	22%
July 1960	28%

Vegetable—Tanned

May 1960	data not available
June 1960	87%
July 1960	93%

Green—Pickled

May 1960	27%
June 1960	30%
July 1960	63%

GOODS FOR EXPORTS

STEPS TO ENSURE QUALITY—COMMITTEE SET UP

The Government of India have appointed a committee to examine the question of quality control on goods exported from India and recommend measures for ensuring good quality of exports and thus build up enduring trade relations with overseas buyers.

The Director of Indian Standards Institution will be the Chairman of the Committee. The Agricultural Marketing Adviser to the Government of India, the Drugs Controller in the Union Ministry of Health,

the Chief Inspecting Officer (Textiles and representatives of the Development Wing of the Commerce and Industry Ministry, the Directorate-General of Supplies and Disposals and the Office of the Development Commissioner for Small-Scale Industries will be the members. The Joint Director for Export Promotion will be the Member-Secretary.

The Committee is expected to submit its report to Government by the end of March 1961.

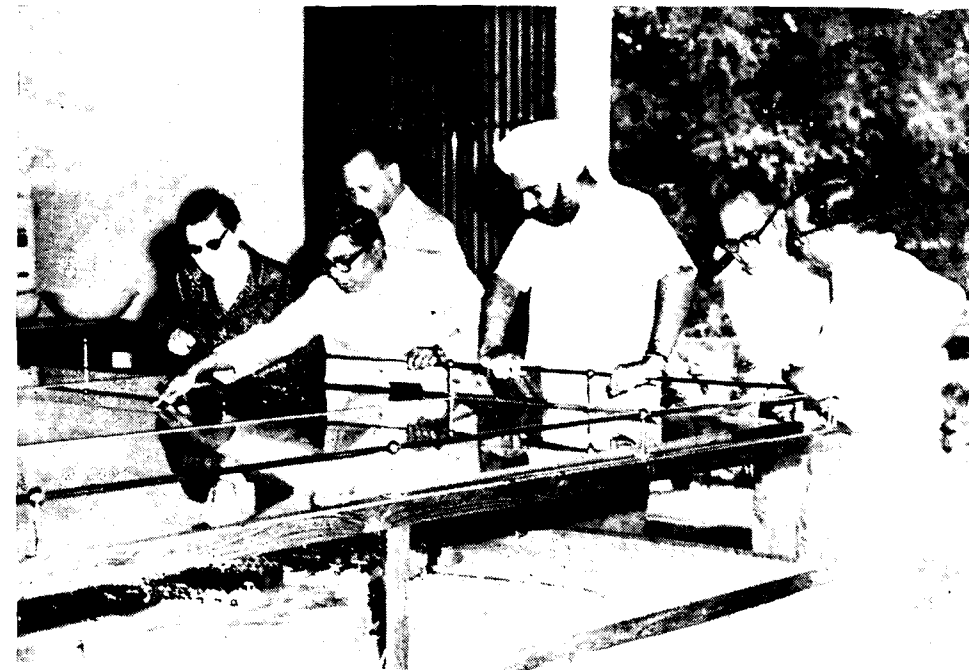
LOANS FOR IMPORT OF CAPITAL GOODS

The Government of India have decided that all importers of capital goods, wishing to negotiate loans with credit agencies abroad, should secure the prior approval of Government before entering into negotiations. Requests for such approval should be addressed to the Special Officer (Capital Goods), Capital Goods Division in the Office of the Chief Controller of Imports and Exports, New Delhi, furnishing the required particulars as indicated in the current Red Book.

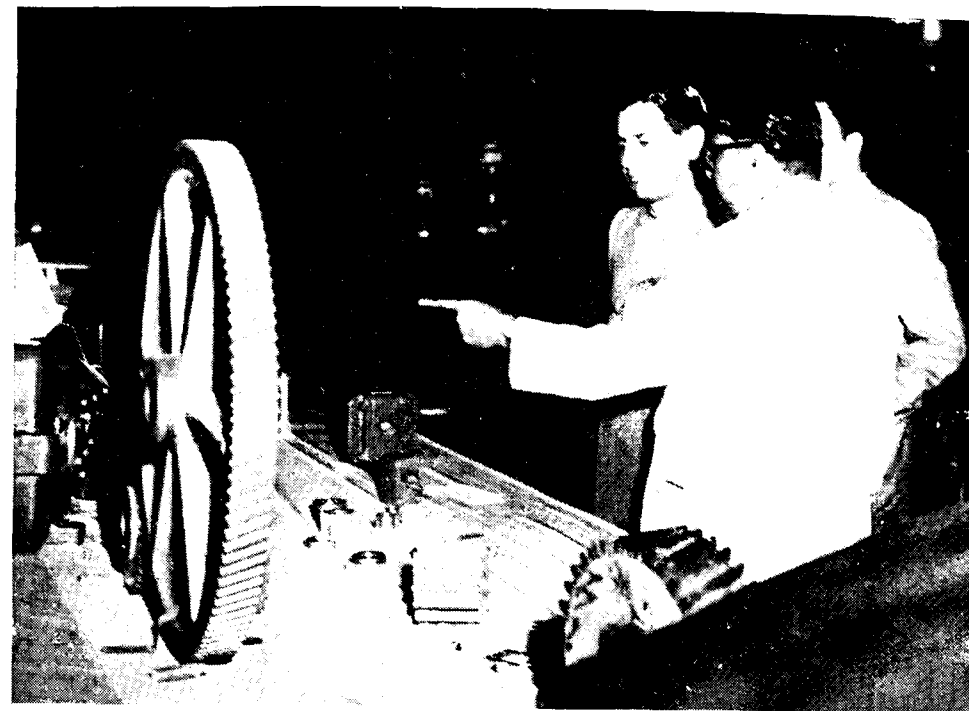
Approval to negotiate with credit agencies abroad will ordinarily be granted where the

value of equipment proposed to be imported exceeds Rs. 150 lakhs.

For smaller schemes, foreign exchange loans are available from the Industrial Finance Corporation of India, the Industrial Credit and Investment Corporation of India and the National Small Industries Corporation. Licences for such smaller schemes can also be issued against foreign exchange loans available to Government, and under the special trade and payment arrangements negotiated with certain countries by the Government of India.

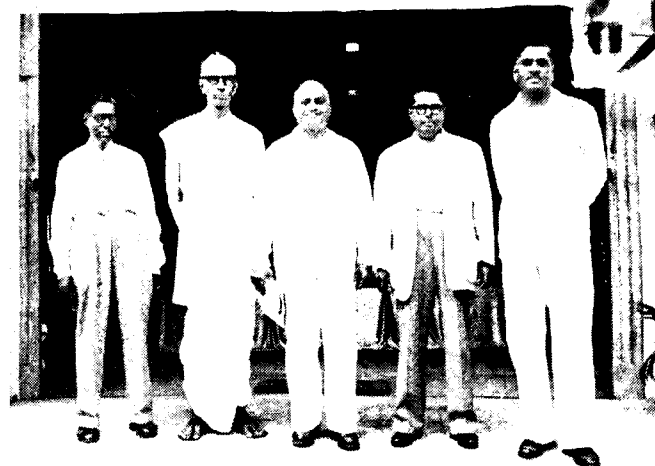


Sri Harban Singh, Development Commissioner, Government of India, New Delhi, is seen keenly looking at the model of the Industrial Estate, Guindy, during his recent visit.



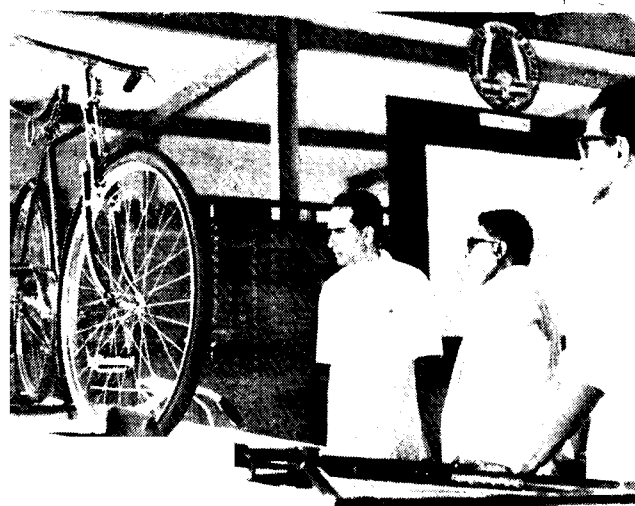
Sri Satishchandra, Deputy Minister for Commerce and Industry, Government of India, is seen in the Exhibition Hall, during his recent visit to the Guindy Estate.

The members of an American Delegation, who visited the Guindy Estate, are seen keenly looking at the stainless steel utensils manufactured by a private unit.



< Sri Raju, Joint Director of Industries and Commerce, Government of Andhra Pradesh (centre), paid a visit to the Industrial Estate, Guindy.

A Delegation from Latin America visited the Industrial Estate, Guindy. Picture shows the members of the Delegation with the Departmental officers.



< Sri Dhar, Planning officer, Government of India, is seen in the Exhibition Hall, during his visit to the Industrial Estate, Guindy.



Review of industrial films shown at the Technical Information Section, Industrial Estate, Guindy, during July-Sept. 1960.

NEW ENGLAND CALLING

Popular Vocation spots and Points of Historical interest in New England State. Shows Plymouth Rock, Cape Cod Province Town, Martha's Vineyard and several other places of interest. Scenes also include sports and Vocation activities.

★

ATOM IN THE SERVICE OF HUMANITY

A layman's view of the U.S. sponsored Exhibit in Vienna, Austria, on the peacetime uses of the atom. Various sections of the exhibit are covered, including demonstrations of Atomic research and development in the fields of Agriculture, Medicine and Industrial Processes and throughout there is emphasis

on the atom's great potential for peaceful progress in terms of health and economic welfare.

★

COOLING SYSTEM AND FUEL SYSTEM

An automotive maintenance film. Shows how to check radiator, hoses, water pump, mechanical operation of carburettor, fuel pump, filters and leakages.

★

CO-OPERATIVE AND THE COMMUNITY

High School students in a current problems class define the differences between a private corporation and a co-operative. Describes and gives examples of three general Types of Co-operatives.

JAN. - MARCH 1961

THE NEW INDIA

The New India is the first of a series of motion pictures being produced by Caltex in different countries in the Eastern Hemisphere. Filmed in exquisite colour, the film follows a journey through India by two young Indians, Lila and her brother Kanu. Their parents have given them the trip as a graduation present, so that they might gain a better understanding of their country to-day, its problems and its future. As the film opens, Lila and Kanu have just returned to their home in Bombay. The family listens as Lila describes the folk dances, the Presidential Horse squads in New Delhi, the Dassera Ceremony at Mysore; Kanu prefers to tell of the Hydro-Electric Power Plants, of modern Calcutta and the big Industrial Works. Both conclude "We have a genuine faith in our country the New India in its present and its future".

★
HOLD YOUR HORSE POWER

A Walt Disney Technicolour Production done in true Disney animated cartoon style. A small farm tractor becomes a personality and gradually loses his desire for living through gross neglect. Later sequences show how this tractor can remain happier and do a much better job through proper maintenance and care.

★
WEST AUSTRALIAN ADVENTURE

A factual and historical record of the exciting search for oil in arid Western Australia being carried on by West Australian Petroleum Proprietary limited.

★
MORE THAN A MOTOR OIL

This picture graphically describes the research undertaken by Caltex to formulate a new kind of Motor Oil that will withstand the rigours of the modern automobile.

The film depicts a series of laboratory tests through which Caltex RPM—The premium heavy duty motor oil was evolved

and goes to prove the premium characteristics of this oil and demonstrates how it prevents rust and oxidation, engine wear, and how the additives in the motor oil work to protect the engine and keep it clean to ensure longer engine life and trouble-free motoring.

★
ORIGINS OF THE MOTION PICTURE

Describes the origins and evolution of the Motion Picture which began with the efforts of an Arabian astronomer in the eleventh century to reproduce motion and culminated with Edison's invention in 1889 of the Kinetograph, and instrument designed to take motion pictures for projection on a screen. The opening and closing sequences of the film reproduce some of the early motion pictures made at the turn of the century and cover incidents of historic significance.

★
PEOPLE AND PETROLEUM

Story of the Creole Petroleum Corporation, a United States Oil Company conducting its business as guest of Venezuela, and its contribution to the economic growth and social progress of that country. Following scenes showing the magnitude and cost of oil development undertaken by Creole in the Lake Maracaibo region and in the Jungles of Eastern Venezuela, the film highlights the improvement in public welfare and living standards brought out by that development, and describes Venezuela's extensive use of oil revenues for the promotion of a diversity of other enterprises designed to foster and ensure the nation's continued prosperity.

★
HOOVER DAM

Project of damming the Colorado River to supply irrigation water and electrical power for the South Western United States. Shows relationship between Federal Government and States, and individual citizens, and how their combined efforts have brought new prosperity to the region.

THE RAINBOW TROUT

Nilgiri Hills in South India are noted for their natural beauty, invigorating climate and a variety of other attractions such as hunting, horse-riding, sight seeing, boating and fishing. Rivers and streams of over forty miles length in these hills are the source of great attraction for tourist anglers.

To start with, Nilgiris had no indigenous fishery worth the name. But the Fisheries Department imported from Europe four new species of cold water fish and acclimatised them to Nilgiri's climate. They are (1) *Golden carp*, (2) *Tench* (3) *Mirror Carp* and (4) *Trout*.

Though *golden carp* and *Tench* are the first fishes to be established they are not favoured by the public. *Mirror Carp* which has been introduced in the hills in comparatively recent times has bred most prolifically and spread itself in all lakes. But, *Trout* alone is liked very much by tourists, anglers and fish eating population.

Trout is aptly described as the 'King of game fishes.' It is beautiful to look at with its rainbow colours and spots. Anglers are prepared to trek miles along the streams to look for it because of its sporting qualities, hardy stamina and delicious taste. Both in Europe and U.S. of America *Trout* is popular as recreational fishery. It is estimated that 10 million pounds of *Trout* are caught annually in North America.

Therefore, early European settlers, planters, tourists and Fisheries Department wanted to

introduce *Trout* into the cool and clear streams of Nilgiri Plateau to enhance their charm and utility.

The first attempt to import *Trout* ova and fry from abroad was made by Dr. Francis Day in 1863 and was soon followed by several others. They tried in vain *Brown Trout* which could get acclimatised to the new ecological conditions of the Nilgiris. The same story of unsuccessful efforts by enthusiastic amateurs continued for about 4 decades. In 1909 Mr. F. A. Nicholson, the founder-Director of the Fisheries Department in Madras approached the Government to obtain the services of a pisciculturist. Sir Arthur Lawley, the

By

Sri V. D. SPURGEON,

Deputy Director of Fisheries, Madras.

then Governor of Madras, taking a personal interest in the matter, wrote to the Government of Ceylon and secured the services of Mr. H. C. Wilson. The expert had thus replaced the amateur.

The very same year Mr. Wilson chose an ideal spot at Avalanche near Ootacamund and constructed a scientific hatchery. This marked the beginning of the scientific culture of this popular game fish which attracts so many anglers to the "Blue Mountain" during summer.

Next step of Mr. Wilson was to give up *Brown Trout* in favour of the *Rainbow Trout*. He imported ova and stock fish from Ceylon and successfully stripped the male and female fish, fertilised the eggs and artificially hatched them out in the hatchery at Avalanche. He turned out the hatchlings into many streams. In 1911 the Avalanche, the Emerald valley, the Krurmund, the Mekod and the Pykara rivers were thrown open to *Trout* fishing for the first time. In successive years, more streams were stocked and *Trout* fishing was extended to the Mukurti, the Billitkadahalla, the Bavanipuzha and the Glenmorgan lake.

There are handicaps in the natural propagation of *Trout*. *Trout* eggs take 27 days to hatch out, during which period they are exposed to change of temperature and fish

enemies. Only a very few fry survive. Therefore, left to itself *Trout* is unable to populate fully all the streams. So Fisheries Experts have found out an artificial process to hatch out and rear the fry successfully.

For artificial breeding the first requisite is a pair of sexually ripe *Trout*. Mature *Trout* are collected in the shallow creeks of Mukurte lake, and gently pressed sideways till milt and eggs readily ooze out into a basin. After giving time for fertilisation, the unfertilised opaque eggs are picked out and the rest are packed in ova boxes and taken to Avalanche hatchery. At the hatchery the eggs are transferred from the ova boxes to the glass grills with feather brushes. The glass grills with rows of 4000 arranged eggs are then placed in wooden troughs. A continuous supply of

pure oxygenated water is essential for the growth of the eggs. In 23 days eyes are formed in the eggs. After 6 to 8 weeks the fry are fed on puppy biscuits and boiled and crushed hens eggs. Later, they are removed to nursery ponds where they are fed on boiled grab meat or minced sheep liver. Afterwards they are transferred to stock ponds and reared for even 3 years and released finally into streams and rivers. At this stage they will be strong enough to withstand predators. Otherwise as tender fry 99% of them would go down the throats of larger fish and otters. The hatchery and attached ponds are enclosed in a wide fence in a pleasant glade in the woods. High hills shelter it from winds. The stock and fry ponds reproduce as far as possible, the conditions met with in Nature. Flowering plants droop over the sides. Ferns grow in every crevice, while luxuriant growth of grass trails over the tope and gives a green background to a lovely spot. It is a beautiful spot for any visitor to enjoy. But coupled with the complaint of lesser fish and smaller size, a feeling is developing that this foreign fish, that came with the British has gone away with the British. But pisciculturists hope that this notion is belied and this beautiful fish, fliriting the crystal clear glittering waters of this beautiful hill station, adding colour to its colourful surroundings will continue to be cared for atleast in streams and lakes that lie close to Ooty, Coonoor, Wellington and Kottagiri, so that people who wish can play with it and have the much needed rest and respite from the day to day hard work and sweltering summer heat of the plains below.

Thus, *Trout*—a completely foreign fish—was not only made to live in Nilgiris but made

to artificially breed also, so as to replenish the angling streams with young *Trout* from time to time. Till 1926 the Fisheries Department protectd the valuable *Trout* fishery and catered to the needs of anglers. Never, a stream was over fished and catered to the needs of anglers. Never, a stream was over fished and never an angler complained of paucity or small size of *Trout* in streams. In 1926 *Trout* fishery was handed over to the management of Nilgiri Game Association.

In recent years many reservoirs have been formed in Nilgiris. Of these, the Maravakandy, Kattery, and Pykara reservoirs are big ones. All these and many more waters have already been brought under the piscicultural programme. The Pykara river and Dam are only 12 miles from Ooty on the Mysore trunk road, and so within the easy reach of a tourist-angler. As *Trout* forms a great attraction to visitors, the Department has stocked the Pykara Reservoir with game fishes. Apart from sport, the public will get fish food.

Ooty lake of 80 acres yields an income of more than Rs. 1000 per year for angling alone. Besides, 600 pounds of fish are caught every month by the angling public. This clearly shows that the Pykara Reservoir of 30.59 miles will yield good revenue.

The scientific development and exploitation of the fisheries of all reservoirs, lakes, and *Trout* streams in Nilgiris by the Technical personnel of the Fisheries Department will provide food, pleasure and profit for the local population and attract more tourists to the "Queen of Hill Stations".

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TECHNICAL INFORMATION SECTION LIBRARY, INDUSTRIAL ESTATE, GUINDY.

Books Recently Received

1. McGraw-Hill Encyclopaedia of Science and Technology
15 Volumes. *William H. Crouse. Ed.*
2. Chambers's Technical Dictionary. *C. F. Tweney and L.E.C. Hughes. Eds.*
3. Practical Gear Design. *Darle W. Dudley.*
4. Fundamentals of Carpentry Volume 1. *Walter E. Durbahn.*
5. Better Tools Cribs. *William Raisglid.*
6. Engineering Mechanics. *Linton E. Grinter.*
7. Industrial Entrepreneurship in Madras State. *James T. Berna.*
8. Dimensional Control in Precision Manufacturing. *L. Gadzala.*
9. Machinery's Handbook—Edition 16. *Eric Oberg and F. D. Jones.*
10. Organisation and Control of the small enterprise. *Douglas C. Basil.*
11. British Standards Year Book 1960. *British Standards Institution.*
12. Efficient use of Steam. *Oliver Lyle.*
13. Shop Tools Care and Repair. *Dewitt Hunt.*
14. Theory and Design of small induction Motors. *Cyril G. Veinott.*
15. Science of Clocks and Watches. *A. L. Rawlings.*

16. Physical Chemistry of Steel Making. John F. Elliott. Ed.
17. Friction and wear. Robert Davies. Ed.
18. Engineers Year Book, 1960. 2 Volumes. Kempe.
19. Blue Print Reading. D. E. Hobart.
20. Standard Plant Operation Questions
and Answers, 2 Volumes. Stephen Michael Elonka & Joseph Fred Robinson.
21. Illustrated Jig Tooling Dictionary. Torger G. Thompson and Ross A. Peterson.
22. Outlines of Industrial Law. W. Mansfield Cooper and John C. Wood.
23. Engineer's Sketch Book of Mechanical Movements,
Devices, Contrivances and Details. J. W. Barber.
24. Ultrasonic Engineering. Alan E. Crawford.
25. Management Accounting in practice. F. Clive depaula.
26. Managerial Economics. Joel Dean.
27. Business Principles Organisation and Management. Herbert A. Tonne.
28. Statistical Tables and Problems. Albert E. Waugh.
29. Introduction to Applied Drawing. E. M. Hale and Others.
30. Glove-making for Beginners. Natalie S. Woolf.
31. Textile Engineering processes. A. H. Nissan.
32. Fibres, Plastics and Rubbers, a hand book of Common Polymers. W. J. Roff.
33. Statistical methods in research and production. Owen L. Davies. Ed.
34. Radio-Frequency heating equipment. L. L. Langton.
35. Principles of Engineering Economy. Engene L. Grant.
36. Electricity in Building. A. L. Osborne
37. Electrical circuits-direct and alternate current. Charles S. Siskind.

38. Resins, Rubbers Plastics Year Book 1958. H. Mark and Others. Eds.
39. Chemistry for Engineers. E. Cartmell.
40. Industrial Medicine and Hygiene. 3 Volumes E. A. R. Merewether.
41. Illuminating Engineering Course. H. Zizl.
42. Welding Practices 3. Volumes. E. Fuchs and H. Bradley. Eds.
43. Finishing Materials and Methods. George A. Soderberg.
44. Chromium—Nickel austenitic steel. F. H. Keating.
45. Factory. G. Schlesingar.
46. Technical Methods of Analysis. Roger castle Griffin. Ed.
47. How to recognise Type Faces. R. Randolph Karch.
48. Advanced Textile Design. William Watson.

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