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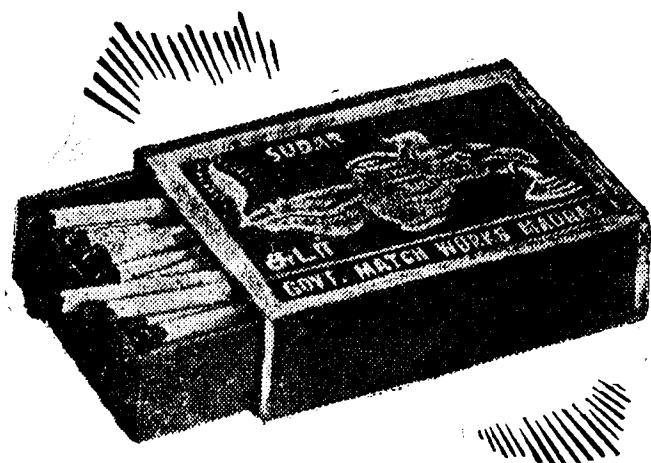
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Prototype Centre for Madras

An official delegation left New Delhi on 25th November, 1959 for France to discuss with the French Government the details of setting up the proposed Indo-French Prototype Production and Training Centre at the Industrial Estate, Guindy, Madras.

The delegation consisted of Mr. Nagendra Bahadur, Joint Secretary, Union Ministry of Commerce and Industry, as leader and Mr. T. K. Palaniappan, Director of Industries, Madras, Mr. P. C. Basu, Managing

Director, National Small Industries Corporation, New Delhi and Mr. A. D. Bohra, Director, Indo-German Prototype Production and Training Centre, Okhla, as members.

The Centre, when set up, will manufacture prototypes of products for precision and high precision mechanical, engineering and machining components for prototypes required by small units. It will also train technical personnel necessary for designing prototypes and executing job orders.

Photo below was taken when Sri T. K. Palaniappan, I.A.S., Director of Industries and Commerce, left Madras for New Delhi on 23rd November 1959 to join the delegation for France.



Model Foundry

Foreword

There has been a very encouraging demand for literature on 'Foundry' which is a basic and progressive industry in the field of engineering. As it would appear that the castings produced in foundries working on old and obsolete lines are usually poor in quality and the output far from satisfactory, this article on 'Model Foundry' has been carefully prepared with a view to guiding intending entrepreneurs in setting up a unit with proper layout and modern equipment for production.

The Madras Government have set up a 'Model Foundry' at the Industrial Estate, Guindy, with the object of serving the foundry needs of the various industrialists. It is intended to supply quality castings to the Government and Private Units and also to encourage the private units in adopting modern methods of production. It is equipped with modern machines in moulding, pattern making and sand testing laboratory. The unit is now ready to undertake all types of ferrous castings. Non-ferrous casting is in its future expansion programme.

Definition

A foundry is a workshop in which metal objects are made by casting in moulds.

Moulding

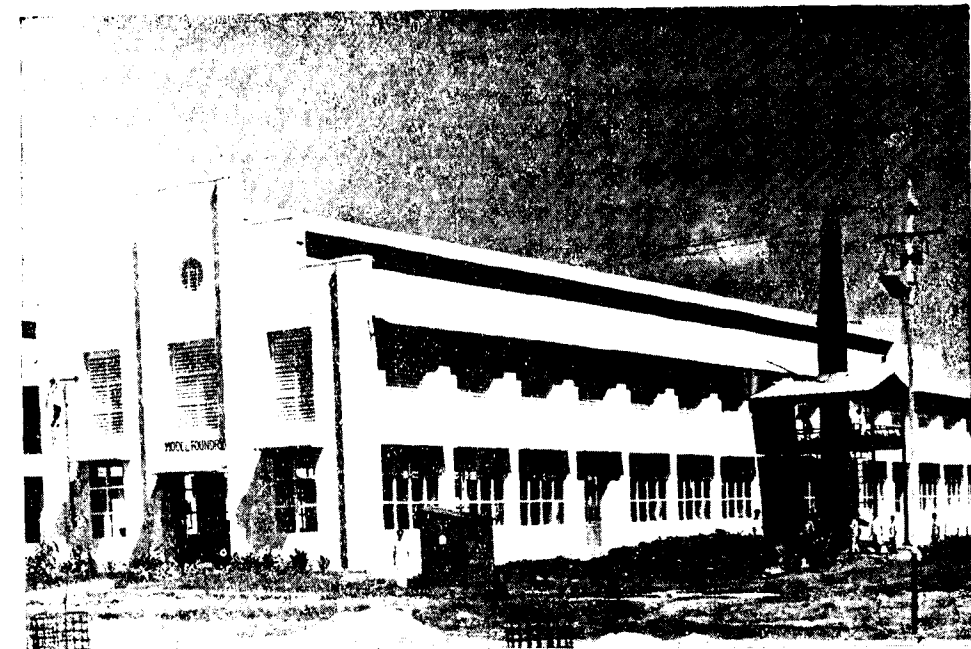
The first process involved in the production of a casting is the construction of a suitable mould. The type of the mould is governed by the size and shape of the casting and the kind of metal to be used to make the casting.

Moulds are divided into three classes (1) Green sand, (2) Dry and, (3) Loam moulds. *Green sand* moulds are made of sand in its green or natural state and may be poured with metal as soon as they are completed. About 85 per cent of all the moulds made in the foundry are of green sand. Moulding sand must be selected with great care as much of the success or failure of the casting depends on the nature of the sand chosen. *Dry sand* moulds are made of a special mixture of sand rammed in its damp state. When the mould has been completed, it is placed in an oven to dry. This process removes all moisture from the mould and leaves the body of the mould firm and dry. *Dry sand* moulds are used in making engine cylinders, cylinder blocks etc., where castings' thickness are more and where a lot of machining has to be done. *Loam* moulds are used to make large intricate castings. They are constructed around skeletons of patterns and depend upon brick work for inner and outer support of the mould. The mould face is composed of loamy mixture of sand. This type, like dry sand mould, must be dried well before metal is poured into it.

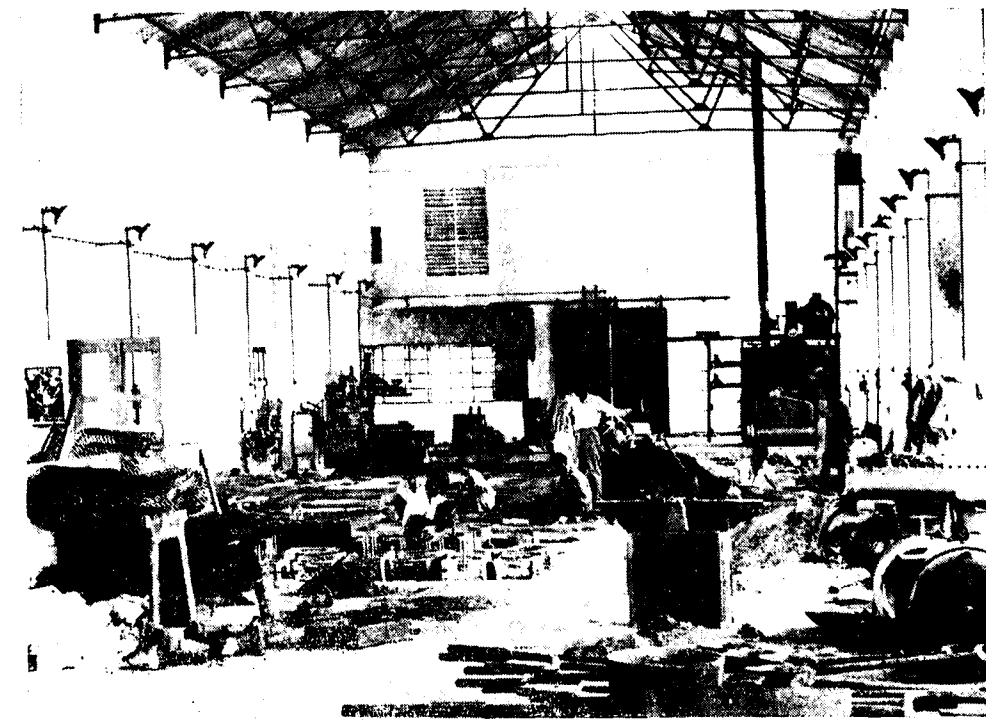
Processes

The melting of metals and the pouring of molten metal into sand or loam moulds from which castings are obtained are the main processes involved in a foundry work and the various stages are detailed below :—

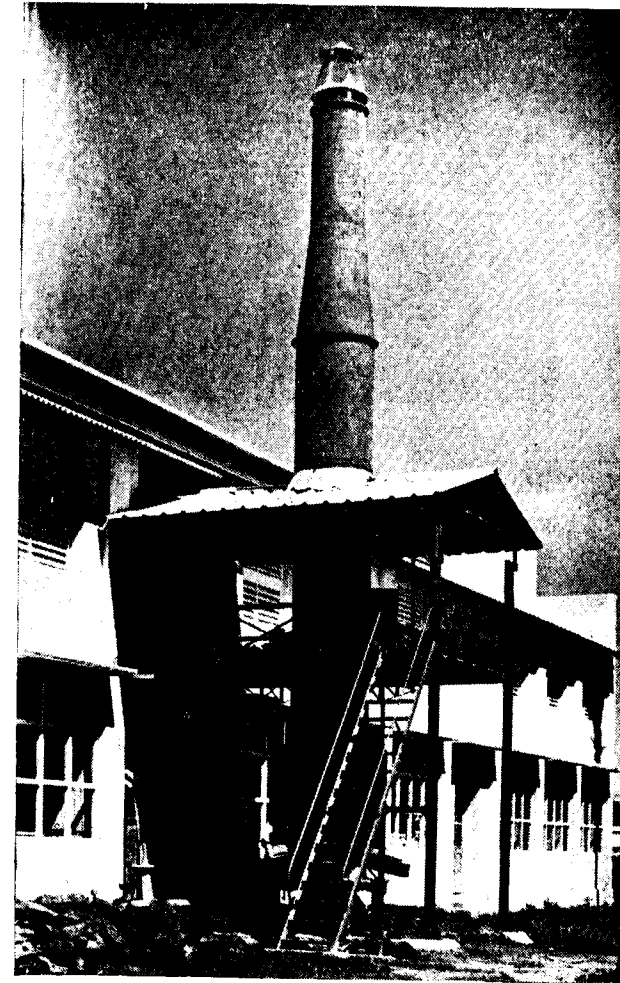
Basic raw materials.—The product of the foundry is a casting. A casting is a metal object produced by allowing molten metal to solidify in a mould. These castings are usually 'Gray iron'. The term 'Gray iron' is used to describe cast products produced by melting pig iron and



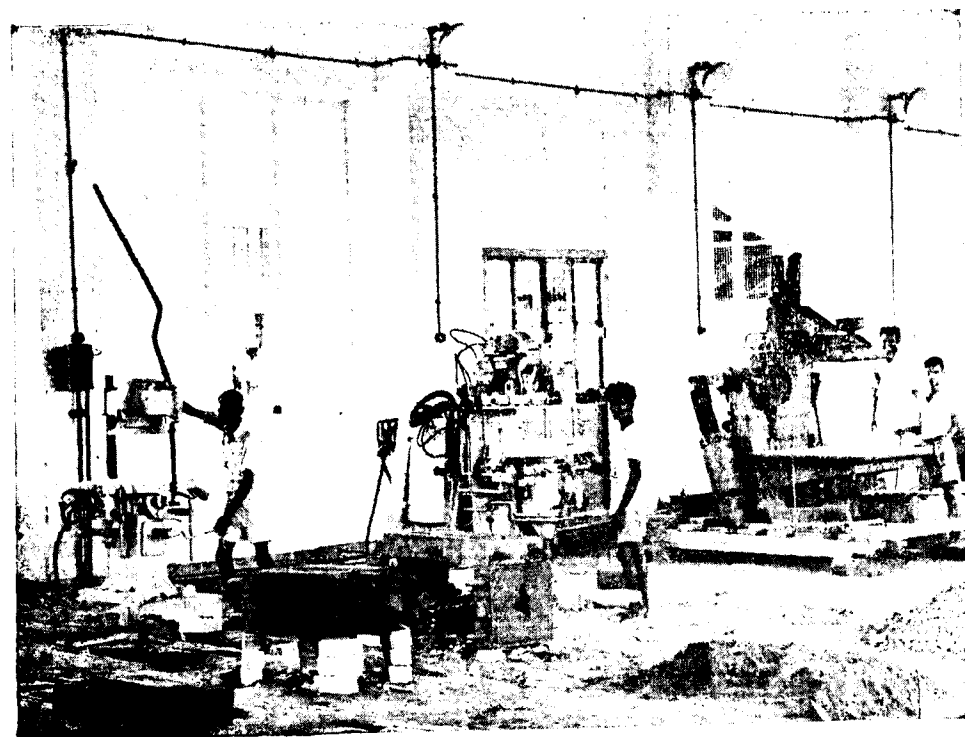
Exterior view of the Model Foundry at the Industrial Estate, Guindy.



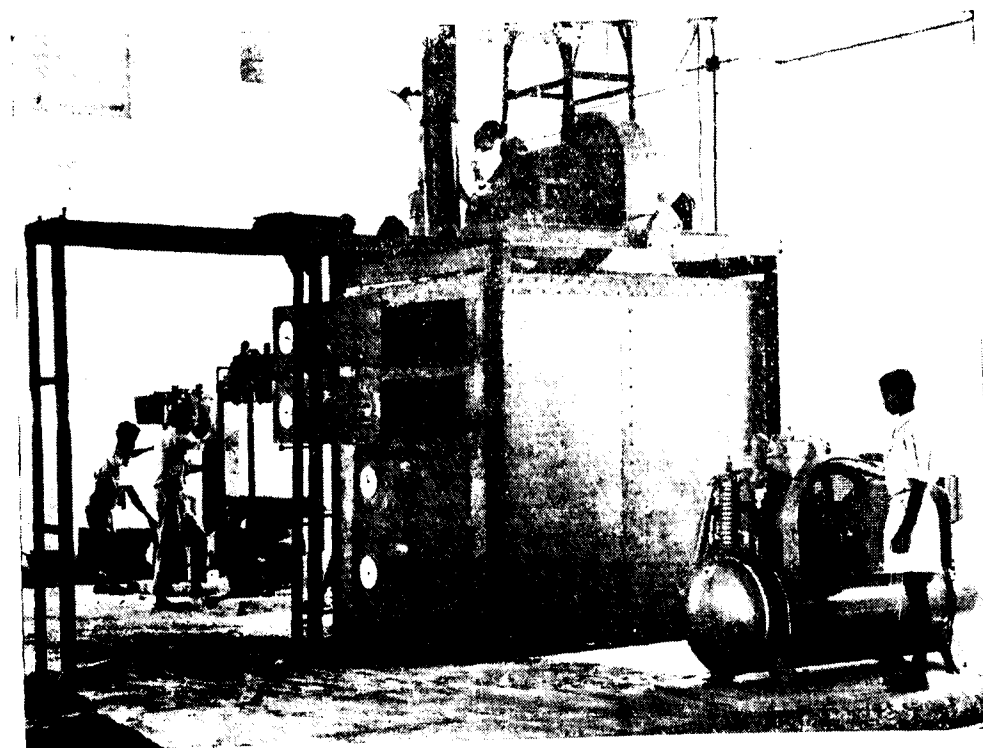
Interior view of the unit showing men at work during erection



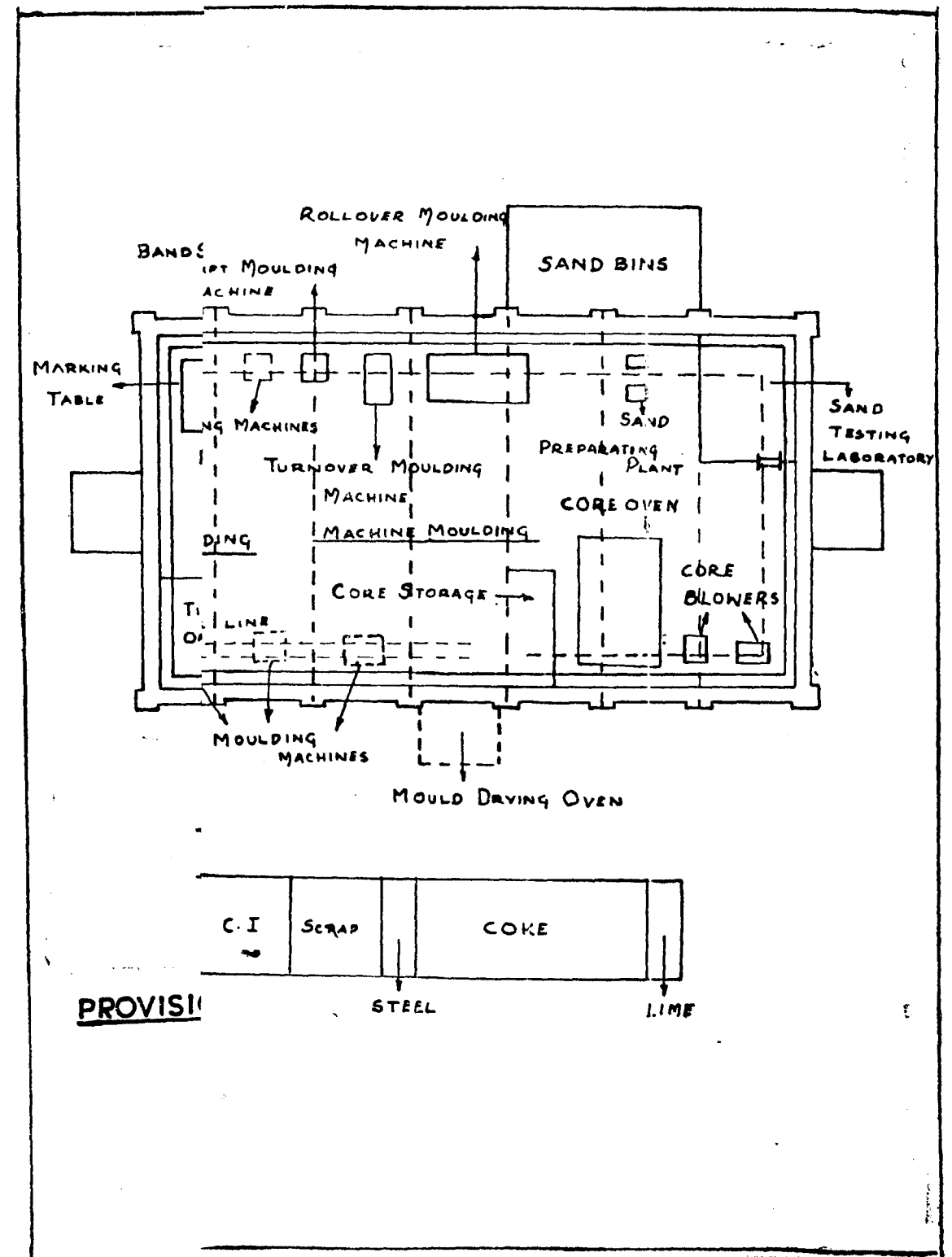
Cupola (capacity 2½ tons).



Moulding Section.



Core Drying and core drying machines.



I.C.J.—A

scrap in cupola, using coke as a fuel. Thus it can be seen that pig iron and foundry coke are the two basic raw materials essentially required for any cast iron foundry work.

Coremaking.—Cores are bodies of sand that form an opening or cavity in or through a casting. There are two types of cores, green sand and dry sand. The green sand core is a body of sand projecting into a mould to form a cavity or opening in the casting when the metal is poured. The green sand core is formed by the pattern during the moulding process. A dry sand core is composed of a special mixture of silica sand and a binding material. The core is rammed independently of the mould and dried in an oven to remove all moisture. The dried core is placed in the finished mould before the mould is closed for pouring.

Melting and pouring.—Most gray iron castings are produced from iron melted in a coke-fired cupola furnace. Alloys are often added to meet special analysis requirements. After the charge is made and fired, air is blown through the charge, causing the metallics to melt and form molten iron. The liquid metal is then conveyed from the furnace to the mould and the containers in which molten metal is carried are called ladles.

Cleaning and finishing castings.—After the casting has had sufficient time to solidify and cool, the sand mould is removed and the excess metal attached to the casting in the form of gates, sprues and risers are removed in the cleaning and finishing departments. To provide a smooth, clean surface, the casting is usually sand or shot-blasted and ground or chipped as required. After heat treatment, if necessary and inspection, the casting is ready for delivery to any one of more than a hundred industries which depend on gray iron castings.

Unit at the Estate

A good number of small foundries suffer because of right type of patterns are not available and their individual resources do not permit their having a pattern shop of their own. Right type of patterns are indispensable to quality castings and the 'Model Foundry' set up at the Industrial Estate, Guindy, has a well equipped pattern shop. Band saw, wood turning lathe, Pillar type drilling machine, Pattern milling machine and a Universal wood worker have been installed.

The Sand Laboratory is equipped with an ultra-modern testing apparatus, with which the strength of green and dry sand, permeability of cores and moulds, grains of sand, compression strength of sands etc., can be tested to accuracy.

An oil-fired core oven with a drying area of 96 square feet has been set up.

85 h.p. compressor installed is a two staged type with two low pressure cylinders and one high pressure cylinder with water cooling arrangements to remove the moisture and reduce the temperature of air compressed. The compressor will supply air to the entire unit for the moulding machines, core blowers, shot blasting, chipping, cleaning and sand removing purposes.

There are three types of moulding machines (1) Pin lift type, (2) Semi automatic turnover machine and (3) Rockover Rollover moulding machine. These machines help to increase the rate of production and minimise labour to a very great extent.

An American type of cupola with a capacity of $2\frac{1}{2}$ tons per hour has been erected.

The Fettling shop is equipped with a heavy duty double ended pedestal grinder, flexible grinders and swing frame grinder.

Ceramic Industry in Madras State

The State Industries Development Committee constituted by the Government of Madras with a view to accelerate the Industrial development in this State is pleased to release the following short note giving the summary of project reports prepared by the Sub-Committee for Ceramic Industries to be made use of by interested people and entrepreneurs.

Huge quantities of good quality China clay occur as overburden over the Lignite Seam and it will be available as Bye-product from the Lignite Mines when regular mining is started. Other ceramic raw materials like Quartz, Felspar, Gypsum, Fire clay etc., also occur in abundance in this State. These provide ample scope for developing Ceramic Industry in this State.

The State Industries Development Committee has drawn up certain schemes for manufacture of different ceramic products in this state. It has been found that the following types of ceramic products have very good market in this State and outside and that they can be very profitably manufactured.

1. Manufacture of Sanitary Wares

With the capital investment of Rs. 30,50,000 a unit can be started manufacturing approximately 1,00,000 pieces of sanitary wares per annum. The profit potential of the industry based and organised on the above lines can be regarded as approximately 20 per cent on capital. The demand for sanitary wares exists throughout the whole of the country and is increasing with the mounting tempo of industrial development. There is also very good scope

for exporting to other countries like Ceylon, Persian Gulf territories, Malaya, Burma, Thailand and adjoining areas.

2. Manufacture of wall tiles

It has been calculated that a unit manufacturing glazed tiles at the rate of 18,000 tiles per day can be set up with a capital investment of Rs. 29,30,000. A return of at least 12 per cent on capital investment can be expected. There are only two or three factories manufacturing good quality wall tiles in this country. Not only in this State but in the entire South India no factory has taken up manufacture of glazed wall tiles till now. There is very good scope of developing this branch of ceramics.

3. Manufacture of Firebricks

Good quality fire clay is available in Panruti in South Arcot district and in Sivaganga in Ramnad district. Fire clay will also be available from Lignite mines in Neiveli. It has been stated that the present installed capacity of refractories is about 1,40,000 tons per year which will have to be increased to over 10,00,000 tons by 1960. There are no steel factories in this State but large quantity of refractories is consumed by Foundries, Ceramic factories, Cement factories, Glass factories etc. A capital investment of Rs. 25,00,000 will be required to start a plant with a capacity of 12,000 tons per year. A minimum of 25 per cent return on capital can be expected. Good quality Magnesite available in Salem provides scope for starting a unit manufacturing basis refractories

4. Manufacture of Tiles and Bricks and Stone-ware Pipes

With a capital investment of Rs. 7 to Rs. 8 lakhs, a unit manufacturing 25,00,000 tiles per annum can be started. A minimum of 20 per cent return on capital can be expected. The entire machinery and equipments for modern roofing tiles plant are available in India itself.

For a stone-ware pipe factory with an investment of about Rs. 15 to Rs. 16 lakhs, a unit can be designed for production of 4,000 tons per annum. A minimum of 15 per cent return on capital investment can be expected.

Further details on the above can be had from the Director of Industries and Commerce, Chepauk, Madras-5.

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MADRAS-1

இணைப்புப் பொருத்திகள் உற்பத்தி செய்வதற்கான சிறு தொழிற் திட்டம்

[Scheme for the Manufacture of (Electric Wires) Link Clips]

முன்னுரை

மின்சார உபகரணங்களில் பெருமளவில் பயன்படுத்தப்படும் பொருள்களில் இணைப்புப் பொருத்திகள் (link clips) இன்றியமையாதவை. ஆகவே, இணைப்புப் பொருத்திகள் உற்பத்திக்கான சிறு தொழிற் கூடம் ஒன்றை அமைக்க வழிகோலுவதே இங்கு கொடுக்கப்பட்டுள்ள “மாதிரி” திட்டம் தயாரிக்கப்பட்டதின் அடிப்படை நோக்கமாகும்.

இத்தகைய தொழிற்சாலையை அமைப்பதற்கு தேவையான இயந்திரங்களும், கருவிகளும் உள் நாட்டுத் தயாரிப்பாளர்களிடமிருந்தே கிடைக்கக்கூடியதாயிருப்பதோடு, அவற்றைக் கொண்டு நல்ல தரமுள்ள இணைப்புப் பொருத்திகளை உற்பத்தி செய்வதற்கும் போதிய வாய்ப்பு உள்ளது.

தயாரிப்பு முறை.

இந்த அத்தியாவசிய மின்சார உபகரணமாகிய இணைப்புப் பொருத்திகளை தயாரிக்கும் முறை மிகவும் சுலபமானது. 30 அல்லது 32 கேஜ் (gauge) அளவுள்ள தகரத் தகடுகள் வெட்டும் பொறியால் (guillotine) தேவையான அகலமுள்ள துண்டுகளாக வெட்டப்படுகின்றன. பின்னர் அவை, மின் சக்தியினால் இயங்கும் சாய் அழுந்திகளில் (inclinable power press) சரியான அளவுக்கு வெட்டப்பட்டு, உருவப்படுத்தும் கருவியினால் சரியான உரு கொடுக்கப்படுகின்றன. கடைசியாக அவை களுக்கு மெருகேற்றும் பீப்பாயில் (polishing barrel) மெருகேற்றப்படுகிறது.

இவ்விதம் பூரணமாக தயாரிக்கப்பட்ட இணைப்புப் பொருத்திகள், பெட்டி ஒன்றுக்கு 144 விதிகம் (ஒரு குரோஸ்) அட்டைப் பெட்டிகளில் அடைக்கப்பட்டு விற்பனைக்கு வருகின்றன.

திட்டத்திற்கு தேவையான நிதி.

மாதமொன்றிற்கு 1½”, 2”, 2½” அளவுகளிலுள்ள 6,400 குரோஸ் (gross) இணைப்புப் பொருத்திகள் தயாரிப்பதற்கான பொருளாதார விலரம் கீழே கொடுக்கப்பட்டிருக்கிறது :—

(அ) ஒரு முறை செய்தால் போதுமான (திருப்பத் திருப்ப செலவு செய்ய வேண்டியதாக இல்லாத) செலவுகள் (non-recurring expenditure).

எண்.	விவரம்.	தேவை.	மதிப்புத் தொகை.
(1)	(2)	(3)	(4)
1	½ குதிரை சக்தி (horse power) மோட்டோருடன் கூடியதும், நானே இயங்கக்கூடியதுமான சாய் அழுந்தி (inclined power press with automatic feeding arrangement complete with ½ h. p. single phase motor with all electricals).	2	3,000
2	36” உள்ளதும், காலம் அழுத்து வேலை செய்யக்கூடியதுமான வெட்டும் பொறி (treadle-operated guillotine 36”).	1	1,000
3	ஒரு குதிரை வேக மோட்டோருடன் கூடிய ஆறு பக்க மட்டைகள் உள்ள மெருகேற்றும் பீப்பாய் (மரத்தாலானதாயும், 18” உயரமும், முகக்கு முலை 12” நீளமும் உள்ளது). Polishing drum hexagonal (wooden 18” height, 12” corner to corner).	1	700
4	1½”, 2”, 2½” அளவுள்ள பொருத்திகள் தயாரிப்பதற்கான வார்ப்புருக்கள் (dies for clips one set each of the three sizes 1½” x 2” x 2½”).	3	3,000
5	அலுவலகத்திற்குத் தேவையான மேஜை, நாற்காலி, மற்றும் இதர சாதனங்கள் (office equipment and furniture).	..	1,000
6	அமைப்புச் செலவுகள் (installation charges).	..	800
	மொத்தம் ..		9,500

(ஆ) ஒவ்வொரு மாதமும் செய்ய வேண்டிய செலவுகள் (Recurring expenditure)—

எண்.	விவரம்.	தேவை.	மதிப்புத் தொகை.
(1)	(2)	(3)	(4)
			ரூபாய்.
1	கச்சாப் பொருள்கள் (raw-materials)—		
(i)	30 அல்லது 32 கேஜ் தகரத் தகடுகள்	1 டன்.	1,200
(ii)	மெருகிடும் பொருள் (polishing materials)	..	100
	மொத்தம் ..		1,300
2	சிப்பந்திகள் சம்பளம் (wages)—		
(i)	தொழில் முதலவர் அல்லது மேஸ்திரி (foreman)	1	200
(ii)	குமாஸ்தா	1	100
(iii)	திறம் பெற்ற தொழிலாளர்கள் (skilled workers)	3	300
(iv)	திறம் பெறாத வேலையாட்கள் (unskilled workers)	3	240
(v)	எவலான் (peon)	1	60
	மொத்தம் ..		900
3	இதர செலவுகள் (Miscellaneous expenses)—		
1	50' x 40' அளவுள்ள கட்டடத்திற்கான வாடகை (rent of building 50' x 40')	..	120
2	மின்சார சக்தி	..	30
3	பொருள்களைக் கட்டி அனுப்ப செலவு (packing and forwarding charges)	..	100
	மொத்தம் ..		250

(இ) தொழில் மூலதனம் (Working Capital)—

எண்.	விவரம்.	தேவை.	மதிப்புத் தொகை.
(1)	(2)	(3)	(4)
			ரூபாய்.
1	மூன்று மாதங்களுக்குத் தேவையான கச்சாப் பொருள்கள்	..	3,900
2	மூன்று மாதங்களுக்கான இதர செலவுகள்	..	750
3	மூன்று மாதங்களுக்கான சிப்பந்திகள் சம்பளம்	..	2,700
	மொத்தம் ..		7,350

(ஈ) ஒரு மாதத்தில் 6,400 ரூபாய் இணைப்புப் பொருத்திகள் தயாரிப்பதற்கு தேவையான (உற்பத்திச்) செலவுகள்—

ச.நா.	விவரம்.	சே.நா.வ.	மதிப்பிடத் தொகை.
(1)	(2)	(3)	(4)
			ரூபாய்.
1	ஆண்டொன்றுக்கு 16 சதவிகிதத்தில் இயந்திரக் கருவிகளின் மதிப்பீட்டும், கழிவும் (interest and depreciation).		127
2	ஆண்டொன்றுக்கு 6 சதவிகிதம் தொழில் முலதனத்தின்மீது வட்டி.		87
3	கச்சாய் பொருள்கள்		1,300
4	சிப்பந்திகள் சம்பளம்		900
5	இதர செலவுகள்		250
	மொத்தம்		2,614

எண்.	விவரம்.	தேவை.	மதிப்புத் தொகை.
(1)	(2)	(3)	(4)
1	குரோஸ் ஒன்றுக்கு 50 புது காசுகளாக, 6,400 குரோஸ் பொருத்திகளுக்கான விற்பனை வருமபடி (sale proceeds).	..	3,200
2	உற்பத்திச் செலவு	..	2,614
	ஒரு மாதத்திய லாபம்	..	586

PHARMACEUTICALS

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MA'DRAS-4

“சேலத்தில் அனுபவியத் தொழிற்சாலை”

என். கே. என். அம்மாங்கார் அண்டு எஸ். வெங்கடேசன்.

அயலாநாட்டு நிருபண்கள் சொல்லப்படுகின்ற மரிகளில் ஆராய்ச்சி செய்ய வந்திருக்கின்றவர்கள் எவ்வளவுகூடு பத்திரிகைகளில் கட்டுப்பாடு செய்யப்பட்டு வருகிறது என்று கேட்டு தென்காங்கு மாவட்டம் திருச்சிக்குத் தென்க்கதரை அழிய அண்டி அண்டி திரைக்காட்டி யுட்படே. இந்தியாவுக்கான முதலியோரைக் கண்டிராயன் மலைகளில், சிறு உயர்ந்த மூல் மலைகளில் விமானங்கள் வரை சொல்லப் பட்டிருக்கின்ற கூடிய உலோகக் கலியாணம் “மத்திய” (bauxite) கண்டு, அதன் தாது, உலோகம் உற்பத்திக்குத் தகுந்த தேவைகள், பெருக்கியமைப்பற்றி ஆராய்ந்தனர்.

அமுகிய காப்பி, தெயிலே தொட்டபான்
நிறைந்த ரம்பியமான பன்னத்தாக்குகின்றது
அநேக கிராமங்களைக் கொண்ட சேர்வராயன் மலை
களில் (சேலத்திலிருந்து சுமார் 22 மைல் தூரத்
தில் உள்ளது) மஞ்சள், சிவப்பு, மற்றும் மஞ்சள்
சிவப்பு கலந்த நிறங்களில் காணப்படுகின்ற கோ
மளவு கற்கள், இம்மலைக்கு தொழில் காரணித்
தாற் போன்ற தோற்றம் அளிக்கின்றன. இம்
மலைகளில் “பாக்கலை” கற்கள் சராசரி 30 அடி
ஆழம் வரை காணப்படுகின்றன. காதாரண
மாக விஞ்ஞான ரீதியில் நோக்கினால், இம்மலை
கள் முழுதும், சென்னை மாகாணத்தின் இதா
பகுதிகளில் காணப்படும் கற்கள் போன்றே
இருந்தபோதிலும், வருட முழுதும் சேர்வராயன்
மலைப்பகுதிகளில் மழை, உஷ்ணம், பனி போன்ற
திடீர் மாறுதல்களினால் அங்குள்ள கற்களில்
சில இராயனப் பகுதிகள் அகற்றப்படும், சில
அகற்றப்பட முடியாமலும் தங்கி விடுகிறது.

இக் கற்கள் நீல நிற லொங்கச் செங்கல் அநிகம் கொண்ட “சார்னோகைட்” (charnocite) ஆகும். இதிலிருந்து மற்ற இலையில் அகற்றப்பட்டிருக்காது. மூலக் கூறுகள் அகற்றப்பட்டன. அது தாது கவே அலுமினியச் சத்து மிகுந்ததாகக் கணம் படுகிறது. இம்மாதிரியான மாறுதல் இன்னம் நடைபெற்று வருகிறது. இந்த “மாக்கைட்” கற்கள் சேர்வராயன் மலைகளில் காணப் பட்டன. 53 வட்டம் 18 வரை கிடைக்கும்.

இவ்விதம் சாயக்கல் (bauxite) போன்ற
தோற்றமளிக்கும் கல்லானது எவ்வாறு அலி
மினியம் தயாரிக்கப் பயன்படுகிறது எனக் காண
போம். முதன் முதலாக, பூமியில் காணப்படும்

திருவாரூர் அங்கம் லைடி. மருத்தின் மூலம் துடிக்க வலியாகக் கிறிய தங்கங்கள் அங்குக்கப்பட்ட பிறகு, மலையாளியினரின் நிலை மாட்டத்திற்கு, திருவாரூர் அங்கம் கிடைக்காத காரணத்தினால் செல்லும் இடம் மாற்றப்பட்டது. (Rural roadway) வழியே செல்லும் இடம் மாற்றப்பட்டது. திருவாரூர் மூலம், வட ஆற்காடு மாவட்டத்தில் சேர்வராயன் மலையாளத்தினரின் புகை வண்டி நிலையத் திருத்தி, திருவாரூர் மாவட்டம் மாற்றப்பட்ட பாகைப்படை செல்லும்படி. மிகு அங்கிருந்து அலுவலியைக் கவியாத புகை வண்டி. மூலம் மேட்டூர் வந்தால் செல்லும்படி.

முதுவர் குதலில் பாக்கலைட்டுன் கலந்துள்ள
மற்ற அகத்திசுவாரா, அயம், கலிமன், மணல்
பொன்றவன் அகத்திசுவாராவேண்டும். இதற்
காக கடைக்கப்பட்ட கலிப் பொருளானது நன்கு
புறக்கப்பட்டு பொடியாக்கப்படுகிறது. இவ்வாறு
பொடியாக்கப்பட்ட கலி, சாதாரண உப்பிலிருந்து
தூண்டிக்கப்பட்ட குடான சரிசோடா அல்லது
சோடா உப்பு கரைசலில் செலுத்தப்படுகிறது.
பிறகு தொடர்ந்தாற்போல் அதிக அழுத்தத்தில்
திரவியும் செலுத்தப்படுகிறது. இதனால் அலுமின
பொன்ற கலந்த, அயமும், மணலும் பிரிக்கப்
பட்டு வடிக்கப்படுகிறது. இவ்வாறு வடிக்கப்
பட்ட திரவம் குவிர் வைக்கப்பட்டு மேலும் நீர்
சேர்க்கப்படும்பொழுது, அலுமினுவானது படி
களும் அடைகிறது. இவ்வாறு படிசுமர்க்கப்பட்ட
பொருள் வடிக்கப்பட்டு, உலர்த்தப்பட்டு நன்கு
உருண்டிப்படுத்தப்படுகிறது. இனி, இதிலிருந்து
அலுமினியம் தயாரிக்க வேண்டியதுதான்.

இவ்வெலக மாற்றமானது மின்சாரத்தினால் செய்யப்படுகிறது. இதற்கென்றே தனியாகத் தயாரிக்கப்படும் எஃகு அல்லது இரும்பினால் செய்யப்பட்டு களித்தண்டுகள் கொண்டு பெரிய பாத்திரமானவை உள்ளூடே சுவர்காக உஷ்ணத் தனிப்புக் கற்கனாள் (fire bricks) பதிகப் பட்டிருக்கிறது. இப்பாதிரத்தில் தான் கிரையோலைட் (cryolite: Na, AlF₃) என்கிற கூட்டுப் பொருள் உள்ளது. இத்திரவத்தில் முன்கூறியபடி தயாரிக்கப் பட்ட அலுமினாவானது சேர்க்கப்பட்டு மின்சாரம் செலுத்தப்படுகிறது. மின்சாரமானது அலுமினா, கிரையோலைட் இவற்றினூடே உண்டாகும் கரைதல் மூலமாக அலுமினாவிலுள்ள அலுமினியம் தனியாகவும், பிராணலாபு, தனியாகவும் பிரித்தெடுக்கிறது.

இவ்வாறு பிரிக்கப்பட்ட பிராணவாயுவானது, மின்வாயான (electrode) சரித்துண்டுடன் கலந்து கரியமிலவாயுவாக மாறி வெளியேறுகிறது. அதே சமயத்தில் அலுமினிய உலோகமானது இரும்புத் தொட்டிகளின் மேல் மட்டத்தில் படிந்து துவாரங்கள் வழியே வெளியே அகற்றப்படுகிறது. சாதாரணமாக இவ்வித அலுமினிய உலோக உற்பத்திக்கு அதிக அளவு மின்சாரம் தேவைப்படுகிறது என அறிகிறோம். அதாவது சமார், ஒரு பவுண்டு உலோகம் தயாரிக்க 5-12 கிலோவாட் 1 மணி மின்சாரம் தேவைப்படுகிறது.

அலுமினியம் இலேசான உலோக வகையைச் சேர்ந்ததினால், மற்ற உலோகங்களான மக்னீசியம், மாங்கனீஸ், குரோமியம் போன்ற உலோகங்களுடன் சேர்க்கப்பட்டு, கடினமானதும் லேசானதுமான கலப்பு உலோகம் செய்யப் பயன்படுகிறது. இவ்வாறு தயாரிக்கப்படும் கலப்பு உலோகமானது மோட்டார், வான ஊர்தி இவற்றின் பாகங்கள், மற்றும் பல கட்டிட வேலைகளுக்கும், அலுமினியத் தகடு கூறைகள், ஜன்னல் சட்டங்கள், கதவு கைப்பிடிகள் செய்யப் பயன்படுகிறது. அலுமினியமானது தாமிரம் போன்று இரு மடங்கு மின்சாரம் செலுத்தக்கூடியது என்பது அநேகர் அறிந்ததே. ஆகையினால் வெளி நாடுகளிலிருந்து மின்சாரத்திற்குத் தேவையான தாமிரம் இறக்குமதி செய்வதைக் குறைக்கலாம். தவிர,

வெகுவில் படியும் சிமென்ட் (quick-setting cement) (அதாவது 24 மணி நேரத்தில் இச் சிமென்ட் நன்கு படிந்து உடனே உபயோகப்படுத்தக் கூடியது) தயாரிக்க உபயோகமாகிறது. ஆனால் சாதாரண சிமெண்டுக்கோ ஒரு மாத காலம் தேவைப்படுகிறது.

மேலும், “பாக்கைட்” ஒருவித பசை போன்ற இரசாயனப் பொருளுடன் சேர்க்கப்பட்டு, உலைகளில் பயன்படக்கூடிய உஷ்ணக் காப்புக் கற்கள் (fire bricks) செய்யப் பயன்படுகிறது.

உஷ்ணப்படுத்தப்படுகின்ற பாக்கைட்டானது பொடியாக்கப்பட்டுப் பொருட்களைப் பளபளக்க வைக்கும் தூளாக (emery powder) பயன்படுகிறது. மேலும், எண்ணெய்களிலிருந்து துர்நாற்றம் போக்கவும் பாக்கைட் பயன்படுகிறது.

தவிர, பலவித இரசாயன உப்புக்கள் தயாரிக்கவும் உபயோகப்படுகிறது.

மேற்கூறிய சேர்வராயன் மலைப் பகுதிகளில் காணப்படும் அலுமினியக் கனிப் பொருளானது சமீபத்தில் நீலகிரி ஜில்லாவின் பல இடங்களில் தென்படுவதாக மாகாண முதத்துவ இலாகாவினால் கண்டு பிடிக்கப்பட்டுள்ளது. இக்கனி பெருமளவில் கண்டு பிடிக்கப்பட்டவுடன் பெரும் அலுமினிய தொழிற்சாலைகள் நிறுவ சாத்திய கூறுகள் உள.

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Many road transport companies are finding it increasingly difficult to maintain their organisations because of higher prices of diesel oil and tyres. Overloading is not only risky but bad for the vehicle too.

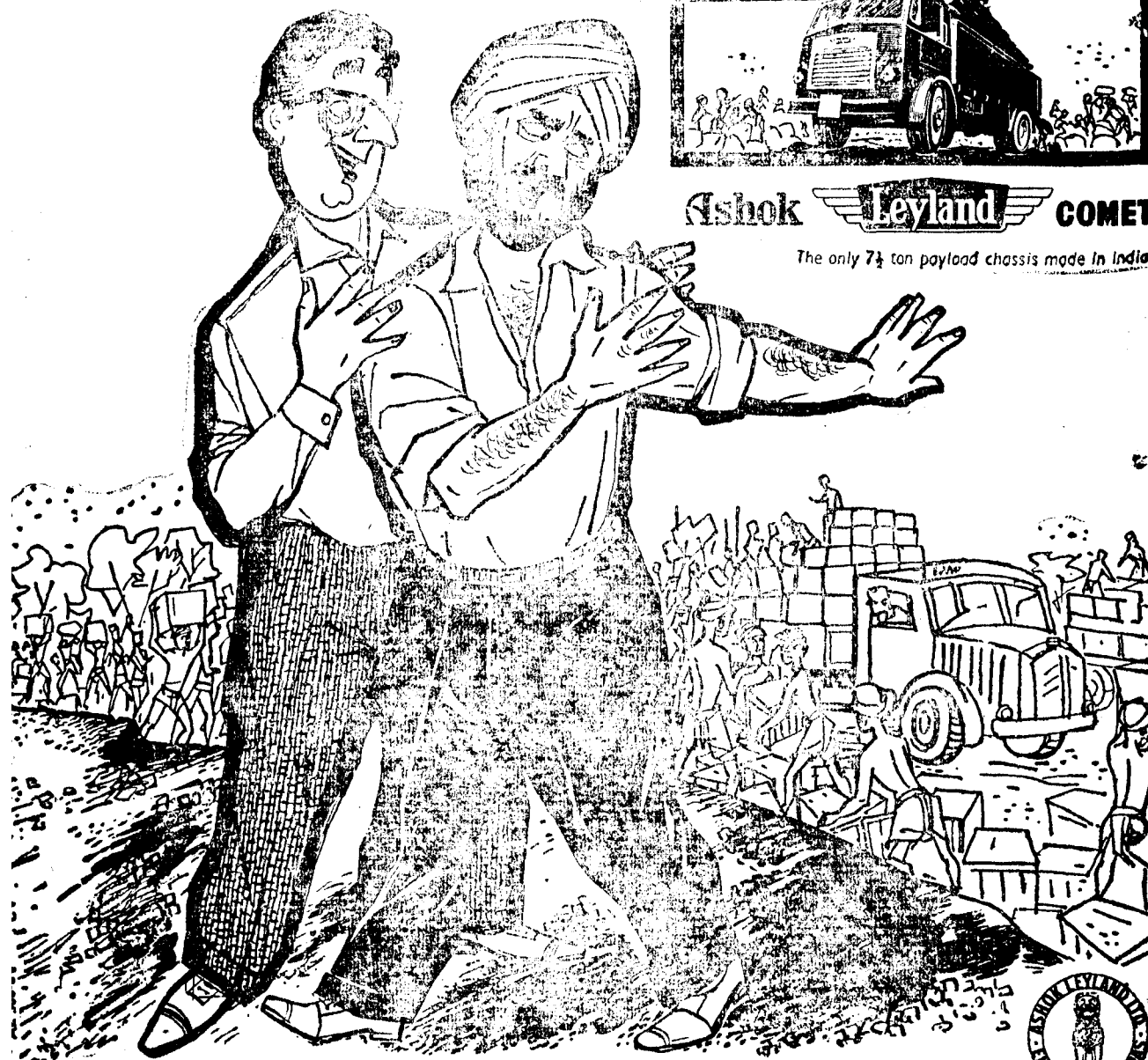
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Beware of Sharks!

By Sri V. D. SPURGEON, Deputy Director of Fisheries, Madras.

"BEWARE OF SHARKS"—so runs a warning for bathers in Marina beach. There had been sporadic attacks on bathers by sharks and therefore the public are warned to be careful. Many hastily attribute all sorts of vicious qualities to sharks. Some think that sharks are a group of blood-thirsty monsters and they lie in ambush near the shore waiting for the arrival of bathers. Still there are others who fancy that Sharks live exclusively on human flesh! Let us, therefore, enquire into these charges brought against sharks and find out how far they are justifiable.

What is a Shark?

A shark is also a fish, but it is somewhat different from ordinary fishes. A shark has no true bones at all. Instead tough tissues form a simple skeleton to support its weighty body. Therefore, scientists consider a shark as an "uncivilised" or primitive fish. Again, a shark brings forth young ones somewhat like mammals while all other fishes lay small eggs which later hatch out as baby fishes. Bony fishes are met with in seas as well as in fresh waters whereas sharks almost always confine themselves to salt water. Normally, a fish has its mouth at the tip of its snout, but shark has it at the downward side of its head. The mouth is crescent shaped and armed with formidable set of sharp dentition. Majority of the sharks are big in size. Shark's skin is tough with minute scales. All sharks are carnivorous creatures with the solitary exception of Whale-Shark.

Kinds of Sharks

Sharks range from one foot to even forty-five feet. The largest shark is called the Whale-Shark and the smallest are the

dog-fishes. There are ever so many varieties among sharks of the world, but, in Indian Seas we see only 37 kinds. Around Madras State the following are the important Sharks commonly met with in fishermen's catches:—

- (1) The Tiger-Shark.
- (2) The Hammer-Head Shark and
- (3) The Saw-Fish.

Tiger-Shark is of two kinds in our waters. The scientist calls them as *Galeocerdo tigrinus* and *Galeocerdo raynerii*. It will be seen that the first names of these two tiger-sharks are common and that only the second names are different. This shows that they are of the same category except for minor differences. The Tamil fishermen call both the tiger-sharks as "varipullian" meaning thereby a tiger with stripes! The Telugu brethren name them as "Kithalam" and Kerala christened them as "Kalla-Sravu". These are the largest and most dangerous in our coast. *G. tigrinus* is usually grey in colour and has a few grey spots, whereas *G. raynerii* has black spots and vertical bands against grey background. So by looking at their colour one can say which is which.

These two kinds of tiger-sharks alone attack Man now and then but we charge them as man-eaters. How far they are guilty of "man-slaughter"? These sharks grow to 12 feet ordinarily. There are specimens reaching 22 feet also. In Peria-thalai village in Tirunelveli district tiger-sharks of 18—22 feet are not uncommon. By nature these monster fish are voracious eaters. So huge is their body, so insatiable is their appetite, so wide is their mouth, so formidable is the array of serrated

teeth and so powerful is the tail fin to propel these creatures at terrific speed after their prey, that they eat anything and everything that comes in their way.

Once a shark swallowed plenty of coal fallen from a cargo steamer, in another instance, there was a goat inside the belly of a shark, another tiger-shark had 10 lb. of raw rice and yet in another case, the stomach had biscuits and beef-tins. In a single case when a tiger-shark was cut open, human skull was discovered. So, it is inferred that large sharks are foolish in the matter of choosing their menu for the day. They just snap at anything within reach without stopping to think for a moment whether the object encountered is fit to go down their throat or not!

It is, therefore, unfair to accuse sharks as exclusively "man-eaters". If this is true, there are not enough human beings in the seas to feed tiger-sharks! First of all a large sized shark does not find it comfortable to come within a few feet distance from the shore where an average bather is found. But, if one swims a little far into the sea, then a shark can come there not because it lives only on Man's flesh and blood but simply because it gets attracted by the large novel object that swims—Man! As it is in the habit of eating something or other all the twenty-four hours in a day, it makes a lightning dash to the swimmer and before he is aware of the danger, he is in the stomach of the shark! Once a man is in shark's mouth he is just a gem-biscuit! The whole of his body or part of it, is crushed into a pulp by the hundreds of saw-like teeth planted in several rows. All these happen because a shark is created to be so and neither it has a liking for our meat nor because it bears a malice against us.

We know that there is a set of skilled fishermen who go down to the sea-bottom to collect valuable sea-products. These

men go down with absolutely no protection against sharks. In the deep sea to go down to sixty feet depth and to remain there for a short while collecting shells and pearls and then come up again that much of depth carrying a load of shells etc., is no joke. It means a constant threat from huge sharks. And yet 500 divers dive almost every day in the Gulf of Mannar in our State during the season from November to April or May to collect *Changu* shells. These fisherfolk offer prayers or perform "pujas" to ensure safety for themselves against sharks. Everything goes on alright usually. But once in a way a shark creates a scare. A shark—attack normally ends fatal. Either the body will be completely lost or recovered in a mutilated condition. To such unfortunate victims' families, the Government pay compensation. In one solitary instance at Tuticorin a hefty diver fought a tiger-shark at the sea-bottom and dragged it to the surface and fainted. The fellow-divers rushed him to the hospital on the shore, where timely medical attendance brought him back to life. He is alive even to-day to proudly tell the tale of his heroic fight and to show a deep scar of 1½ feet across his back. This does not deter him from pursuing his dangerous profession because he earns on an average Rs. 30 a day during the season. I remember that in 1918 season I had to pay him Rs. 93-8-0 for one day's labour!

'Grey-Gold' of the Sea

In America, till about a decade ago sharks were considered useless. They were caught in nets in such amazing abundance that fishermen regarded sharks as a nuisance. They just destroyed them as fit for dogs only. Hence, the name dog-fish to smaller varieties of sharks.

In Madras also till 1940 sharks were looked upon as poor man's diet. High-class housewives never went in for sharks for their table while a small shark called

Palsurah was bought only by a few for making *Sura putt*. The reason for this is that shark flesh is coarse, tough and is of strong ammonia flavour. Sharks over two feet are seldom sold locally, but find a ready market in salted condition among estate coolies in South Indian hills, Ceylon and Singapore. Hence, fish merchants here used to buy sharks almost for a song, salt their flesh and export them for a fortune.

In 1940, the presence of Vitamin A in shark liver oil was discovered in Madras. Just at that time Nazi hordes overran European countries and cut off the supply of cod liver oil to India. Therefore, mass production of shark liver oil was taken up all along the 1,700 miles of Madras coast and a refinement factory started in Calicut.

As the demand for shark oil steadily grew up, the price of sharks also shot up. Sometimes, the liver alone fetched Rs. 60—70. Then, the carcass could be sold out for about Rs. 30. So a big shark was worth Rs. 100 or thereabout. What a change it brought about in the fisherman's lot! He suddenly felt that what was being discarded was all money. He called sharks as "grey-gold."

Method of oil extraction

How is oil separated from a fish-liver? You might wonder. The liver is removed from the fish, cut into small chunks, washed well to remove blood, put in a copper cauldron containing cold water and steadily heated and boiled till the oil exudes from the liver-pieces and freely floats at the surface. This oil is skimmed out, washed well in tepid water and despatched to Calicut, where it is purified by steam process and bottled. The Madras Government shark liver oil contains 1,500 International units of Vitamin A per gram whereas the foreign cod liver oil has 750 International units only. Hence our oil is superior and annually 30,000 gallons of it are sold out.

How Vitamin A enters Shark liver

Rains dissolve phosphates and nitrates from the soil and wash them down into the sea, where these salts feed microscopic plants and animals. These tiny organisms contain *Carotene* and allied compounds which are later converted in the tissues of small fishes into Vitamin A. These tiny plants and animals (Plankton) are eaten by small fish, small fish are swallowed by larger fish and larger fish in turn are gulped by sharks. So Vitamin A from tiny plants enters sharks and it is finally consumed by Man. What a wonderful arrangement in Nature for us to get Vitamin A!

Shark as "Kamadenu"

"Kamadenu" in Hindu mythology is a milch cow endowed with a unique virtue of yielding anything asked for. Coconut palm tree is often referred to as the only tree on earth, every inch of which, is useful. I think what is said of "Kamadenu" and coconut tree is fairly true of sharks also. The shark's body consists of flesh, (ii) liver, (iii) skin (iv) fins and (v) teeth. Flesh and liver are valuable as already described above.

When the supply of the commercial leather from land animal is going down we can turn to sea. The skin of seal, walrus, whale or shark is good raw material. Of the fur-yielding marine animals sharks alone are common in India. Therefore, with proper skinning and tanning shark skin is excellent for manifold purposes. But, at present sharks are sold out to merchants who butcher them in a clumsy fashion and spoil the valuable leather. It is said that in America shark leather goods are popular. "Shagreen" made of shark skin is good abrasive for polishing wood-works.

Shark fins which appear to us tough and good-for-nothing is a delicacy for our great neighbour—China. Chinese prepare a soup

out of fins and sip with pleasure to the last drop of it. So fins are exported to Singapore and China from India. I have seen fin-collectors trekking miles to reach a fishing hamlet for the sake of fins.

Last but not least in importance is the shark teeth. Look at them. Unless you are told that they are so and so, you are likely to mistake them for ivory carvings. They are so milky, polished and artistic. Two teeth set in silver or gold will make an ideal cuffing for you.

How Sharks are caught

Therefore, every bit of shark is useful. We can approach sharks for many other products of commerce not mentioned here.

Drift-net with light wooden floats at intervals on the top to buoy it up and stone weights at the bottom to make the net hang like a curtain in the sea is a common method to catch the sharks. Hemp is used frequently in shark-nets to make it strong enough for them. Periatthalai is a small village (in Tirunelveli district) but it stands foremost for hemp-net shark fishing. I have been delighted to see during my travels more than six huge sharks arriving there in one day. Naturally, this place happens to be the best centre for shark-liver oil production in the whole of Madras East Coast.

In Malabar, the *Moplah* fishermen use long lines with hundreds of hooks in them. The lines are of two kinds—big and small. Beef as bait is very effective.

The Fisheries Department introduced an efficient way to fish sharks. They use what are known as "revolving-chain hooks". In this tackle, the hooks revolve round and round when sharks make an effort to snap and escape.

As shark-catches are paying nowadays, the fishermen are anxious, to land them as much as they can. At Periatthalai village one Michael Marian claims to have mystical power to summon all monster sharks to come near the shore and get caught in their nets. How far this is true? I cannot vouchsafe. Sharks were scarce sometime ago. For this, certain people said that the sharks have smelt the boiling of their livers on the shore for oil and therefore to escape the clutches of cruel men they have abandoned the shallow waters and gone to the very deep sea. Another person came forward to get back the sharks on "strike" by sprinkling calf's blood in the sea!—all these fantastic ideas were conceived in superstition and expressed in ignorance.

So, when you happen to look at the "Beware of Sharks" notice in the Marina again, you can tell yourself that you are now aware of something about sharks and their service to mankind.

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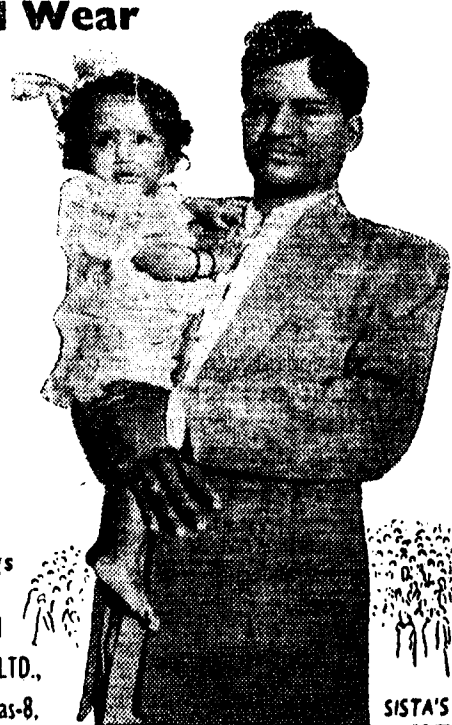
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The Superintendent,
General Purpose Engineering Workshop,
RAJAPALAYAM.

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

DEPARTMENTAL NEWS

SARANJAM KARYALAYA, GUINDY.

Statement showing the Number of Ambar Charkha sets manufactured and distributed in the Saranjam Karyalaya, Guindy, for the months of August, September and October, 1959.

1 Targetted production for the period	600	Ambar Charkha sets.
2 Number of charkha sets manufactured up to the end of 31st July 1959. }	2,495 2,106	Ambar Charkhas. Ambar Belnies.
3 Number of Ambar Charkha sets manufactured during the quarter }	250 250 87	Ambar Charkhas. Ambar Belnies. Composite Charkhas.
4 Number of sets lifted by the Khadi Department }	240 240	Ambar Charkhas. Ambar Belnies.
5 Expected production for the ensuing quarter	600	Composite charkhas.

SARANJAM KARYALAYA, S.V. NAGARAM, ARNI, NORTH ARCOT DISTRICT.

This Unit is only manufacturing the wooden parts for Ambar Charkhas and their assembly. After the assembly is over, these charkhas will be delivered to Khadi Department. Up to the quarter ending 31st October, 1959, about 500 Ambar Charkha sets have been manufactured and 370 Ambar sets delivered to Khadi Department. This unit provides employment for 28 workers, i.e., carpenters. These carpenters are manufacturing the wooden parts with the assistance of machineries that are available in this Unit.

Now this Unit is undertaking the manufacture of Composite Charkhas. About 300 Charkhas will be manufactured during the next quarter.

SARANJAM KARYALAYAM, VADALUR.

The Saranjam Karyalaya, Vadalur, is engaged in the manufacture of Ambar Charkhas and Ambar Belnies and supplying the same to the Khadi Department.

The Unit was inaugurated by the Governor of Madras on 5th December, 1958. Five hundred and sixty Ambar Charkha and Ambar Belnies sets have been manufactured up to October, 1959.

SERVICE CENTRE FOR THE MANUFACTURE OF HAND TOOLS, GUINDY.

During this quarter, service to the tune of Rs. 50,000 was rendered to various private industrialists. This includes various type of jugs and fixtures required for refrigerator parts, dies for automobile pistons, valves and press tools for various sheet metal components for Railway signal equipments and also moulds and dies for tablet machines used, in pharmaceutical industries.

REPORT FOR THE QUARTER ENDING 30TH SEPTEMBER, 1959.

SERVICE-CUM-TRAINING CENTRE FOR TANNING AND FINISHING OF LEATHER, VINNAMANGALAM, (via) AMBUR.

Quarterly progress of activities and Achievements for the quarter ending 30th September, 1959.

The Unit has gone into production from April, 1959 and manufactured the following kinds of leathers to the value of Rs. 11,512 during the quarter :—

- (1) Sole leather.
- (2) Box and willow leathers.
- (3) Fancy goats (in various colours).
- (4) Suedes.
- (5) Semi-chrome glace kids.

The Hon. Minister for Home, Madras, and the Hon. Minister, Co-operation, Mysore, accompanied by Deputy Minister for Co-operation, Mysore, visited the unit and witnessed the working of the machines. They were taken round the unit by the Director of Industries and Commerce.

Servicing works for the private Tanners were done to the value of Rs. 131.00. The following kinds of servicing works were brought to the unit during the quarter:—

- (1) Semi-chrome suedes.
- (2) Hair on tanning.
- (3) Kattai leather finishing.
- (4) Buffing of E.I. skins.
- (5) Drum setting of E.I. Buff calves.
- (6) Glazing of Kattai leathers.
- (7) Staking of chrome-tanned skins.
- (8) Fat Lacquering of chrome-tanned skins.
- (9) Shaving of chrome-tanned skins.
- (10) Mineral tanning of reptiles.
- (11) Dyeing of chrome splits.

Finished productions of the Unit (leathers) were sold to the private merchants, local shoe-marts and departmental units to the value of Rs. 1,288.26. The Cold Storage which was under construction during the last quarter was completed and it is working now in good condition.

GOVERNMENT LOCK UNIT, DINDIGUL.

The Lock Unit started functioning in September, 1957 as a production-cum-servicing unit. This unit has got the convenience of a Tool room where all dies and fixtures for the various component parts are produced. In the initial stages, this unit has sustained some losses and now things have come to a normal stage with all prospects for the future. At present, the following types of locks are produced and put in the market.

Locks produced—

Door locks under production of this Unit—

- Mortice lock.
- Double bolt rim lock.
- Single bolt rim lock.
- Latch type lock.

Cut component parts manufactured and supplied to the Dindigul Lock Workers' Industrial Co-operative Society—

Iron padlocks, sizes $2\frac{1}{2}$ inches and 3 inches.

Drawer locks, sizes $2\frac{1}{2}$ inches and 3 inches.

Almirah locks, sizes $2\frac{1}{2}$ inches and 3 inches.

Dies and fixtures for a few more types of common locks are ready which are also expected to come into market shortly.

All the above locks under production have earned a name and reputation for quality. Messrs. Vulcan Trading Company, being appointed as the first agents for Indian Union is aiming at a big business on this product for which trade negotiations are going on at the Central Office. Some other application have also been received for appointment of Agencies in India as well as outside. Due to some high price variation and market propaganda, the business turn-over in the past was not appreciable. Realising this, effective steps have been taken up with the agents in this matter. In the meanwhile the Director was kind enough to arrange for the sale of this "D Lock" products through all sales Emporiums in the State and also introduce this product in all Government departments.

Regarding the service side, seven sets of Cut component parts are manufactured and supplied to the Dindigul Lock Workers' Industrial Co-operative Society and the local

artisans are doing a very good job of assembling the locks as a quality products. Within a short period of less than a year, the society product is meeting a very high demand and it is not in a position to fulfil the orders and many applications for agency have been received, out of which a foreign firm agrees for a monthly off-take of not less than 30,000 locks. A revised work programme for the Lock Unit for supply of cut components of this quantity is under consideration of the Director. This being a short revision of the activities of the Lock Unit, it is expected that all the departmental units and the public will

co-operate with its activities insisting on quality products of the Lock Unit for their usage.

GOVERNMENT GALVANIZING PLANT, METTUR DAM.

Statistics for the quarter ending 31st
October, 1959.

Two hundred and forty-five tons of Power transmission lines steel structures were galvanized for the Madras State Electricity Board. In addition to this, nine tons of private jobs have also been executed.

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A Division of the
Department of Industries
and Commerce, Madras.

Industrial Notes

GOVERNMENT SPLINTS AND VENEERS FACTORY, THIRUVOTTIYUR.

With a view for manufacturing Splints and Veneers of good quality from Andaman Timber, the Madras Government have set up under Small-scale Industries a factory in Tiruvottiyur and the factory has commenced production from May, 1959.

The intention of the factory is to supply the veneers manufactured to the Cottage type match factories proposed to be set up by the Government and also to supply them to the Government Match Works, Perambur.

The production is estimated to be 2,000 gross of Veneers per day and 50 maunds of splints per day during the first year, i.e., 1959-60.

It is hoped that the various match factories in the South will be supplied with this raw material at a reasonable cost.

PRESSURE DIE CASTING UNIT, GUINDY.

Progress report for the quarter ended 30th September, 1959.

The erection of the machinery having been completed, the unit switched on to commercial production in the second quarter. To start with, the production of 15 amp. cut out shells of zinc alloy was taken up with the experimental die intended for trial. This is a fairly simple electrical component hitherto made out of cast iron, that could be produced in this process successfully. It has been approved by the Madras Electricity System, who placed orders for thousand sets. Other private enterprises are also interested in this com-

ponent and it is anticipated that orders may be received for larger quantities in the future.

Consequent on the introduction of the Metric System of Weights and Measures, it was decided to undertake the manufacture of metric commercial weights and the dies required in this connection are under fabrication. A complete set of weights from 1 Kg. to 1 Gm. in brass, will be manufactured.

One of the important local industries has placed orders for the supply of charging keys for batteries produced by them. Initially the order is for six thousand pieces of the component; the dies required have just been completed.

The principal feature in the manufacture is the part played by the steel dies, which requires high precision machining and special experience, in its fabrication. The orders should also be in very large quantities, if the maximum economy is to be obtained. This being a new technique, development would take some time, but a bright future awaits the industry, as it can help conserve valuable foreign exchange by producing many items, hitherto being imported.

GOVERNMENT INDUSTRIAL TRAINING INSTITUTE, CUDDALORE.

The Government Industrial Training Institute, Cuddalore, is one among the Institutes run by the Department of Industries and Commerce, under the Craftsmanship Training Schemes. The Institute is now located in the Government building at Semmandalam. The machines required are imported gradually and the institute will be in full swing in the near future. Students with the minimum educational

qualification of IV Form and above, between 16 to 25 years of age are provided with training under the following trades :—

- (1) Fitter.
- (2) Linemen and Wiremen.
- (3) Moulder.
- (4) Blacksmithy.
- (5) Welder.
- (6) Turner.

The students are given stipends of Rs. 25 (Rupees twenty-five only) to an extent of one-third of the strength as ordered by the Director of Industries and Commerce. This institution is not engaged in production and training only is imparted.

GOVERNMENT INDUSTRIAL TRAINING INSTITUTE, NAGAPATTINAM.

The Industrial School which was started by the State Government on 1st July 1956 at Nagapattinam was subsequently converted into an Industrial Training Institute from 1st August, 1957 as per the Government of India pattern. The following courses are being offered in this Institute :—

- (1) Carpenter, (2) Linemen and Wiremen, (3) Moulder, (4) Fitter, (5) Turner and (6) Welder (Gas and Electric).

The total sanctioned strength in each trade are as follows :—

- (1) Carpenter—32, (2) Linemen and Wiremen—64, (3) Moulder—32, (4) Fitter—64, (5) Turner—24 and (6) Welder—24.

A sum of Rs. 7.68 lakhs under non-recurring and a sum of Rs. 5.02 lakhs under recurring have been sanctioned to be spent during the Second Plan period. The expenditure is being met by the State and Central Governments at 40:60 in ratio.

Admission of trainees and trade testing of existing trainees of senior batch will be done once in nine months and the duration of training is eighteen months at this

Institute and six months in any recognized workshop as apprenticeship training. After completion of the apprenticeship training, the successful trainees will be awarded National Certificate of Craftsmanship by the Directorate-General of Resettlement and Employment, New Delhi. The qualification required for admission is that the trainees should be within 16 to 25 years of age and should have studied up to IV Form (i.e., should have completed the academic year in the IV Form). One-third of the trainees are given stipend at Rs. 25 per month on poverty-cum-merit basis. A permanent building has been constructed at North Papanaseri, i.e., 3 miles from Nagapattinam towards Nagore and one mile from Nagore.

The first batch of trainees about 98 were admitted in August, 1957 and they completed their Institutional Training in January, 1959. Out of 98 trainees admitted some left in the middle and only 77 trainees appeared for the All-India Trade Test held in January, 1959 of which 70 came out successful. Most of them have also completed their apprenticeship training.

The second batch of trainees about 158 were admitted in May 1958 and they completed their Institutional Training in October, 1959. Out of 158 trainees admitted some left in the middle and only 110 trainees appeared for the All-India Trade Test held in October, 1959 of which 107 trainees came out successful. Some of them have been posted to various workshops for apprenticeship training.

The third batch of trainees about 118 were admitted in February, 1959 and they are undergoing training now.

The fourth batch of trainees were admitted in November, 1959. Intensive training is given both in Theory and Practice according to the syllabus. Every effort is being taken to bring the standard of training up-to-date.

GOVERNMENT GENERAL PURPOSE ENGINEERING WORK-SHOP, RAJAPALAYAM.

Machines installed in Government General Purpose Engineering Workshop :—

- (1) Electroplating Unit-I.
- (2) Electroplating Unit-II.
- (3) Shimoga No. 2 Lathe.
- (4) Metabo Pedestal Grinding Machine.
- (5) Rems Threading Machine.
- (6) Pillar Drilling Machine.
- (7) Midsaw Minor Tool Room Bandsaw Machine.
- (8) Abrasive Cutting Machine.
- (9) Polishing Motor.
- (10) Hacksaw Machine.
- (11) Sixty-tons Eccentric Press.
- (12) Portable Spray Painting Unit.
- (13) Inclined Power Press.
- (14) Guillotine Shearing Machine.
- (15) Cooper Shaping Machine.
- (16) Surface Grinding Machine.
- (17) Flexible Shaft Grinder.
- (18) Bench Type Drilling Machine.
- (19) Wolf Hand Drilling Machine.
- (20) Power Hammer.
- (21) Welding Generator set.

The following items of servicing work are being undertaken in this Unit :—

Cycle carriers—Student's carriers, sheet carriers, Students (Minor) carriers and Load carriers.

Furniture and household equipments—Racks, stools, cots, cradles etc.

Hospital equipments—Dressing trollies, instrument wall racks, wash basin stands, hospital cots, bedside lockers and stretcher trollies etc.

Electrical line construction materials—Stay sets, meter boxes and eye bolts.

Agricultural implements—Iron ploughs, Japanese rotary weeder, bund formers, buckets and spades of modern agricultural implements.

School services—In addition to the above items, the basket ball rings required by schools and window grills, gates required for the Construction Branch of the Department is being undertaken.

All kinds of servicing and jobbing works by using the abovesaid modern machineries are also being undertaken.

MODEL COMBINED CARPENTRY AND BLACKSMITHY.

Model Combined Carpentry and Blacksmithy Unit at Pettai was established at a total cost of Rs. 4.83 lakhs with financial assistance from the Central Government. This unit was inaugurated by His Excellency the Governor of Madras on 23rd July 1957. The main object of this workshop is to familiarise the village artisans in the use of modern machinery in improving quality and quantity of production. Three functions of this workshop are training, demonstration and production.

Now 23 trainees are undergoing training in the carpentry and blacksmithy section of this workshop including 5 Harijan trainees. The trainees are being given a sum of Rs. 30 per mensem towards stipend.

The unit is undertaking the manufacture of the following items of work :—

(1) All kinds of office and household furniture.

(2) Structural fabrication (trusses, steel doors etc.).

(3) Kisan charkas and spares, Amber metallic parts.

(4) Steel safe, cash chest etc.

(5) Agricultural implements of Burmese suttarn, intercultivator, garden shear and garden rake etc., bund formers etc.

(6) Design and fabrication of small machines such as circular saws, blowers, wood turning lathes, sanding machines, portable grinders, coffee tableting machine etc.

(7) Screw drivers, wood turning tools.

The following servicing facilities are also offered to private parties:—

Welding, turning, threading, machining, repairs, punching dies, jigs, frames drilling, shaping, planing, brazing and painting.

The following modern machines are erected in this workshop:—

Blacksmithy machines.

1. Spot welder.
2. Arc welder.
3. Power Presses.
4. Fly press.
5. Power Hacksaw.
6. Grinders.
7. Pneumatic Power Hammer.
8. Shaping machine.
9. Guillotine shearing machine.
10. Swaging and closing machine.
11. Bending roll.
12. Gas Welding and cutting set.
13. Spray Painting air compressor.
14. Drilling machine.
15. Super craft lathe.

Carpentry machines.

1. Spray Painting machine.
2. Circular saws.
3. Bandsaw.
4. Spindle moulder.
5. Chisel Mortising machine.
6. Thickness planer.
7. Router.

8. Drilling machine.
9. Lathes of different capacity.
10. Tool Grinder.
11. Saw Sharpening machine.
12. Bandsaw filing and setting machine.
13. Bandsaw Brazier.

Besides the above a wood seasoning plant is also proposed to be erected as an adjunct to this unit. The construction of the building will be completed shortly.

The value of production and sales during the quarter ending 31st October, 1959 is noted below:—

	RS. NP.
Production	68,994.31
Sales	73,850.01

SCHOOL OF ARTS AND CRAFTS, MADRAS.

Sti Rajendra Babu—student in painting class, won a gold medal in Punjab Fine Art Society Exhibition.

2. The students and staff of the Painting and Commercial Art sections participated in Mysore Dasara Fine Arts Exhibition by sending 79 entries for exhibition in the fine art section, like drawing, painting, textile and commercial designs, posters and sculptures.

The following are the prize winners:—

1. Water Landscapes.—R. T. Thayalan, Student, General drawing, First prize and silver medal.
2. Commercial art.—(a) Textile design, M. Chinna-durai—Student, Advanced Commercial Art, First prize and silver medal.
(b) T. G. Natarajan, Student, Second year Commercial Art, Second prize.
(c) P. C. Kurian, Advanced Commercial Art, Third prize.
(d) Mrs. S. R. Rukmani, passed out Student, Commercial Art, Highly commended certificate.
3. Posters.—(a) T. P. Palani, Advanced Commercial Art, First prize and silver medal.
(b) S. Pandarajan, passed out student, Commercial Art, Second prize.
(c) Miss Juliet Massey, Third year, Commercial Art, Highly commended.

Besides the above awards, the State of Mysore has acquired the painting "Landscapes" by R. T. Thayalan, student, General Drawing class.

The Commissioner of Police, Madras, has issued the design on "Lock your cycles" theme done by Sri P. Shanmugam, Advance Commercial Art which has been lithographed and widely used.

Sri K. C. S. Paniker, the Principal of this institution, represented India in painting in Russia.

Departmental activities for the half-year ended 30th September, 1959.

As in the past, this year also this institute imparted training to the students in the various courses. The following five courses were conducted as usual. The number of students on rolls as on 31st August, 1959 is given below, coursewise:—

	Boys.	Girls.
1 Instructor's Course in Handloom Weaving (ten months).	43	1
2 Instructor's Course in Hand Process of Bleaching, Dyeing and Printing (ten months).	12	..
3 Special Course for Weavers in Jacquard Weaving Hand Process of Bleaching, Dyeing, Printing (ten months).	10	..
4 Artisan Course in Knitting (ten months). A proposal for the abolition of the above course has been submitted to Government by the Director in his letter Re. No. 52849/N3/59, dated 9th September 1959).	..	..
5 Special Course in Powerloom Weaving (3 months).	5	..

Tests were conducted as usual during the academic year in the Textile Testing Laboratory of this institute for Government and the public. Certification of woollen druggets for export to the United States of America was continued. The inspection work of the State Aided Industrial Schools (Textile and Needle Craft Schools) was conducted by the Textile Inspector.

The Research Section of this institute which is financed from the Cess Fund has produced various designs and necessary assistance has been rendered to the handloom weavers. One hundred and twenty-two (122) patterns were produced from 1st April to 30th September, 1959. These various designs and patterns produced by the Research Section of this institute are being made into albums and the albums are being distributed to the members of the Government Textile Institute Advisory Committee, to the Presidents of the Handloom Committees of all the districts and to the weavers all over the State on receipt of requisitions from them. The free supply of good designs for their adoption is very useful to the handloom weavers who are thus greatly benefited.

INSTITUTE OF LEATHER TECHNOLOGY, MADRAS-21.

As usual there was a heavy rush for admission to the artisan course. One hundred and fifty-seven applications were received for admission to the artisan course. Twelve candidates were selected. Six candidates were given intensive training in Tanning and Finishing of various kinds of leather. They are also being taught to operate Tannery machines so that they may be useful for the industry. The remaining six students are given training at Pallavaram Fancy Leather Goods Centre—three students in the manufacture of travel requisites such as suit cases etc., and three students in the manufacture of fancy leather goods such as ladies hand-bags, purses etc. The students are paid a stipend of Rs. 30 per month.

GOVERNMENT HANDLOOM PARTS FACTORY, SALEM.

In G.O. No. 337, Industries, Labour and Co-operation (Special), dated 30th November, 1956, the Government were pleased to sanction a scheme for the establishment

of a unit for the manufacture of (1) Essential Handloom Parts such as steel reeds, take up-motion attachments, Pedal looms, etc., with a view to cater to the requirements of the States of Madras, Kerala and Mysore. The scheme involves an expenditure of Rs. 10,45,000 non-recurring and Rupees 12,20,094 recurring. The site for locating the unit was selected in the "Foulkes" Compound at Salem. The following buildings were constructed for the Unit:—

(1) Machine shop, (2) Foundry shop, (3) Smithy shop, (4) Fitting and Assembly shop, (5) Read and Heald shop, (6) Stores and Stocks building, (7) Office building, (8) Rest shed and (9) Garage.

Electrical fittings have also been completed. A well has been dug and the furniture required has been received. Machines worth Rs. 2,11,500 have been received and kept in the stock. Details of machines received are furnished in the Annexure I enclosed. The machines that are yet to be received are also furnished in

the Annexure II. Action is being taken to erect the machines received and give electric connection.

GOVERNMENT QUARTZ CRUSHING PLANT, SALEM.

In G.O. No. 762, Industries, Labour and Co-operation (Special), dated 20th September 1957, the Government were pleased to sanction a scheme for the establishment of the Unit for crushing the Quartz and Limestone and supplying the purest form of sand to the glass factories in the State. The building for the workshop and the office has been constructed in the Jagir Ammanalayan village in Salem taluk. A well has been dug and the furniture required has been received and kept in the stock. Machines worth Rs. 29,600 Details of machines received are furnished in the Annexure III enclosed. The machines, the receipt of which is expected shortly, are detailed in the Annexure IV. Action is being taken to appoint the staff and start the Unit.

ANNEXURE I.

GOVERNMENT HANDLOOM PARTS FACTORY, SALEM.

List of machines received.

- | | |
|-----------------------------------|----------------------------------|
| 1 Bias Standard machine. | 15 Tilting Furnace. |
| 2 Bench Drilling machine. | 16 Salamander Crucibles. |
| 3 Fitters Leg vices. | 17 "Sanco" Spray Painting Unit. |
| 4 Fitters Bench Vices. | 18 Fly Presses. |
| 5 Cast steel anvils. | 19 Pillar Type Drilling machine. |
| 6 Welding Generator. | 20 Cupola and Accessories. |
| 7 Tool and Cutter Grinder. | 21 Centre Lathes—8' |
| 8 Portable Crane. | 22 Do. 6½' |
| 9 M.S. Ladles. | 23 Motorised Bench Grinders. |
| 10 Fire Bricks. | 24 Pillar Chain Mortiser. |
| 11 Bandsaw Filer and Setter. | 25 Thickness Planers. |
| 12 Multipurpose Grinding machine. | 26 Gear Hobbing Machines. |
| 13 Cast Steel Swages. | 27 Chain Mortising machines. |
| 14 Truck (Lorry). | 28 Bandsaw machines. |

ANNEXURE II.

GOVERNMENT HANDLOOM PARTS FACTORY, SALEM.

List of machines ordered for and awaited.

- 1 Wood Turning Lathes—6 Nos.
- 2 Circular Saw—2 Nos.
- 3 Single ended punching and shearing machine.
- 4 Belt and Disc Sander—2 Nos.
- 5 "Pusco" Geared drive Drilling machine.
- 6 "India" make single Belt Drive Planing Machine.
- 7 Self acting reed making machine.
- 8 Cotton Heald making machine.
- 9 Mail Heald Knitting machine.
- 10 Varnishing machine.
- 11 Wire Heald making machine.
- 12 Universal Milling machine.
- 13 Bandsaw Brazing Apparatus.

ANNEXURE III.

GOVERNMENT QUARTZ CRUSHING PLANT, SALEM.

List of machines received.

- 1 Jaw Crusher—1 No.
- 2 Flint Pebbles—6 tons.
- 3 Belt and Bucket Elevators—2 Nos.
- 4 Return Elevator—1 No.

ANNEXURE IV.

List of machines expected.

- 1 "Kusum" Rotary Breaker—1 No.
- 2 "Kusum" Conical Pebble Mill—Size 636—1 No.
- 3 Silex Lining—One set.
- 4 "Kusum" Vibrating Size—1 No.
- 5 Electric Magnetic Separator—1 No.

SERVICE CENTRE FOR THE MANUFACTURE OF FARM IMPLEMENTS AND AGRICULTURAL MACHINERY, TIRUCHIRAPPALLI.

The Government of Madras in G.O. Ms. No. 170, Industries, Labour and Co-operation, dated 12th June 1956, sanctioned the establishment of a departmental service centre for the manufacture of Farm Implements and Agricultural Machinery of good quality at a cost of Rs. 5.76 lakhs. The unit is housed in a building constructed departmentally on a site measuring 4.25 acres.

During this year (April to October 1959) the following implements were manufactured at this centre:—

Rotary Weeder 6 inch and 4 inch, ICM Iron Plough No. 14, 'ICM' Medium Plough, Kisan Plough, Ridge Plough,

'ICM' Multi-purpose Plough, Burmese Suttern, Green Manure Trampler, Bund former, Seed Treating Drum, Guntakka, Buck Scraper and Mhote wheel with Ball Bearings.

The total production during this year up to October 1956 is Rs. 58,366.05 and Sales Rs. 48,311.05.

The unit is equipped with up to date machines and a foundry. A list of such machines is as below:—

(1) Ruskin Type 45 ton Power Press variable stroke with safety starting control and fly wheel.

(2) Universal Milling machine.

(3) Cooper shaping machine.

(4) A set of hardening and annealing furnaces.

(5) Power hammers of 5 cwt. and 2 cwt. along with a 60 lb. hammer.

(6) 1 to 1½ tons capacity cupola.

Apart from the implements already manufactured other improved implements are being progressively manufactured with the technical information and details obtained from the Director of Agriculture.

Apart from the regular production programme, general servicing facilities are also now being afforded to private parties and local industries at very competitive and reasonable rates.

The Governor of Madras, Sri Bishnuram Mehdi, visited the unit on 14th July 1959.

S.M.R.V. TECHNICAL INSTITUTE, NAGERCOIL.

This institute trains up students in Handloom and Powerloom Weaving. The course extends over a period of three years and the trainees are being taught theory and practice in all aspects of Handloom Weaving. The total strength of trainees in this institute is 27. The trainees are paid a stipend of Rs. 10, Rs. 10 and Rs. 15 for the I year, II year and III year respectively.

During the course of a quarter ended 31st October 1959, the trainees by way of practical training produced 194 lb. of finished articles costing about Rs. 520. The common varieties they produced are—

(1) Plain Thorthu.

(2) Towels of honey comb, Huckaback and twill varieties.

(3) Plain white shirtings and coloured shirtings in Mockleno, plain and twill combined striped effect.

(4) Coloured check pattern bed-sheets on twill and honey comb weaves and curtain cloths of fancy colours.

During this quarter finished articles costing about Rs. 475 were handed over for sales to the Department Sales Emporium at Nagercoil.

The total sales of finished articles for this period was Rs. 595 including the above transaction.

SERVICE CENTRE FOR PRESSED METAL PRODUCTS, MADRAS-1.

This Service Centre continues to assist the small industrialists in modern and economical methods of production and offers to the industrialists a unique opportunity to avail themselves of the services of costly precision machines. The centre specialises in making dies, jigs, fixtures and special tools needed by the small scale industrialists and undertakes finishing of metal parts by plating with chromium, nickel, cadmium and zinc.

The following are the main items of work undertaken in this Service Centre.

(1) Various kinds of fitting.

(2) Precision drilling.

(3) Metal cutting.

(4) Various kinds of precision lathe work.

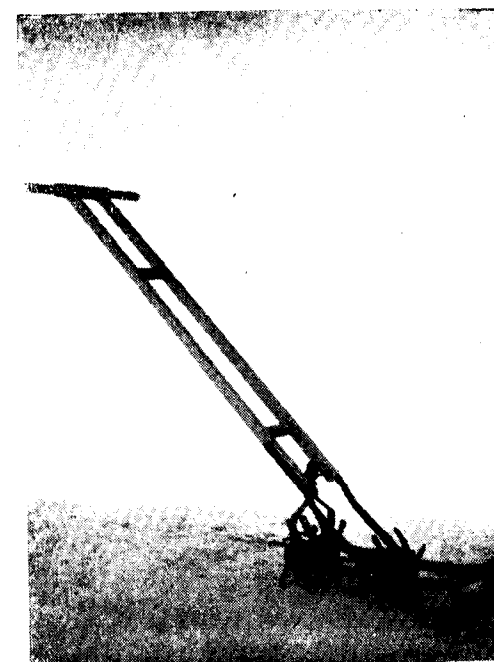
(5) Shaping work.

(6) Milling work.

(7) Shearing work.

(8) Pressing and sheet metal work with 10 tons, 40 tons, and 63 tons presses.

"SERVICE CENTRE FOR THE MANUFACTURE OF FARM IMPLEMENTS AND AGRICULTURAL MACHINERY" TIRUCHIRAPPALLI.



Rotary Weeder.



Implements displayed.

- | | |
|---|---|
| (9) Die making. | (4) Lamp shades. |
| (10) Precision grinding. | (5) Blank for insulator supports. |
| (11) Spot welding. | (6) Overhead tanks, trusses and gates. |
| (12) Arc welding. | (7) Disc plough. |
| (13) Gas welding and cutting. | (8) Chrome plating of hub caps, bumper, silencer and exhaust pipes. |
| (14) Forging with power hammer. | (9) Nickel plating of cycle pumps. |
| (15) Electroplating (copper, nickel, chromium, cadmium and zinc). | (10) Electrogalvanizing of nuts, washers, bolts and radiator caps. |
- Details of important and specialised work undertaken—
- | | |
|--|---|
| (1) Tubelight fixtures and rails. | Nearly 200 fabricators are given servicing facilities in the above work in this Service Centre. |
| (2) Washers and hinges. | |
| (3) Shrouds for transformer switch gear. | |

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Market Survey

INDONESIA.

Export of sugar mill machinery is really great in view of the fact that the main industry in Indonesia being sugar mills and the machinery being old require replacement with new machines. Naturally parts required by the sugar machinery can be manufactured in the Small Scale Units for export to Indonesia provided India were to get a major share of supply of sugar machinery.

2. Spare parts required by the oil crushing machineries can also have a good export market to Indonesia from Small Scale Units.

3. Small tools and carpenters tools.

4. Air break switches, oil circuit breakers etc.

5. Small H.P. motors.

6. Bicycle parts.

7. G.I. buckets and tin containers.

8. Aluminium ware.

9. Builders hardware.

10. Bolts and nuts.

NEW ZEALAND.

There appear to be good scope for export of the following items under Small Scale Industries to New Zealand:—

(1) Automobile parts, especially suitable for English-make cars.

(2) Small tools of all types like carpenters tools, builders hardwares, saws etc.

(3) Electric motors.

(4) Electric wires and cables.

(5) Cycle parts.

(6) Hurricane lanterns.

(7) Builders hardware.

(8) Bolts and nuts.

FEDERATION OF MALAYA AND SINGAPORE.

(1) Electric wires and cables.

(2) Storage batteries.

(3) Bicycle and bicycle parts.

(4) Steel furniture.

(5) Galvanised buckets etc.

(6) Safety razor blades.

(7) Builders hardware like locks, hinges, tower bolts etc.

(8) Bolts and nuts.

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C. P. G. NAIR, MANAGER.

ADMINISTRATION REPORT

Industries Department in 1958

Some salient features reviewed

The Administration Report of the department of Industries and Commerce for the year 1957-58 has been reviewed by the Government and the following are some of the salient features:—

There were two commercial concerns under the control of the department during the year, viz., the Government mineral concern, Manavalakurichi and Government Industrial Engineering Workshop, Madras, the working of both showed a profit. A total quantity of 11,501 tons of clean ilmenite was recovered treating 28,152 tons of raw sand. One hundred and thirty-one tons of monazite was produced by working two shifts per day. The average number of labourers employed per day during the year was 153. The average cost of production per ton of ilmenite was Rs. 33.50 yielding a profit of Rs. 10 lakhs for the year. The working of the Government Industrial Engineering Workshops, Madras, resulted in a net profit of Rs. 35,000 for the year under review.

Towards the implementation of Small Scale Industries Schemes, the department spent Rs. 102.19 lakhs during the year and in addition disbursed a sum of Rs. 24.84 lakhs as loans to 3,401 Small Scale Industrialists under the State Aid to Industries Act.

The following schemes which were sanctioned during the previous years were in progress during the year:—

Service Centre for Hand Tools Unit, Guindy; Service Centre for Wood Working and Seasoning with a Saw Mill, Guindy; Model Carpentry Workshops, Krishnagiri and Pattamadai; Model Combined Work-

shops for Carpentry and Blacksmithy with mobile units, Pettai and Cuddalore Government Handmade Match Factor Perambur; Service Centre for Press Metal Products, Wall Tax Road, Madras Service-cum-Training, Centre for Leather Industry, Dindigul; Service Centre for Hurricane Lanterns, Palni; General Purposes Engineering Workshop, Rajpalayam; General Purposes Engineering Workshop, Vellore; Footwear Production cum-Service Centre, Perambur; Model Footwear unit, Triplicane.

Industrial Estates and Colonies

During the year under review 52 factory units consisting of 12 A type, 13 B type and 27 C type had been completed in the Industrial Estate, Guindy. The allottee started moving to the estate from November 1957 and by the time the estate was inaugurated by the Prime Minister of India on 7th January 1958 they had made considerable progress. The construction of two factory units was completed in the Industrial Colony at Erode. In respect of the other estates or colonies at Virudhunagar, Madurai, Erode, Tiruchirappalli and Marthandam, the building works were in progress.

Industrial Co-operatives

During the year 1957-58 sanction was accorded for the formation of the following Schemes:—

Lock Workers Co-operative Society Dindigul; Sriperumbudur Bolts and Nut Co-operative Society; Reorganisation of the Perambur Arunthathiyar Leather Workers

Co-operative Society; Conversion of the Kumbakonam Metal Works Limited into a General purpose Engineering Workshop; Establishment of three Match factories on Industrial Co-operative basis at Kulasekarpattanam, Tiruchendur and Pattukkottai; Provision of additional machines for the Thalaiyuthu Timber Workers' Co-operative Society; Training in tailoring in Women Cottage Industries Co-operative, Madras. A total expenditure of Rs. 7.84 lakhs was drawn in favour of these societies during the year.

Sales Depot

With a view to provide adequate marketing facilities for the sale and display of the departmental products produced, the Government sanctioned the establishment of a Sales Emporium at Madras.

Village oil Industry

During 1957-58 the department has started 16 new Wards Ghani demonstration units in addition to the 23 centres already in existence. These centres were intended to demonstrate to the local oil pressers the economics of Wardha Ghanies and to train the oil pressers and carpenters in the operation and manufacture of improved type of ghanies. The ultimate aim is to hand over these centres to industrial co-operatives formed with the local oil pressers as members.

The departmental demonstration centres trained 412 oilmen, converted 108 old ghanies into Wardha type ghanies and installed 92 new ghanies. The value of oil and cake produced during the year amounted to Rs. 1,74,861. Out of the two ghani manufacturing centres one centre started work with effect from 9th December 1957 and manufactured 5 improved type ghanies. An amount of Rs. 1 lakh was disbursed as working capital loan to 14 co-operative

societies and a sum of Rs. 12,000 was disbursed as rebate on production and retail sale of oil.

Bee-keeping Industry

Schemes for the development of the Bee-keeping Industry in the selected Community Development Blocks were taken for implementation during the year. The programme envisaged distribution of bee-hives by the field staff appointed for the purpose. Provision was made for the distribution of 300 hives in each of the selected blocks and for the appointment of a bee fieldman to attend to the colonisation work. Initial work in regard to distribution of hives was taken up in 15 Community Development Blocks during the year.

Soap-making with non-edible oils

During 1957-58 one 'A' class soap unit with a capacity of 30 tons of soap, one 'B' class unit with a capacity of 16 tons and 12 'C' class units with a capacity of 8 tons each were sanctioned at an estimated cost of Rs. 2,86,500. One 'A' class unit and 10 'C' class units just commenced production during the year. These units will go to full production during 1958-59.

Hand-pounding of Paddy Industries

The programme of development of hand-pounding of paddy industry during 1957-58 consisted of the following :—

(a) Disbursement of working capital loan to co-operative societies; (b) supply of equipment to co-operative societies and registered institutions at 50 per cent cost; (c) sanction of production subsidy to co-operative societies and registered institutions; and (d) establishment of a departmental production centre at Tiruchendur in Tirunelveli district.

A sum of Rs. 4,45,000 was sanctioned as working capital loan to the co-operative societies. Six-hundred chakkies and 40

winnnowing fans were distributed at subsidised cost to the co-operative societies and to private individuals engaged in the industry.

Village Pottery Industry

Schemes for the development of pottery industry taken up for implementation during 1957-58 consisted of the following :—

(a) Establishment of three model production centres in North Arcot, Tanjore and Tirunelveli districts; (b) establishment of three training-cum-production centres in Tiruvallur, Panruti and Usilampatti blocks; (c) establishment of making unit in Vedaranyam block, Tanjore district; (d) demonstration of the improved methods of lac-coating on earthen wares in ten selected co-operative societies scattered throughout the State.

To revive and improve the many handicrafts native to this State, the department sponsored and implemented a number of schemes, establishing training or training-cum-service centres at appropriate places for sculpture and casting moulds at Mahabalipuram, artmetal work at Swamimalai, bell-metal work at Nachiarkoil, manufacture of ornamental handles and bamboo articles at Madurai, rattan industry at Wallajahpet, for palm-leaf products at Pallappatti, Chittarakottai and Manappad, manufacture of cots, etc., from Palmyrah strips at Manamadurai and Nazareth for Papier mache articles at Panruti and Tanjore, for manufacture of wooden toys at Erode, for cloth dolls at Tirunelveli, for printing and dyeing at Rajapalayam, for Sungudi Saree printing at Kadayanallur, for Kalamkarai printing at Sikkinaickenpet, for lace and embroidery at Palayamkottai and Gobichettipalayam, for glass bangle industry at Nedumarathy, for weaving cumblies carpets, etc. at Kolakudy, for weaving

druggets and carpets out of sun-hemp fibre at Gopalsamudram and a demonstration centre for palmyrah fibre extraction at Tiruchendur and Chennamalai.

Sericulture

The Sericultural section continued its activities in Coimbatore, Salem and Nilgiris districts and the industry was revived in the Tenkasi taluk, Tirunelveli district and in the Gudiyatham taluk, North Arcot district. The total area under mulberry cultivation as on 31st March 1958 was 1662.83 acres.

Gut Manufacturing Section, Coonoor

The total yield of mulberry leaves was 21,400 lb. and the section produced a quantity of 69,100 guts of 12 inches to 14 inches fine, medium and coarse varieties. A quantity of 76,788 guts was supplied to the State hospitals and Medical Stores Depot, Madras from the past and present stock. The Animal Husbandry department and the Local Fund Hospitals have been patronising the gut manufacturing section. The Government of India in the Ministries of Commerce and Industry and Food and Agriculture and the Director-General of Supplies and Disposals have recently been addressed to take their requirements of guts from the State Government. A sum of Rs. 0.386 lakh was spent on the section.

Technical Education

The Polytechnics were under the control of the Industries and Commerce department, Madras, till 13th October 1957 and they were transferred to the control of the Department of Technical Education which came into existence from 14th October 1957. During the year under report, the three Government Polytechnics, the Central Polytechnic, Madras, Government Polytechnic, Madurai, and Government Polytechnic, Coimbatore, worked satisfactorily. Besides

there were eight private polytechnics in the State at the commencement of the year, two at Madras, one each at Coimbatore, Pollachi, Tiruchirappalli, Chettinad, Chingleput and Karaikudi. There was rush for admission to the polytechnics during 1957-58 as usual. The technological Diploma Examination Board conducted the diploma examination in April 1957 for the students studying in various diploma courses in private and Government Polytechnics, in the State as well as for the polytechnics at Kozhikode (Malabar State) and Mangalore (Mysore State) at the request of the respective State Governments. One thousand four hundred and forty-two students appeared for the examination conducted by the Board out of which 605 came out successful.

The four Government Industrial Schools at Cuddalore, Virudhunagar, Palayamcottai and Nagapattinam which are imparting training in various certificate or artisan courses continued to function satisfactorily besides the following six Industrial Training Institutes Centres transferred from the Government of India to the control of this Government :—

Industrial Training Institute, Madras; Industrial Training Centre, Strathie Co-operative Engineering Workshop, Madras; Industrial Training Centre, Andhra Mahila Sabha, Madras; Industrial Training Centre, Government Polytechnic, Coimbatore; Industrial Training Centre, Tamilnad Polytechnic, Madurai; Industrial Training Centre, Pioneer Motor Service, Nagercoil. The Industrial School Sections attached to the three Government Polytechnics at Madras, Madurai, Coimbatore also functioned satisfactorily. During the year under review the Government of India sanctioned a scheme for the conduct of evening classes for the industrial workers at Industrial Training Institute, T'Nagar at a total cost of Rs. 1.361 lakhs during the Plan period.

Institute of Leather Technology, Madras

During the year under report three certificate course candidates appeared for the examination and all the candidates have come out successful. During this year 12 candidates were admitted to the Artisan Course and 11 candidates have been continuing their course in the second year. Two tanning demonstration parties were functioning in the year under report. The parties conducted demonstration in flaying, tanning, etc., in Vedamalapuram in Sivakasi and Thumbalam in Musiri Blocks. The object of the demonstration parties is to see that each village becomes self-sufficient in tanning of skins and hides of the village for various uses and to turn out useful leather articles from the leathers so tanned and to keep the members of the professional community well informed of the modern methods of manufacture of different classes of leather.

Government Textile Institute, Madras

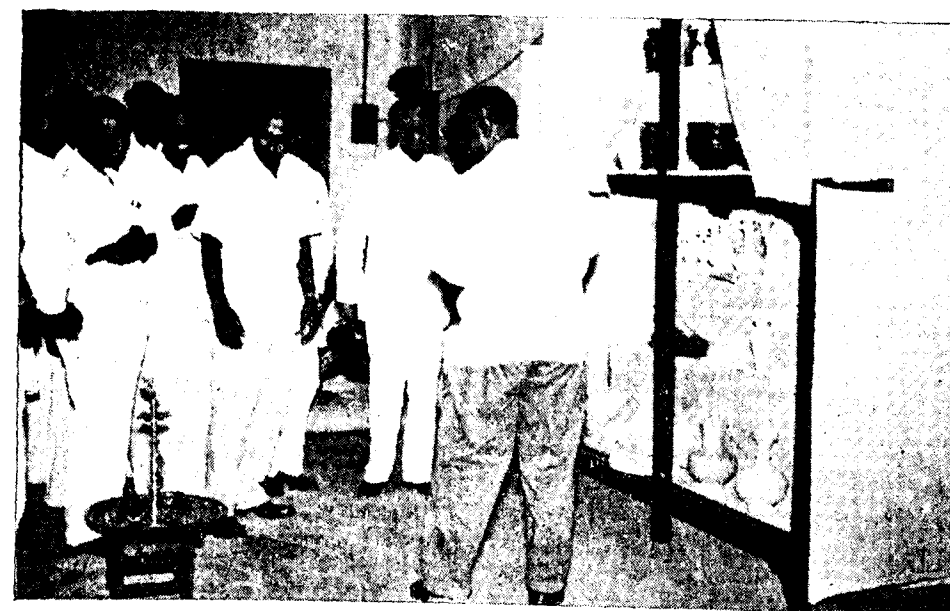
As usual the Institute continued to conduct the undermentioned courses of instruction :—

- (i) Instructor's course in handloom weaving—Ten months.
- (ii) Instructor's course in hand process of bleaching, dyeing and printing—Ten months.
- (iii) Artisan course in knitting—Ten months.
- (iv) Special course in powerloom weaving—Three months.

Testing Laboratories

During the period under report tests were conducted in the Laboratory as usual for Government departments and the public.

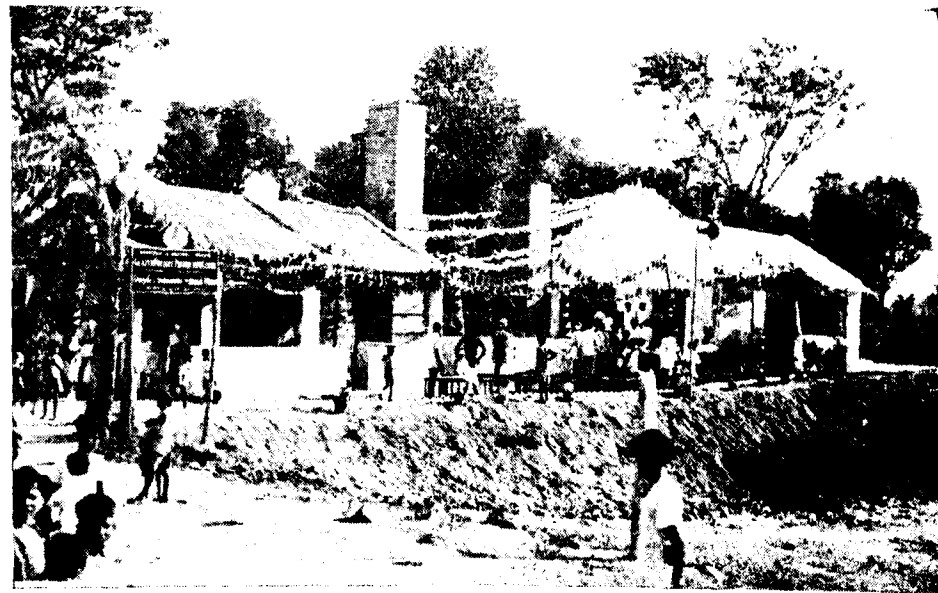
INDUSTRIAL CO-OPERATIVE CENTRE—KARIGIRI.



Sri R. Venkatraman, Minister for Industries, Madras, inspecting the products made in the Centre.



Minister addressing the meeting.



The centre Industrial co-operative—Karigiri Potters' Co-operative Society — Production Centre for Manufacture of Glazed Ware.

The Dyeing section of this Institute dyed small quantities of yarn received from the Industrial Schools and from the Vigilance Home, Madras. The Reorganised Research Section produced several novel and attractive designs, such as towels, counterpane bedspreads, coating and shirtings, lungies, and Madras handkerchiefs of attractive designs. Patterns and other designs produced in this section were made available, to the weavers, private dealers and co-operative societies. The demonstration conducted by the Peripatetic Weaving Party attracted good number of hand-loom weavers. They showed keen interest in watching the demonstration. The weavers also were given chances to acquaint themselves with the latest appliances and to work practically on the looms erected by the party. During the period under report, the Sub-Committee appointed by the All-India Handloom Board, visited this Institute in January, 1958, to finalise the question of taking over the Government Textile Institute by Government of India.

School of Arts and Crafts, Madras

The average attendance of the students during the year under report was 269.9 as against 266.6 during 1956-57. The students enjoyed scholarships from various sources such as scholarships awarded by the Industries Department, Harijan Welfare Department, Victoria Technical Institute and

Dr. Rangachari Scholarship. The staff and students of the Fine Arts Section have, as in the past, taken keen interest in distinguishing themselves by taking part in competitive exhibitions conducted in important centres in the State and outside.

Chemical Testing and Analytical Laboratory, Madras

During the year under review, the Laboratory analysed 465 samples, offered 176 technical opinions and collected fees amounting to Rs. 8,470-11-0. The collection of fees is on the increase as shown below :—

1955-56—Rs. 7,108-00; 1956-57—Rs. 8,868-00; 1957-58—Rs. 8,470-11-0.

The laboratory continues to help the Stationery Department of Government of Madras and Andhra Pradesh by analysing Tender samples of inks. The services of the laboratory were availed of by the Government of India, Ministry of Food, throughout the year and the laboratory has analysed a large number of fertilisers samples for the said department. Apart from the above, there have been many constant customers among industrialists such as Anglo-French Textiles, Limited, Pondicherry, etc., throughout the year. The Indian Standards Institution had also agreed to get its samples tested at this laboratory.

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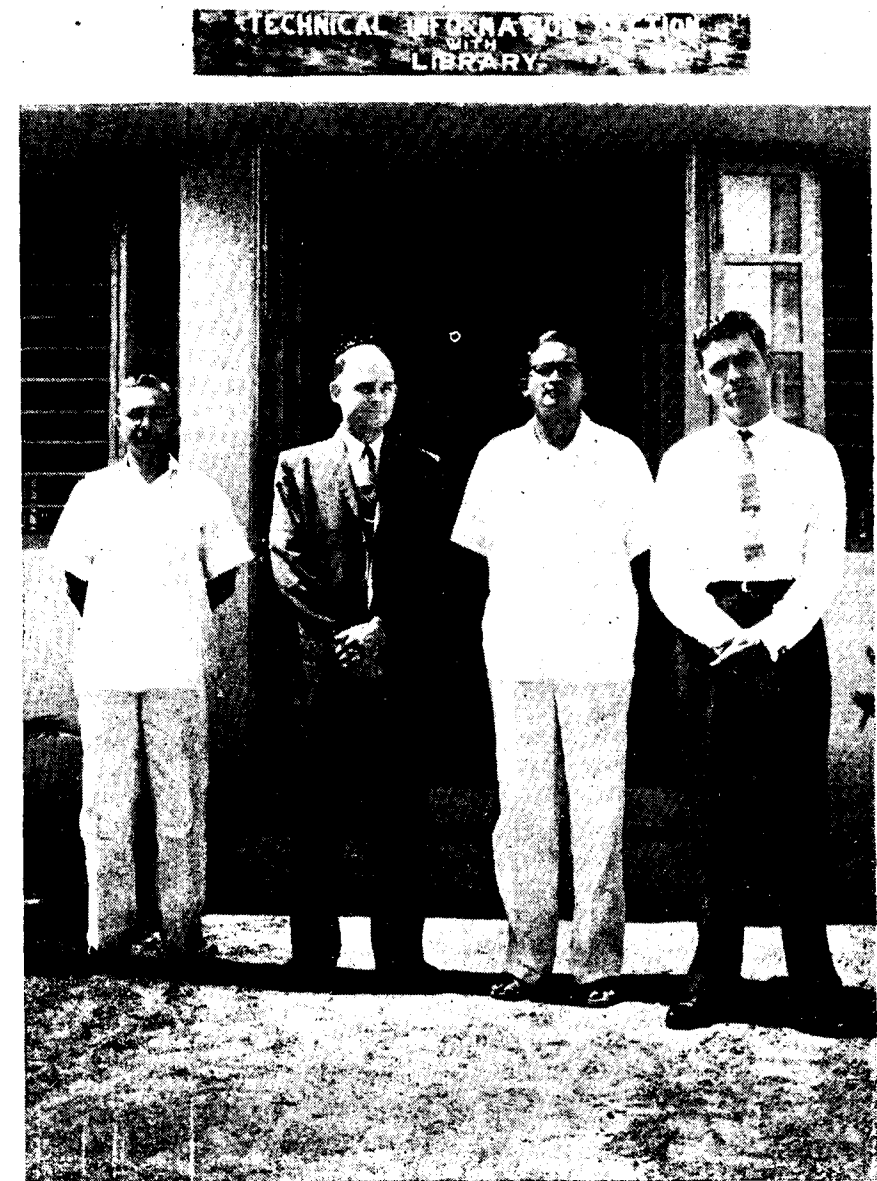
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10. C-1 Licence (Chloral Hydras).

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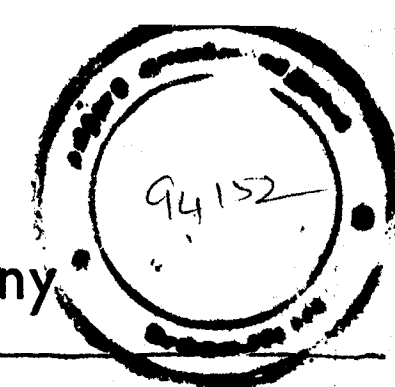
Mr. Sanders Economic Councillor to American Embassy At New Delhi, visited the Industrial Estate, Guindy, on 20th October 1959 (second from left).



Sri K. T. Sataravala, I. A. S., Chief Controller—Imports and Exports, New Delhi, visited Industrial Estate, Guindy, on 7th November 1959.

**INDUSTRIAL
MISCELLANY**

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Industrial Miscellany

PROGRESS OF PLAN SCHEMES.

The State Development Committee reviewed the progress of the Second Five-Year Plan schemes for the half-year ended 30th September 1959, during its two-day session on 24th and 25th November, in the Cabinet Room, Secretariat. Sri K. Kamaraj, Chief Minister, presided. Sri T. N. S. Raghavan, I.C.S., Chief Secretary, and other Secretaries to Government were present.

The Committee noted that the progress of expenditure on Plan schemes was very encouraging. In respect of building programmes, the Committee called for greater economy in the use of iron and steel. The progress made by Government Footwear Unit was noted with satisfaction. The Government Footwear Unit was looking forward to getting substantial export orders. It was also noted that factory space in both Virudhunagar and Madurai Industrial Estates has been fully utilised. Generally speaking, the Small Scale Industrial Units run by the Government appear to have solved their problems of marketing and have started working on commercial lines.

IT'S IN THE BOOK

In these days when industries are spreading, when scientific discoveries are crowding in, no business, however small, can afford to remain ignorant of affairs in general.

And it is the library which should collect the information.

The library attached to the Technical Information Section, Industrial Estate, Guindy, is well equipped with many modern books and valuable journals which provide a fund of industrial information. The numerous magazines, that are being daily received, cover a wide variety of subjects very useful for any small-scale industrialist.

A GOOD DESIGNER

Every factory needs a designer. Of all the experts in any industry, the designer makes a significant contribution to its growth. Some firms do not seem to attach much importance to the aspect of design policy, whereas high attention is being paid to matters of production or marketing. It is only the work of the designer in any industry that will be most apparent to the customer. A good designer is an asset to the industry.

FOUNDRY FORGE PLANT

A detailed project report for the foundry-forge plant has been received by the Ministry of Commerce and Industry from the Techno-Expert of Czechoslovakia and has been sent to the Heavy Engineering Corporation at Ranchi for examination.

The project, which will be located near heavy machine building plant at Ranchi, will serve as a metallurgical base to the latter. The plant is expected to start production by the middle of 1962.

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INDUSTRIAL FILMS

Industrial Films

ESTATE THEATRE.

Review of the films shown at the Technical Information Section Industrial Estate, Guindy, during October-November 1959.

MACHINE TOOLS.

Special show.

5th October 1959—English—20 minutes.

PRODUCTIVITY-KEY TO PLENTY.

Live sequences and animated charts show limitations of Productivity in the America of 1850's and how the Industrial Revolution (1850-1900) brought new inventions, development of power-driven machinery and new Technical skills which improved living standards. This Film traces American economic progress to modern-day peaceful application of atomic energy in medicine, industry and agriculture.

7th October 1959—English—Colour—20 minutes.

PRINCIPLE OF ELECTRICITY.

Antimated drawings explain the nature of electrical energy, its generation, units of measurements, harnessing and transferring Electricity for practical use.

7th October 1959—English—Colour—20 minutes.

BORDER WEAVE.

The theme of this film of the Scottish Woollen Industry is the weaving of Border Cloth.

From the preliminary grading and scouring of the wool, the blending of dyes and the spinning of yarn—each process is described in detail.

14th October 1959—English—Technicolour—16 minutes.

COLOUR IN CLAY.

A film of potters at work. They use modern scientific methods and machinery but, like their forefathers, those craftsmen are artists. The art of the potter is centuries old. English pottery is beautiful in shape and design; it reflects the colour of the English countryside.

14th October 1959—English—Technicolour—16 minutes.

RIVER VALLEY PROJECTS.

(Produced in India.)

Among the greatest projects for human welfare ever envisioned are the Government of India's plans to chain the mighty rivers of India, to turn them into servants rather than masters of men. This film portrays the various River Valley Projects of India, showing scenes of Hirakud, Damodar and other achievements.

21st October 1959—English—19 minutes.

U. S. LABOUR UNITS.

A filmed report on the merger convention in New York City in December 1955 in which the American Federation of Labour and the Congress of International Organizations united under the Presidency of George Meany following a 20-year split. Covers the AFL and CIO preliminary meetings, proceedings of a joint session, including a telephoned message by President Eisenhower and address by IOFTU President Becu of Belgium. Focuses on various labour leaders from all parts of the world who attend the event as guests of American labour.

21st October 1959—English—10 minutes.

SAFETY IN THE SHOP

Shows how a sixth-grade class undertook and followed through to complete a project on safety. Pictures the children as they sketch on a table map their routes to school, analyse comparative routes, decide on the safest routes form into committees, draw individual maps and take their maps home for their parents' inspection and approval.

4th November 1959—English—20 minutes.

HOW A BICYCLE IS MADE

The process of manufacture is traced from the beginning; the design on paper and the raw materials. We see what goes to make the steel tubes of the frames; the handlebars, the gear wheels, the pedal cranks, the pedals, the spokes and the hubs, until at last the complete bicycle is ready for testing.

11th November 1959—English 17 minutes.

LOOKING THROUGH GLASS

Britain has attained a leading position in the manufacture of glass. Sand purification is carried out on a considerable scale. There are shots of furnaces, of bubbling molten glass, of glass being ground and polished and of the cutter at work. Scientific instruments and perfectly balanced lenses are made in Britain today.

11th November 1959—English 17 minutes.

PRECISE MEASUREMENTS FOR ENGINEERS

The film shows the importance of accurate precise measurement in all phases of industrial modern engineering and the

ultimate responsibility of the National Physical Laboratory for maintaining accuracy in standards of measurement.

18th November 1959—English—32 minutes.

RECREATION FOR FACTORY WORKERS

While recreation is not the answer to all labour management problems, relaxation is an important factor in stimulating productivity and on-the job satisfaction. The film shows how a workers' union helped to organize such facilities in a small plant in California.

25th November—1959—English 20 minutes.

SERIES AND PARALLEL CIRCUITS

An electrical film: Takes up the relationship between resistance, current and voltage in series circuits and then in parallel circuits. The practical advantage and disadvantage of each circuit is illustrated and clarified with common examples, simple series parallel combination is then described and explained.

25th November 1959—English 11 minutes.

MEMO. FROM THE EDITOR

Film shows are regularly conducted at the Technical Information Section Library, Industrial Estate, Guindy, once a week on every Wednesday, usually commencing at 5-15 p.m. Films of industrial interest are shown and these provide a wealth of information to industrialists. Occasionally special shows are also conducted and the date and time are notified to all the units in the Estate. The Editor appeals that all the unit industrialists may avail of the opportunity.

BOOKS

Books

HANDBOOK OF I.S.I. PUBLICATIONS.

The Handbook of I.S.I. Publications, 1959 edition; an up-to-date reference book pertaining to all publications of the I.S.I., I.S.O. (International Standards Organization) and I.E.C. (International Electrotechnical Commission) has been released by the Indian Standards Institution. The Handbook is divided into the following four parts:—

Part I—I.S.I. Publications: Contains brief reviews of all the Indian Standards published or to be published, numbering 1,334. Reviews of other I.S.I. publications, as Bulletin, Reports and Handbooks issued by the I.S.I. are also included.

Part II—I.S.I. Certification Marks: Contains brief information about the I.S.I. Certification Marks Scheme and a classified list of manufacturers holding licences under the I.S.I. Certification Marks Scheme.

Part III—International Standardization: Gives information about Technical Committees and publications of I.S.O. and I.E.C.

Part IV—Index: Gives an exhaustive alphabetical index of all the publications reviewed in the Handbook.

In the foreword to the Handbook, Shri Lal Bahadur Sastri, President, I.S.I. and Minister for Commerce and Industry, Government of India, commends the usefulness of the book in the following words:—

"The Handbook of I.S.I. Publications, 1959, provides a convenient and up-to-date reference manual for standards issued by I.S.I. and by I.S.O. and I.E.C. It lists 1,334 Indian Standards giving a short explanatory note with each to indicate the field covered by the standard. It also gives reviews of 68 I.S.O. recommendations and 93 I.E.C. publications. The Handbook, which is the fourth to be issued by the I.S.I. should be of particular interest to producers, traders, technologists, technical and research organizations, purchase departments of The Union Government and State Governments, local bodies and trade associations. It deserves careful study to enable its best use being made, specially in purchase and sale of goods covered by the standards reviewed in it."

Copies of the Handbook, published in the convenient A-5 size and priced at Rs. 3.00 per copy can be had from the I.S.I. Branch Office, 2/21, First Line Beach, Madras-1.

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**NEWS
DIGEST**

Switzerland, West Germany and Japan. The Centre, besides collecting data will help in establishing contacts between Indian and foreign industries.

"OCCUPATIONAL DICTIONARY" — COMPILATION BY GOVERNMENT.

An Occupational Code containing definitions and information relating to various jobs in the different fields of employment is now under preparation by the National Employment Organization. Undertaken as a scheme under the Second Five-Year Plan, the Code, which is described as a sort of "Occupational dictionary" is compiled on the basis of classifications and coding observed by the International Labour Organization. It will contain information about trades and vocations, hiring requirements and standards of performance required. So far as the Madras State is concerned the District Employment Officer (Occupational Research and Analysis) is engaged in the study of the different occupations and has so far prepared, on the basis of field observations and expert opinion, draft definitions for nearly one thousand occupations as the contribution from the State Directorate of Employment. Those and similar contributions from other States will be compiled by the Directorate-General of Employment in Delhi and the "Occupational dictionary" issued. The dictionary is expected to be ready in about a year.

GOOD OVERSEAS DEMAND FOR FRUIT INDUSTRY PRODUCTS.

While the inland market is taking increasingly to fruit juices, powders and preserves, the market abroad, particularly in Europe and Australia, is also showing signs of considerable growth. East Germany, for instance, has been showing keen interest in products of fruit industry, in particular, lime concentrates. South India is at an advantage in this matter producing as she does nearly half of the country's total of lime fruit. In European countries and Australia,

the demand for pickles, preserved chutnies —hot as well as sweet—curry powders etc., it is stated, has been developing steadily. The demand for dried preserves (Vattal in Tamil) from South-East Asian countries has also been increasing. This last-mentioned line of production, however, still awaits proper organization. Efforts are now made to improve the packing of these products, using polythene or aluminium-foil laminated bags, and also to keep the colour of these preserves to make them attractive.

HEAVY ENGINEERING PROJECTS— CZECH OFFER OF AID.

The Czech Economic Mission is understood to have offered India credit to the extent of Rs. 25 crores for the execution of some heavy engineering projects during the Third Plan and another credit of rupees five to eight crores for setting up of some medium and consumer goods industries. These credits are in addition to the one Czechoslovakia has already offered for the first stage of the foundry forge.

CREDIT TO SMALL INDUSTRIES Role of State Bank.

Addressing the members of the Small-Scale Industries Association, Mr. J. L. Bagga, Secretary and Treasurer, State Bank of India, Madras, on 25th November 1959 said that the scheme inaugurated by the Bank in 1956 in connection with the provision of credit to the small industrialists had made considerable progress and up to the end of September in 1959, the total amount granted throughout the country was nearly Rs. 3½ crores. This covered advances ranging from Rs. 300 to rupees five lakhs.

Mr. Bagga said that the Government of India attached great importance to the promotion of small industries and the scheme of providing credit facilities to those engaged in them was started in 1956. The Bank was not satisfied with the amount so far spent under this scheme and it was striving

to achieve better results in the coming years. The role of the State Bank of India primarily was to provide working capital for the Industries. The small-scale industrialists were doing good work and in Madras State, they had shown good progress. The Bank had considerably liberalised its terms of giving loans to small-scale industrialists, but still it had not come to a stage wherein it could advance money to "a mere idea", as in foreign countries.

Mr. Bagga said that the latest development in regard to promotion of small-scale industries was that the Reserve Bank of India had come forward with a scheme of

guaranteeing the advances made by banks, to a certain extent. The State Bank had also worked out a scheme in respect of medium-term advances under which money could be given to small-scale industrialists for a period between three and seven years. This was necessarily, at this stage, confined to industries already in existence and the performance of which and market ability of whose products could be assessed. The State Bank, he said, was not guided by profit motive but was interested in the development of small industries. The small industrialists in India had a bright future if they ran their business on right lines and kept a high standard.

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