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Small Industry

Editor

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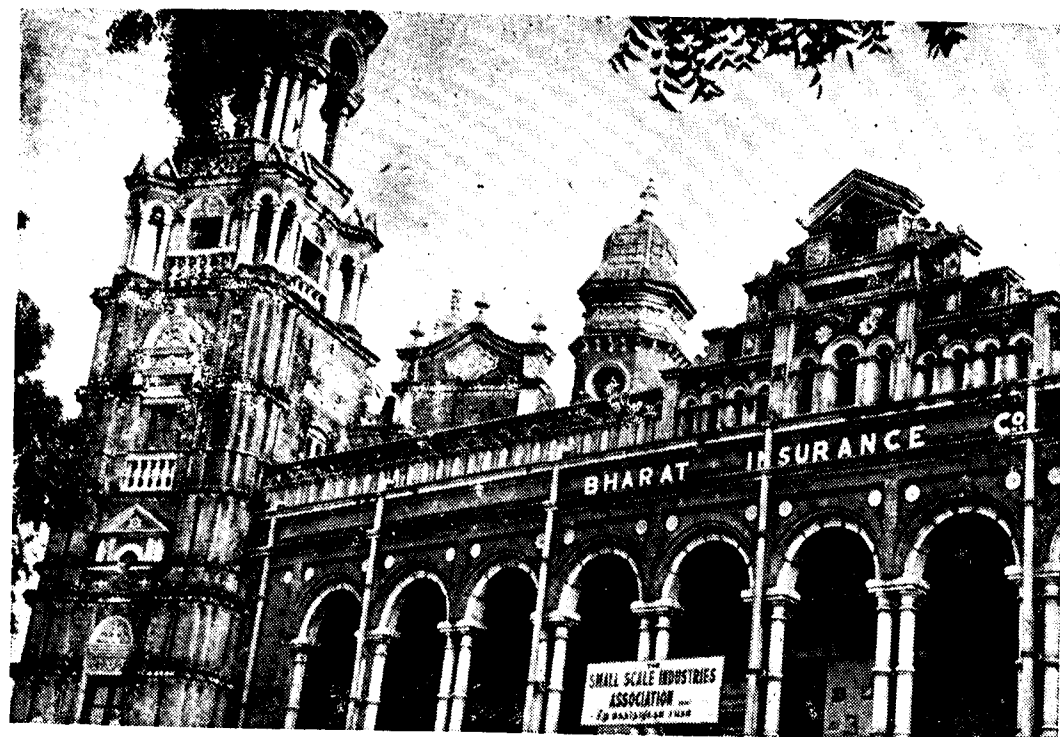
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The Premier magazine
devoted to the development

of Small Scale Industries
village Industries & Handicrafts

A view of our new premises "Bharat Buildings", Mount Road, Madras-2.



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Individual character must improve if the Nation's Character has to improve. Recently a modern poet has addressed solemnly "Character! Where art thou? Why are you skulking now-a-days? Why are you putting on the garb of hypocrisy like a tiger in the skin of a cow? Why are you covering up your true beautiful colours and charming face explaining it away as the necessity of tact and expediency?" In this strain not only the poet but every honest common citizen is now deploring the present state of affairs.

We are not concerned with the visible lack of character in Political, social and economic aspect of common man's life with particular reference to Educational, public health P.W.D., Forest, Electricity planning and development co-operative societies, Election, Major Industries and their labour departments of the Government; but we are deeply interested in the same pertaining to Small Scale Industries existing and yet to come into existence and the concerned Small Proprietors and their enthusiastic willing labour,

Just as very rich people have unscrupulously taken advantage of the Building Co-operative Societies to borrow money at very nominal interest from the Government to have their Palatial buildings constructed, utilising their own funds either to lend in the market at greater interest with fleecing terms for repayment or to venture into more profitable business where money could be made on the present prevailing conditions of scarcity and demand, now they are entering into the field of Small Scale Industries either starting them on their own, exploiting workers, artisans and specialists or by putting up name boards to acquire the facilities and advantages offered to genuine small scale industrialists. Some of them are not satisfied with only one Industry but are spreading their tentacles to a number of Small Scale Industries or business houses to avoid the taxation at higher slap on cumulative profits of one major Industry and to draw the benefits of advantages afforded to small Industries through different channels to the same source. Influence and money are able to achieve their ambitions better than the integrity of the character of simple minded persons who have a genuine desire to earn their living honourably by their hard work. Unfortunately the

Government has to handle public funds and they have to be the trustees of the public to utilise the funds for the best advantages of the entire public, the poor and the rich without fear or favour and should try to achieve "WELFARE STATE" and "SOCIALISTIC STATE" with these meagre funds available and so every pie should be spent usefully and Prudently without waste or Callousness. This requires the genuine interest on the part of the Government officers and the public to co-operate with each other mutually and uphold the dignity of each transaction to spend the money with integrity of character, fully realising the responsibility involved and prosecute their work conscientiously.

We have been hearing of late colossal waste of money in so many Government projects. Particularily the report published on the working of the Mysore Government Schemes and dam in Hyderabad, and audit reports published on Hirakud, Damoddor Valley and the other major projects are all eye-openers to the efficiency with which the money for the plans is being spent and the avoidable wastage that has come to light. When crores of rupees are going down the drain the economy and the stinginess in spending is being resorted to in the case of the development of Small Scale Industries and Handicrafts. It is always wise to have unofficial bodies vested with more powers to inspect and review the progress and development of the Small Scale Industries. Real genuine representations of Small Scale Industriolists who have a sincere interest to uplift the cause of the underprivileged Small enterpreneurs have to be selected on such bodies instead of throwing these crumbs of office to influential friends of the appointing authorities or to vested interests with individual axes to grind for individual benefit. Men in public bodies have to work for the common good of the public and such bodies should not be reduced to "petition-houses" to have the personal grievances redressed or to acquire individual popularity and positions. In the same way it is also advisable to have the co-operation of the specialists for efficient working of the individual industries. Every one, both from public and the Government, should go to the succour of any unfortunate industrialist who is in cold ruins and collapsing for want of genuine orders without earnest money and security deposits to keep the idle labour engaged, cutting off the length of the red-tape and unleashing the texture of the red-tape strings attached, official or unofficial before he becomes an industrial corpse and is taken for cremation,

Character! You alone can save the rot! You have to get active and stop Devils quoting scriptures, prevent honest men with God-good getting converted into Devils and starting bargaining with God in Heaven or demi-Gods on earth for materialistic favours like import licences quota certificates and other aids if not at State level, and at Centre Delhi level whether others have faith in you or not. We, small Scale Industrialists as a body have more faith in God and so please do

Heavy Sides

N. Rangarajan

In our last article we studied about the manufacture of Light Sides. We shall now consider the manufacture of the Heavy Sides. It is usual among the tanners to have three types of Heavy Sides depending on the damages to the skin of the animal when alive. The three types of Heavy Sides are:—

1. Water Proof Sides;
2. Elk Sides;
3. The Re-Tan Sides.

Let us now go seriatum and study the three types individually.

1. *Water proof sides*:—500 lbs. of Stocks are placed in the Tan drums with 65 gals. of water and 3½ gals. of Chrome Tan Liquor. The stocks are milled for two hours. They are then removed from the Tan drum and piled and left to drain for 24 hours. The next day they are again put back into the Drum and flooded with water. 7½ lbs. of Carbonate of Soda dissolved in 10 gals. of water is then added to the drum through the axel of the drum. The Milling is done for 30 mts.

The stocks are then washed with water at 65°F for ½ hour and again in water at 15°F. (Note: 1. The regular water proof sides are not coloured in the drum. 2. The colour is always applied on the grain side after it is stuffed. 3. This operation is done on the table.) When the stocks are neutralised and washed they are removed from the drum and piled for the night. The next day they are again put in the drum and milled for 10 mins. after they are pressed in a Hydrolic press. After milling they are removed from the drum re-damped with hot water and piled down to drain for the night covered with a damp Burlap. The next operation is stuffing.

The stuffing drum is heated well with steam. 25 lbs. of wool-grease, 25 lbs. of Tallow, 50 lbs. of stearine and 8 lbs. of waterless moellon are thoroughly mixed together after melting the grease. The mixture is placed into a drum containing 500 lbs. of sides, i.e. about 35 sides. The tempe-

come back to us and we are certain you would immediately take possession of us as a body and uphold our prestige and position in the eyes of the public and put us on a higher pedestal which we richly deserve. Character, Hearty welcome to you! One black sheep usually spoils the whole flock and so all the Small Scale Industrialists now at least should take an oath on the eve of Mahatma Gandhiji's Birthday that they will rise on the pedestal with character as one man not allowing a single dilynquent to stay back or pull others down. Poverty may be inconvenient but it is inconsequential in the run of life as destined. Though Honesty may not pay immediately in the materialistic aspect of life it does pay in the long run for the common good of humanity as a whole. Known facts are reiterated for following up but not as Sermon.

perature of the drum is brought upto 175°F. The whole is milled for one hour. The stock is then taken out and hung up to cool. After cooling they are piled down for 24 hours. They are then set on the table and the grain side is then slicked by hand. Then they are tacked on Boards and dried slowly. The drying is done in a chamber. After drying for 2 days this temperature of the room is raised to 100°F. This temperature is held steady till all the stock is dry. The stocks are now ready for colouring. This is the next process.

In all the articles thus far we have studied only the black colouring. We shall do so even in this article. The black dye for this consists of 8 lbs. of log-wood crystals, 5 lbs. nigrosine black, 2½ lbs. of soda ash dissolved in water by boiling the same with steam heat. When the whole is completely dissolved, the quantity is brought upto 90 gals. by addition of water. The sides are slicked off and this dye is applied with a wire brush i.e. it is scrubbed with a wire brush. They are then allowed to dry. The second cote is then given just as the first. One cote of striker solution is also given likewise with a brush. The striker solution for this consists of, ¾ lbs. of blue vitriol and 6 lbs. of iron sulphate dissolved in water with steam heat. The solution is later brought up to a total gallonage of 20 gals. by addition of water. The stock surface is now raised with water, after being dried. This operation may be repeated till a satisfactory black is obtained. (Some times a little Ammonia is also added to this solution). The stock is then set out and aired. Other colours can be made by using different stains. The stocks are finally finished after the grain is buffed a bit.

2. *Elk sides*:- This side is also tanned the same way as the waterproof, except that 5 lbs. of soda ash are used for the neutralisation, and the stocks are washed for 1½ hours. Immediately after they are washed they are coloured.

As in all other cases we shall confine ourselves to black colouring. Again it is very difficult to give definite formula for the different shades of colour, as colouring depends, as already explained in the previous Article, on many conditions; Type of water—hence the Tan liquor itself. The size of drums, the speed of the rotation of the drums and lastly but very importantly the Base of the shade chosen. This choice is again left to the tanner himself. No doubt most of the tanners use synthetic tanning materials, yet it is for the individual tanner to choose the syntan or not.

It is opined and is also true that the use of Syntan before eliminates the use of Basic or Wood Dyes. It is assured on the other hand that the use of Syntan enhances the shades got from the use of Basic or wood dyes. It is of course known to every tanner that to get a uniform or even colouring the Stock should be Wood Tanned at a temperature of about 100°F maximum. Higher temperatures should as far as possible be avoided as also too much of Tanning, as a "Woody Feel" is felt and there is the danger of a "Crackey" Grain. For Black colour the applications are simple. This simple applications consist of a mixture of direct and Acid dyes which require Topping only. If 1½% to 2% of these Dyes are used a Deep Black is got.

In the manufacture of side leathers, fatliquoring is a very important operation, needing much care and attention.

(Contd. on page 13)

Review and Short Notes on Small-Scale Industries Schemes of Madras Govt.

The experience of numerous small industries growing during the war and providing employment to large number of wokers convinced the authorities that given sufficient encouragement, it would be possible to place the industry on a stable basis. For this purpose, the Union Government set up during the year 1948 a Cottage Industries Directorate and started placing at the disposal of State Governments for the implementation of approved schemes. It soon became clear, that the problems in the different fields of cottage industries differed and measures of varying nature had to be taken to deal with them. Special boards were, therefore, set up in 1952 for the development of handlooms, coir, silk, handicrafts and Khadi and village Industries. For the development of the remaining industries, the Government of India, have incited an International Planning Team of Experts under the aegis of Ford Foundation to visit important industrial centres in the country, study the local conditions and suggest suitable measures. In the report published during March 1954 the Team made certain very valuable suggestions. Thereafter the remaining industries not falling under the purview of any of the above Boards came to be recognised as a specific sector under the name "Small-Scale Industries", as distinguished from 'village industries', Handicrafts etc. Small-scale industries are bigger concerns, working usually on a small factory basis

and catering to a much wider market. In a sense they can be described as a large industry working on a small scale and they are characterised by the use of power and machines in their manufacturing purposes. The articles manufactured by small-scale industry are broadly under two classifications:

1. A large range of consumer items (e. g.) bicycles, agricultural implements, sewing machines, domestic electrical appliances, Builders' hardware, cutlery and domestic hardware, furniture, wood work, footwear and leather goods, ceramics, glassware, sports goods, hand tools, surgical and mathematical instruments, Mechanical toys, matches etc.

2. As ancillaries to large scale industries in manufacturing components and accessories.

The working definition of a small scale industrial unit is 'one employing less than 50 persons if using power, and less than 100 persons without power, and with capital asset not exceeding rupees five lakhs. This definition is however to be interpreted with some flexibility.

Subsequent to the recommendations of the Ford Foundation Team for the intensive development of small scale industries, a Development Commissioner was appointed by the Government of India in September 1954, and an All India Small-scale Industries Board was constituted in November 1954. Thereafter though consti-

tutionally the subject of small-scale industries falls within the purview of State Governments, the Union Government have taken an important role in the following directions :—

1. In co-ordinating programmes and laying down a pattern of development on certain approved lines through the Small-scale industries Board.

2. Financial contributions to State Government for implementation of their schemes according to the pattern.

The pattern of financial assistance laid down by the Government of India for small-scale industry is indicated below :—

1. *Industrial Estates and Colonies.*

Entire cost of land and building as 20 years loan at $4\frac{1}{2}\%$ interest.

2. *Block loans under State aid.*

4% interest loan for 10 years in the ratio of 2 : 1 of the amounts provided by the State Government from their own resources.

3. *Service Schemes.*

50% of the cost of land and building as grant.

75% of the cost of machinery as grant.

50% of the recurring expenditure for 3 years as grant.

100% of the working capital as loan

4. *Commercial Schemes.*

75% of the total cost as loan.

5. *Industrial Co-operatives.*

50% of the recurring expenditure for 3 years on special supervisory co-operative staff as grant.

75% of the capital as a 2 year loan at $2\frac{1}{2}\%$ interest.

75% of the working capital including capital cost as a 10 year loan at $2\frac{1}{2}\%$ interest.

6. *Common Service facility Schemes.*

75% of the cost as loan at 4% interest for 10 years. Interest on capital and depreciation should not be collected from the private small-scale industries for the services rendered for an initial period of 5 years. The element of depreciation and interest thus foregone, will be treated as a loss to be shared by the Central and State Governments in equal proportions.

7. *Subsidy on supply of power where power is supplied by private agency.*

Loss by supply of power at 1 anna 6 pies to be shared by the Centre and State in equal proportions.

8. *Strengthening of staff in the State Industries Department.*

50% of pay including allowances (excluding T. A.) as grant,

The above pattern of assistance is based on the principal needs of small-scale industries which are imparting training and technical advice regarding the adoption of improved tools, machines and new techniques, supply of raw materials and power at reasonable rates, supply of adequate finance on fair terms, facilities for importing or purchasing new machines, providing factory space in order to enable small entrepreneurs to conserve their limited resources for working expenditure, providing common service facilities in operations involving the use of expensive machineries and assistance in the marketing of their products. To meet the above require-

ments, the Madras Industries Department formulated schemes from the year 1954 for starting training, demonstration, servicing and production centres, Technical information Section, Servicing corporation for the supply of raw materials, and Industrial Estates and Colonies for providing factory space. Besides, bulk provision has also been made for granting loans under State aid to Industries Act for subsidising power rates; for securing the services of Foreign Experts and for starting Industrial co-operatives. The organisation of the Department as now constituted is given in annexure I.

Against the schemes sanctioned by the end of the year 1954-55 no expenditure was incurred during that year on account of the late sanction and hence the funds were carried over for the next year. The progress made during the subsequent years and the Budget estimate for 1958-59 are furnished below. Annexure II furnishes details of expenditure incurred scheme-wise during the three years and the Budget estimate for the year 1958-59.

	Actual expenditure 1955-56	Actual expenditure 1956-57	Actual expenditure 1957-58	Budget Estimate 1958-59
(Rupees in lakhs)				
Specific schemes ...	2.70	21.392	69.51	107.41
Block loan ...	2.30	11.28	25.00	25.00
Industrial co-operatives for certain industry ...	—	—	7.64	12.33
Provision for foreign Experts ...	—	0.43	0.04	0.10
Total ...	5.00	33.102	102.19	144.84
Industrial Estate & Colonies ...	4.21	6.34	38.64	21.43

During the year 1955-56 and the first half of 1956-57 the Industries

Department was engaged in formulating schemes, selecting and acquiring sites for the location of departmental units, preparing plans and estimates for construction work, calling for tenders, fixing contractors, collecting building materials, selecting suitable machines after calling for tenders, placing firm orders, obtaining import licences and completing all preliminary arrangements including the building up of an organisation required for the implementation of the several schemes. During the initial period when the services of Foreign Experts were not available, only simple types of schemes were drawn and subsequently with the assistance of foreign experts deputed to this State for consultations, Schemes for both expanding sanctioned units and for starting new Units were formulated so as to take up specialised lines of production with modern machines. These as well as the other preliminary items involved considerable invisible work which could not be expressed either in terms of expenditure or production figures. This accounts for the very low expenditure during the years 1955-56 and 56-57 when compared to the progress during 1957-58. Now that all the preliminary arrangements have been completed the progress from 1958-59 is expected to be steady.

One of the problems facing the department is lack of technical personnel. As persons with sufficient experience in the various specialised fields are not available, candidates with general experience are being recruited and given specialised training in various factories and institutions such as Integral Coach Factory, P.S.G. & Sons, Textool & Co., Central Leather Research Institute, Government of India Footwear Institute and depart-

mental units that have gone into production. Apart from this training is also being arranged outside this State for certain industries for which facilities are not available locally.

Details regarding the various small-scale industries schemes are furnished below :

1. Service centre for hand Tools, Guindy.

With a view to encourage the manufacture of hand tools such as spanners, screw drivers, wrenches, hand punches, hand hammers, nail pullers, pliers, this scheme was drawn based on the model scheme received from the Government of India. The scheme consists of two sections, one Tools Room for the supply of dies, jigs, fixtures and special tools and another (Forging shop) for the drop forging of blanks. On the advice of two Foreign Experts an expansion of the Tool Room Section was proposed. Some of the special machines provided include Hydro-copying Milling Machine, Jig Borer, grinders etc.

The Tool Room Section started functioning from Sept. 1957 and upto March 1958 articles worth Rs. 28,391 were produced out of which articles worth Rs. 26,000 were sold. During the initial period, the small industrialists, were not free in taking advantage of the facilities available fearing that they might have to pay a higher price than what they were accustomed to. Gradually they have come to realise the advantage of using precision tools and proper dies which would ultimately lower their manufacturing costs. The response is steadily improving.

Part of the machines for the Forging shop has been received and this Section

is expected to go into production during September 1958 when the building will be ready.

2. Service-Cum-Training centre for Surgical instruments, Guindy.

In consultation with Dr. Hebbar, who owns a factory in Palghat, a scheme for a Surgical Unit was prepared at a total cost of Rs. 2.63 lakhs. Subsequently, the Government of India deputed a Swedish Surgical Instrument Expert who recommended certain specialised lines to be taken up. He also advised that a Forging Shop should be set up for blanking which could be combined with the Forging Section of the Hand Tools Unit an up-to date Heat treatment shop to be set up with the complete range of heat treatment equipment and special machines, in order to enable the private industry to take up further processing of blanks, testing of their products and standardising the quality. Accordingly, an expansion scheme at an additional cost of Rs. 3.97 lakhs was prepared, with provision for taking 40 trainees in 2 batches for a period of 6 months each on a stipend of Rs. 60 per month.

All the machines provided in the scheme have been ordered out of which some of them have been received. Imported stainless steel which is the main raw material as well as the first set of imported tools required for the production of various types of scissors, forceps, clamps and needle holders have been ordered. Two of the Officers have been recruited and sent for training to, Integral Coach Factory, Perambur, in forging and heat treatment. The unit is expected to go into regular production by about September 1958 when the balance of machines are expected to be received.

3. Service Centre for laboratory and scientific equipment, Guindy.

The object of the scheme is to encourage the manufacture of balances, scales, gauges, laboratory fittings and equipment that are largely in demand.

At the time when the expansion schemes for hand tools and surgical instruments were prepared, care was taken to see that there was no duplication of machines in all these three schemes and each section was supplementary to the other two. By integrating all the 3 schemes, the units will have three specialised shops for the following :—

- (i) Tool room shop.
- (ii) Forging and heat treatment shop.
- (iii) Training-cum-production shop in instruments and Tools manufacture.

Part of the machines ordered has been received while the rest are expected by about August 1958.

4. Service Centre for Electrical goods, Guindy.

This scheme is based on the model prepared by the Government of India for the manufacture of copper conductors cotton covered wires and enamelled winding wires which are at present imported from outside the State. Excepting for a few minor items to be purchased locally, all the machines required have been ordered out of which one Wire Drawing Plant has been received. The rest of the machines are expected by the end of this year. The suppliers of the machines have agreed to erect the Plant, train the workers and officers and hand over in a working condition for which their quotation is awaited.

The daily production target for the Unit is indicated below :—

	lbs
14-24G Double cotton wire	1400
18-24G Single cotton enamel wire	600
24-36G Super enamel winding wire	150
Total—	2150

5. Pressure die casting unit, Guindy

Pressure die casting is a new technique which provides a means of producing unlimited quantities of castings of high accuracy and uniformity and the machinery costs are either reduced greatly or eliminated entirely. The process is applicable to castings extending over a considerable range of sizes, in an endless variety of shapes, and of a wide selection of metal. In the absence of the sand inclusions which commonly occur in sand castings, the tools used for making die castings have a long life. Die castings can produce sharp outlines while strength is another feature that is derived from their close grained structure. On account of the several advantages, pressure die cast parts are being used in almost all types of industries but unfortunately no progress has been made in this State for adopting this new technique even though pressure die cast parts are being imported from outside the State. A Danish Expert deputed by the Government of India, who set up a small pressure die casting plant for making locks and trained the staff in the departmental lock unit at Dindigul strongly recommended the establishment of a pressure die casting unit at Madras to cater to the needs of the various industrialists, and accordingly this scheme was drawn up, with his assistance.

The machines ordered have been received and the building is expected to be ready shortly.

6. Model Foundry, Guindy :

This scheme was drawn with the assistance of Mr. John Fr. Schenur, TCM Foundry Technologist from the U.S.A. for the supply of quality castings to the Government and private units in adopting modern methods of manufacture. The unit will have a daily production capacity of 5 tons of finished castings and has been provided with modern machines for both production and testing. A few items of machines have been received and the rest consisting of imported machines are expected by about July 1958. The building will be ready by August 1958.

7. Common Lease Shop Guindy :

The object of establishing a lease shop at Guindy at a cost of Rs. 2.35 lakhs is to afford facilities for hiring out highly specialised machines to the needs of small industrialists in the Industrial Estate, Guindy, for short periods in order to encourage them in certain specialised lines. For this purpose, the Technical Co-operation Mission have made a generous offer of 36 modern and costly machines as gift. The estimate proposed is for only the the freight and handling charges for the machines, minor tools and fittings and the construction of a building to accommodate the common lease shop and the pay and allowances of the technical staff to run the shop.

Bulk of the machines have since arrived in the Madras harbour and are pending clearance. Tenders have been collected for the construction of the building.

8. Cycle Assembly Unit, Guindy :

The scheme for cycle manufacture, which is based on the model prepared by the Government of India consists of 3 parts as below :

1. Assembly and enamelling.
2. Servicing in tool room, heat treatment, electro-plating and stores for items to be purchased from outside.
3. Ancillaries for the manufacture of several parts.

The assembly and enamel section alone is proposed to be set up now by the department at a cost of Rs. 2.2 lakhs while the facilities available in the other departmental units will be utilised for servicing.

Frame tubes, B. B. Shell, handle grips, seat, lug bolts, bolts, nuts and screws, mudguards, rims, spokes, tyres and tubes, reflectors, free wheels, chains and hubs will be purchased from large scale establishments and outside with the assistance of the Union Government while the small units in the private sector at Madras will be encouraged to take up the manufacture of all the other ancillaries such as frame and fork parts, chain wheel, and crank, axles, handles and frame lugs, pedals, brakes machined parts and forgings. The annual production is estimated at 6000 assembled cycles and a private industrialist has already been provided factory space in the Industrial Estate, Guindy for making ancillaries.

9. Servicing Centre for wood working and seasoning with a saw mill at Guindy :

With a view to encourage the manufacture of furniture, packing cases, cart wheels, textile bobbins etc, out of

the rejected timber in the forests of Coimbatore District, a service centre for wood working and seasoning near Topslip was proposed at a cost of Rs. 2.31 lakhs on the recommendation of the Development Conservator of Forests, Forest Department, Madras and got sanctioned. The scheme also contemplates providing training for 10 persons a year on a monthly stipend of Rs. 30. Subsequently, when a detailed survey was conducted for the actual location of the unit, it was found that the major portion of the rejections belonged to the Kerala State after reorganisation. In view of the uncertainty in the regular flow of raw materials, it was decided to locate the unit at Guindy in Madras instead of Topslip. The change in the location was effected before incurring any expenditure, and with slight amendments in the specifications of the machines originally proposed to suit to altered conditions, the scheme was implemented at Madras.

Pending completion of the building which is expected to be ready by August 1958, the unit started functioning in the sports goods unit building from October 1957. Upto the end of March 1958 articles worth Rs. 30,634 were produced out of which goods to the value of Rs. 26,951 have been sold. The production has steadily increased from Rs. 2,000 during October 1957 to Rs. 9,000 during March 1958. The articles produced include special items of furniture and fitting required for library, show rooms etc., and bee-hive boxes while the servicing work done in the unit included fabrication of parts for furnishing railway coaches, seats for steel furniture etc. This unit has become very popular and orders to the extent of about Rs. 30,000 were pending by the end of March. A

modern seasoning plant has also been received which will be operated when the permanent building is ready.

In view of the encouraging response an expansion scheme has been sanctioned for the year 1958-59 at a cost of Rs. 4.80 lakhs for providing additional wood working machines, machines for making bent wood furniture, and a saw mill. Tenders have been called for the construction of the building and tender details for the machines are being worked out.

10. Training centre for sports goods Guindy.

A scheme for the establishment of a service centre for encouraging manufacture of sports goods such as football, volley ball, and basket ball covers, hockey sticks, nets, gloves, pads, badminton balls and frames, pingpong, bats, carrom boards etc. was proposed but the Government of India desired that the scheme should be revised so as to make it a purely training scheme and that certain items of sports goods such as tennis and badminton rackets, cricket bats hockey sticks, for which raw materials are not readily available in this State should be omitted. Accordingly a revised scheme was drawn for providing training in foot ball, volley ball and basket ball covers, shuttle cocks, leg guards, leather gloves, pingpong bats, carrom boards, bridge tables, pingpong table, billiard table, educational toys etc. and got sanctioned. The scheme contemplates providing training for 20 boys in leather section and 20 in wood working section of the sports goods unit for one year on a monthly stipend of Rs. 30.

The leather section started functioning by the end of year 1956-57 in the

Triplicane Footwear Unit building and moved to the permanent building at Guindy during October 1957 when the wood working section was also opened. During the year 1956-57, goods worth Rs. 7821 were produced out of which articles to the value of Rs. 3577 were sold. The sports goods dealers of the City who visited the centre expressed that the goods of the wood working section are good while the leather items required improvement. In spite of best efforts, the department has not been able to secure the services of a sports goods expert even from the North and the post is therefore still vacant. The unit is being run with assistance of an Instructor in the Wood Working section and a Foreman from Punjab for the leather section.

The imported shoe last copying lathe is expected to be received by August 1958. Apart from shoe lasts, this machine could be used in making ornamental legs, handles etc. required for wood working and sports goods industries.

11. Glass works cum Training centre Guindy.

The State Government have been running a training centre under the Cottage Industries scheme for glass blowing since the year 1950. The training given to 10 persons per year was confined to only simple items of scientific glass apparatus required for the various educational institutions. After completion of the training, most of the students were able to secure lucrative jobs either in the private industry mostly outside the State or in educational institutions. Government have with the financial assistance of the Union Government under small scale industries sanctioned the expansion of the training centre for providing

training to 10 persons a year on a monthly stipend of Rs. 25 in the manufacture of more complicated scientific glass apparatus, neon signs, glow signs, fancy toys etc. The scheme also provided for a 'follow up' subsidy to the trainees in order to enable them to set up their own shops after completion of their training. The subsidy to each of the trainees is limited to Rs. 1200 to be paid partly in the form of tools and equipment of the value of Rs. 700 and cash of Rs. 500 for providing raw materials etc. Under the expansion scheme 20 persons have so far completed the training out of which 10 have been given subsidy. The others have not asked for the same as they propose to seek employment in private firms engaged in this industry. As a measure of encouragement to the ex-trainees, raw materials required by them are purchased in bulk and stored in the training centre and released to them at cost price as and when required.

Government have sanctioned the establishment of a scientific glass apparatus factory as an adjunct to the training centre at a total cost of Rs. 8.42 lakhs. The factory will function in 2 sections one for the manufacture and supply of glass tubes for use as raw material for scientific apparatus manufacture and other for the production of thermometers, flasks, beakers, burettes and other scientific apparatus on a commercial scale.

For implementing this scheme this department secured the service of a T. C. M. Expert who prepared a layout, drawings and specifications for the furnaces and the design for the building so as to have an ideal and controlled work flow. As per the design furnished by the Expert, esti-

(Contd. on Page 21)

(Contd. from page 4)

A Tannery must be equipped with the proper type of machinery for preparing the fatliquor. The choice of materials for the making of the fatliquor, should also be done with care and deliberation. There should be as far as possible (practicable) a good and proper balancing of Fats and Oils. This is more so for Elk Leathers. If Soaps are chosen they should contain a minimum of Stearic Acid to avoid formation of Spew. Presuming that 50 gals. of Liquor is prepared, the following Formula will hold good: 30 Lbs of Fig Soap are dissolved in 15 gals. of water. 150 Lbs of Moellon and 20 Lbs of Wool Grease are added to the Soap Solution at a temperature of 180°F. The mixture is well stirred to effect a good mix. This mixing should be done for at least $\frac{3}{4}$ hours by constant stirring, without allowing the temperature to rise, by switching off the Heat. 150 Lbs of Sulphonated Cod Oil and 20 Lbs of Ammonia are added and so stirred that there is a rise in temperature to 150°F. The whole is brought upto 50 Gals by addition of water required. The temperature is brought down to 100°F. This fatliquor is ready for use and will stand for any length of time. The Stocks are placed in a Drum which is revolving and the liquor is added. For every 500 Lbs. of Stocks, about 100 Gals of the Liquor is quite sufficient. The Stocks are milled with the Liquor for about 45 mts. Temperature of the liquor in the Drum may vary from 140°F, but for Elk Sides the correct temperatures would be 130°F. The Sides, after being fatliquored are removed from the drum and are horsed up for 24 hours. They are then hung up for drying. As in all previous cases the

drying should be done as a slow process beginning with low temperatures. The temperature of the Room is brought upto 105°F after the 3rd Day. This temperature is held constant till all the sides are dry. The stocks are removed from the hanging stand and are allowed to "Crust" for three Days. The "Samy Dip" is given next. The temperature of the water is to be 110°F. The stocks are next covered with a damp burlap. After four hours, the stocks are put in Saw dust for 24 hours. The moisture of the saw dust should be only 30%. The Stocks are next stacked, dried, trimmed and finished. We shall take up finishing as a separate Article.

3 Re-Tan Sides:—These type of sides are the inferior sort of heavy sides, bearing too much of scratches and blemishes. In re-tanning this type of sides, both the Vats as well as the drums are used: one for vegetable tanning and the other for the synthetic tanning along with the vegetable tanning materials. Both the methods are good. The former saves time, while the latter saves materials. The main aim in for this type of leather is to get a fuller penetration of vegetable tanning material in chrome tanned leathers. If the drums are used, it is better to put a maximum of 50 sides of 10 Lbs each. Thus we will have 500 Lbs. of stocks. About 10% of this weight of tanning will Re-Tan the sides effectively. The principle use of the Synthetic Tanning being to Bleach. (The Action of Syntan on Chrome Tan is called Bleaching). The use of the Syntan also assists in the penetration of vegetable tanning materials.

In the above case of 500 Lbs of stocks, it is put in the drum with 50 Lbs of Tanning, 50 Lbs of Synthe-

tic Agents and 25 Gals of Water. The whole is milled for 5 hours. After the Stock is tanned, they are pilled down for 48 hours to drain. They are next washed with running water at 100°F for 10 mts. They are again pilled down to drain. The Stocks are then Stuffed. The materials used for this stuffing are; Wool-Grease, Tallow, Stearine, Moellon, and Parafin. (These materials always ensures use of water-roofness.) The Sides are put in the Stuffing Drums which have a temperature controlling device. The temperature is set at 180°F. 25% of the weight of the Sides, of the Stuffing materials are used. The Stocks are milled for ¼ Hour. They are removed from the drums and allowed to cool,

as usual, and are pilled down for 24 hours. The next day they are dried in the Chamber, the Drying being slow as usual. After they are thoroughly dry they are 'crusted' for 5 days. They are then given the 1 Mt. "Samy Dip" in water at 115°. The Stocks are then put in saw dust for 24 days and are allowed to "Mull." They are next tacked on boards and left to dry. When the Stocks are dry, they are whitened by hand or by machine. The Stocks are now finished.

It is hoped that the Articles are finding their way to the indigenous Tanners and Tanneries for a general betterment. As regards the finishing it is hoped to treat it as a separate Article.

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Definitions :—

Neutrality is not the incapacity to judge between right and wrong—probably an incapacity to stick to one side for expediency.

Consistency is not a virtue with regards to Political Ideologies and preparing plans for the progress but definitely it is a virtue as far as morals or ethical aspect of life is concerned.

Communist is a telegraphic address for Company's Munition Stores—Probably in Capitalist countries.

Democracy Hell of the people of the people by the people—probably in Communistic Countries.

Cold War War by Cold-Blooded people who freeze the blood of the innocent people by creating fear complex without resorting to hot explosive war materials—Fought within the four walls of an Air-Conditioned room with the Aid of Newspapers Radios and Television.

Monogamy Is another version of Monolouge with one women for the entire married life.

Polygamy Polytechnical way of life with perpetual Pyrotechnics between the husband and wives—akin to Prime Ministers and his Cabinet Ministers, each having the liberty to talk about the Prime Minister which is confusing to the Prime Minister whether to take as compliment or Criticism.

Minister One who dribbles and quibbles with the gift of his Gab to galleries of the Politicle game. When hooted by the Gallery men he blames the ears of the reporters who obliged to lend them but get snubbed to have better hearing Aids.

Gluck A businessman Millionaire who gets appointed as Ambassador of a country without knowing the name or having the capacity to pronounce the name of the Prime Minister and goes back losing the luck in the year. Probably none the Wiser.

Graduation School Evening School that tutors member of Assemblies, Councils, Rajya Sabhas, Lok Sabhas, Governmental Officers to become graduates of the University. Though there is cretism of Graduates and the University Education Glamour remains just as old hags of waste a lot of money and time on Cosmetics and apparant rejuvenation Aids.

Asymptotic Interviews Saintly men who have an inner voice and always have invissible contancts with God are said to have Asymptotic interviews with the Almighty just as the Asymptotes of a hyperbola touch the Curve at the line at infinity. Probably greater Saints who identify themselves with God and are One with him, reather the real living Gods are called the Parabolic men as Parobole is supposed mathematically to a closed figure actually touching the line at Infinity.

'Smalindustry' is a magazine where it is softened by removing the second 'L' representing all uncomplimentary words beginning with 'L' in the English Vocabulary; ofcourse retaining all the good words beginning with 'L' in the first 'L'. It is not clear whether the first 'L' or the second 'L'. It is retained. (By this time it should be clear to the readers unless they are lacking the correct 'L' in them.—Ed.)

GENERATORS FOR ULTRA-SHORT WAVES

The way to generate ultra-short waves is to influence the velocity of the electron stream. Concentrations of electrons are created, by a sorting action, in an electron stream which was originally homogeneous; these concentrations deliver energy in a static-alternating field. The constructive realization of this principle leads, on the one hand, to the "transator", a kind of resonator which also provides the feed back and is traversed by a stream of electrons; on the other hand it leads to the "turbator" in which a circular flow of electrons is used to excite a cavity resonator.

I. Introduction

The enlargement of the wave band to include decimetre and centimetre waves means a considerable step forward in high-frequency science. The facility with which these waves can be formed into beams with the help of the simplest devices of the concave mirror type, permits of creating a science of directional rays for which there are a number of new technical applications. As the length of the wave is still relatively big as compared to molecules of air or tiny particles suspended in atmosphere, it is immune from the great disadvantage inherent to light-ray emissions, namely troublesome absorption and dispersion phenomena.

Contrary to short waves, the significance of which for radio work was only recognized when it was discovered what long distances they could travel, definite fields of application were at once apparent for the science of directional rays. What was wanting, above all, however, was a generator to produce such short waves. Two interesting examples can be mentioned among the many applications of these rays, namely:—the determination of distance and of direction and the application to wireless multi-channel transmission. The latter may have great possibilities of expansion in flat countries which are

not yet equipped with a widespread telephone system. It is also quite possible that, in future, it may replace, to a great extent, our modern long-distance cable systems, on grounds of economy.

However, very great precision is required as regards the linearity of the modulation characteristic if the multi-channel system with one carrier wave is used, which, on account of its high frequency permits, at least theoretically, the superimposed modulation of several hundred channels of communication. To day, it is still an open question how far it will be possible to reach practical results in this direction.

The science of valve design has reached an advanced degree of development, to-day, which meets all the requirements down to the metre-long waves for television. Valves for 1 m and less are characterized by small spacings and short electrode leads possessing small capacity. We would refer here to the acorn lamps which are tiny technical marvels. These known types of valve still work with, practically, instantaneous control of current by the grid voltage, that is to say the electron transit time in the valve is so short that it can be disregarded in comparison to the duration of an oscillation. If, however, this transit time becomes comparable to

the duration of an oscillation, we get a phase displacement between grid voltage and controlled electron stream, which is translated into a flattening of the steepness of the characteristic. For a feed back connection, this means rendering the initiation of the oscillation more difficult and a big drop in the efficiency. This is the reason why the spacing of the electrodes is only a tenth of a milli-metre and less in an acorn lamp for 60 cm wave length at about 200 V rated voltage.

II. Principle of the ultra short-wave Generators

If, now, we want to go over to still shorter waves (below 5 cm), an entirely new principle must be elaborated for the control of the electron flow. Instead of controlling directly by the grid voltage the strength of the electron stream, concentrations and rarefactions in the flow of the electrons are caused in the originally homogeneous electron stream by sorting devices; these concentrations and rarefactions are propagated with the velocity of the electrons themselves. The essential point is that these concentrations can be made to influence a current in a condenser with an oscillation circuit connected to it, in accordance with known laws; this current reacts so that it produces a retarding field for the electron groups. In this way, the d.-c. energy of the electron stream is converted into a -c. energy by utilizing the electron transit time, because it is clear that the voltage on the condenser should not change in sign during the time the electrons are passing across it or only in such a way that the retarding action of the field is stronger than the accelerating action.

When not otherwise expressly stated, this is the general principle of generators based on transit time, although externally they may take a variety of forms. This principle has been the common property of high-frequency science for a long time now and the lively interest manifested by scientific and industrial laboratories in developing it has as object the creation of a constructively effective design, in other words towards producing stable and sufficiently powerful generators for decimetre and centimetre waves.

The above feature of transit time oscillations would, however, be incomplete without mentioning three other characteristics which are common and important:

1. The oscillation in generators of this kind must maintain itself and begin of itself. The basis thereof, as in standard valves, is the *feed back principle*. By means of the feed back an instability in the homogeneous stream of electrons is brought about, causing the oscillation to build up. However, this feed back is in most cases so closely connected to the process of electronic movement that it is not visible externally, at all.
2. The smallness of the oscillation circuit necessary for such short waves means *perfect constructive combination* of the said circuit with the abovementioned coupling element which provides for the transmission of energy from the electron current to the circuit. All these parts are, usually, lodged in the valve itself.
3. Recently, these oscillating circuits have been designed as *cavity*

resonators. These are metallic hollow bodies which prevent radiation and are characterized by an especially high quality factor (up to 10^5 as compared to 10^2 in standard oscillation circuits). This property is of great importance in generators in which the electrons should be retarded after a single passage, because a high a.c. voltage is required for this. The cavity resonators have also the technical advantage of allowing the whole apparatus to be made of metal, the metallic body of the resonator also forming the vacuum chamber for the electronic discharge.

An idea can be formed of the demands made on the sorting device as regards precision when the cycle, which is the decisive factor in the time and not the length of wave, is considered. In the case of 3 cm wave length corresponding to a frequency of 10^{10} cycles, the film strip would be 10,00 km long if recorded on an oscillograph during one second, assuming a scale of 1 mm per cycle.

In the following paragraphs, a few of the many designs are touched on which have been developed along lines which seem promising to us and appear to be distinguished from other known generators by certain advantageous properties.

III. Designs and properties

1. The "Transator"

Fig. 1 shows a generator for 25 cm wave length and 1-2 watt high-frequency output. Here, the manner in which the oscillations are produced is particularly easy to follow and we give some closer details on the subject, with the help of the example in ques-

tion. A ray of elections streams up axially from the cathode lodged in the lower part of the valve, passing through and electronic lens system which also makes the modulation possible. The oscillation circuit is composed, according to Fig. 2, of a Lecher system, the lower side of which is short-circuited, and the two double grids. Calculation shows that it is possible to generate stationary oscillations by means of coupling with the electron ray¹.

The high-frequency voltage generates on the lower double grid a velocity control of the electrons, but does not control the current, however. In the space up to the next double grid, the electrons travel at different speeds, slow and fast electrons following one another, faster and slower electrons combine in the space between the two pairs of grids and in the space between the two upper grids we get the desired conglomerations of electrons. This acts, as has been already mentioned, as conduction capacity for the resonance circuit. A part of the voltage induced on the capacity is tapped by the lower control electrode, which causes the oscillations to be started and maintained.

The feed back is very visible here. The high frequency energy is led out through the agency of a Lecher system by direct coupling to the resonance circuit. The anode in the upper part of the tube serves to absorb the electrons. The combination of these elements into an organic whole has the advantage of very great simplicity when compared to one formed of two separate resonance circuits tuned to one another.

Fig. 3 shows a generator built to this principle. Here the resonance

circuit is represented by a concentric Lecher system closed on both sides and through which the flux of electrons streams transversally. It is a special type of cavity resonator, the inherent wave of which is equal to the double length of the cylinder. The control electrode is formed by the double wall of the lower electron penetration space, the conduction electrode by the double wall of the upper electron penetration space. The length of the transit space is determined by the diameter of the interior tube. The energy led out is taken by direct coupling to the resonance circuit. The combination:— control electrode, transit space, conduction electrode and feed back form along with the resonance circuit a very simple system from the constructive point of view. Further, on account of its geometrical simplicity and also because there are no losses by radiation, it is possible

to calculate it quantitatively completely. Determined dimensions are given for the radii of the two concentric tubes for given voltage of acceleration and a given length of wave. From this, the loss resistance of the system can be calculated. For a 6 cm wave it attains 6-10 ohms. This leads to an electron current of 14 mA for initiating the oscillation, this with a coupling of the load circuit which is practically zero. The frequency stability is determined, for thus example for one per cent velocity change of the electrons (corresponding to two per cent voltage change), at 0.1 per thousand. With a wave length of 6 cm, this corresponds to a change in frequency of 5-10 cycles. A relatively big change like this is, in principle, a feature of all self-excited transit time generators. It is due to the variation in the transit time of the groups of electrons

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which always corresponds to a change in the feed back phase.

The characteristic of both the generators described is the translation movement of the electrons passing through an oscillating system composed of one single resonator. This design is therefore known under the name of "*Transator*".

2. The "*Turbator*".

The resonator shown in Fig. 4 belongs to a generator designed according to another constructive principle. The emission of electrons take place in the axis of the system. Through the action of a constant radial electric field and of an axial magnet field a circular electron stream is produced. The segments S are so arranged alternatively on the sides of the cylindrical cavity resonator that an a.-c. voltage is produced between neighbouring segments. The action on the electrons is more complicated than in the former examples; it can also be explained theoretically. The result is somewhat as follows:—The alternating field in the slits along with the constant magnet field produces and acceleration or retardation of the electrons in tangential direction, according to the initial phase, and a sorting effect is produced by this. We get concentrations and rarifications in the circular electron stream which was, originally, homogeneous. Contrary to the two first generators described, these agglomerations of electrons then deliver up successively their energy, originating from the electric constant field, to the alternating field of the cavity resonator. The feed back, although not visible, exists all the same. One and the same segment forms the control electrode and the conduction electrode. The appearance

of this generator is somewhat like that of an a.-c. machine. The cavity resonator determining the frequency along with the segments resembles a stator while the rotation of the electron agglomerations corresponds to the movement of the rotor, thus the name of "*Turbator*" seems appropriate for this type of generator.

This extremely simple design has the following advantages:—the circular stream of electrons make an electronic lens system, such as the transator needs, superfluous.

The wave length is determined sharply by the cavity resonator, that is by its diameter and the capacity between the segments. As is known, a number of neighbouring waves appeared simultaneously in the older magnetrons, which is undesirable for transmission purposes. The combination into a whole of the segments and the cavity resonator is a very good solution both as regards the load of the anode and the possibilities for influencing the emission of electrons. Further, the result is a stout all-metal piece of apparatus.

A first generator of this type built, Fig. 4, has a high-frequency output of about 1 watt, at a wave length of 10-2 cm, measured by means of an adjustable cavity resonator, with an absolute precision of less than 0.1 mm. The tube oscillates stably without it being necessary to put stabilizing devices on the network connection; it reveals no back-heating effect. With a suitable control electrode, we get nearly a hundred per cent modulation control of the tube without any marked change in frequency. Here the magnet field is only 400–500 Gauss.

(Contd. on page 32).

(Contd. from Page 12)

mate for the building went upto 2.95 lakhs from 1.05 lakhs. With regard to machinery, the response for the tender enquiry was very poor and only a few minor items like gas plants could be ordered. At this stage, the Union Government announced a very meagre allotment for the year 1958-59, for the small scale industries, as a result of which there was uncertainty in the implementation of this scheme in full. Subsequently however, on representation made by the Madras Government, the allotment has been slightly increased, and it has now been decided to implement the scheme without any change. The construction work has been taken up and fresh tenders have been called for supply of machines, and copies of tender notices have been sent to all established importers and trade commissioners.

12. Technical information section, Guindy.

The object of the scheme is to set up a museum of small scale industries products, a technical library containing books, periodicals, manuals, bulletins, catalogues of machines etc., publish monthly journals on Small Scale Industries, exhibit motion pictures, films, slides, etc., impart technical details relating to various Industries arrange for transcriptions, important talks or discussions on Small Scale Industries, presentation of chart, posters etc. Facilities for printing, blue printing etc., will also be provided for the private small scale industrialists.

Originally Government of India did not provide any grant for the construction of the building and therefore, the technical information section was set up during December 1957 in

one of the buildings in the industrial Estate, Guindy, temporarily. The building has been furnished tastefully and many useful books for day to day references were purchased and made available. Cameras, projectors, printing equipment have also been purchased.

The Union Government have since sanctioned the construction of a separate building for housing the technical information section the construction of which will be taken up shortly. Steps are being taken to recruit an experienced assistant editor in order to improve the existing quarterly Indcom Journal of this department and to convert it into a monthly. As soon as the necessary staff are appointed, preparation of bulletins translations of model schemes into the regional language will be also taken up.

13. Servicing Corporation, Guindy:

The object of the servicing Corporation is to purchase in bulk essential raw materials including iron and steel, and coal to supply to all the private and Government units in the Industrial Estate at Guindy on a daily requirement basis without locking up their own capital.

The Servicing Corporation has been registered as a stock-holder for standard iron and steel and coal and as a controlled stockist for scrap. The first consignment of steel was received towards the end of the year 1957-58 and they were distributed against permits to the industrialists. Regular supplies of both standard and defective steel are now being received. Supplies of coal are awaited.

14. Wood seasoning plants at Madura and Pollachi:

The object of the scheme is to season and supply timber of the

proper shape and condition to the village artisans at reasonable rates so as to enable them to maintain the quality of finished goods. In view of the shortage of teak wood, the departmental unit will also encourage use of other species such as Karimaru, Vengai, Venteak, Manjakadamba Vagai etc., after proper seasoning.

The seasoning plants ordered for both the centres, have been received and they are at present stored at Guindy. For construction of buildings, plans and estimates have been finalised, based on the design furnished by the Swedish firm which supplied the machines. At Pollachi, the forest department have been asked by Government, to transfer to this department a portion of the land proposed to be acquired so that the seasoning plant could be located next to the forest department timber depot. The site has not yet been handed over.

A scheme for the manufacture of handloom parts at Salem has been sanctioned with provision for a saw mill and a seasoning plant. As a measure of economy, it is proposed to shift to Pollachi the saw mill and wood seasoning plant section of the handloom parts scheme Salem and combined with the Pollachi Seasoning Scheme so that sawn and seasoned timber could be economically supplied from Pollachi to Salem.

With regard to Madura, it has since been proposed to shift to Pattai and attach to the existing Carpentry Section there.

This scheme for the establishment of a departmental unit for the manufacture of handloom parts such as steel reeds, take up motion attach-

ments, pedal looms, etc. was sanctioned at the instance of the Ministry of Commerce and Industry, Government of India, with a view to cater to the requirements of the States of Madras Mysore and Kerala. The entire cost of the scheme viz., 14.52 lakhs has been sanctioned by the Government of India as loan.

The unit will be located next to the proposed Textile Institute at Salem. Tenders have been called for the construction of the building and a contractor has been appointed. As regards machines, such of those items that are available locally or from the basic quota, of the importers, have been purchased. But some of the important imported machines could not be ordered as Government of India have not yet released the foreign exchange required for the purpose.

16. Modern Carpentry workshops at Krishnagiri and Pattamadai :

The workshops are intended to demonstrate in semi-urban areas, the use of simple and small sized power operated wood working machines and to provide training to village carpenters in modern methods of furniture manufacture. The Pattamadai unit started production during October 1955 in a rented building, pending completion of the permanent building and furniture worth Rs. 24,300 have been manufactured upto 31-3-57 out of which furniture worth Rs. 20,400 have been sold besides providing training for six village carpenters. The permanent building for the workshop was completed by March 1957. Even though this is a demonstration cum training centre, the profit and loss accounts were prepared on commercial lines to keep a watch on the proper working of the unit and during

the year 1956-57, the loss was Rs. 4,926 including interest on capital, depreciation etc.,

During the year 1957-58, furniture Rs. 33,500 were manufactured and goods worth Rs. 33,000 have been sold apart from training six carpenters.

The Krishnagiri unit also functioned from October 1955 and upto March 1957 furniture worth Rs. 19,300 have been produced out of which goods worth Rs. 19,000 have been sold a part from providing training for six carpenters.

17. Carpentry and Blacksmithy workshops with Mobile vans at Pettai, Cuddalore and Mannargudi :

The object of these workshops is to familiarise the village carpenters and blacksmiths in the use of improved tools and equipments and to train them in modern methods of manufacturing simple articles like door and window frames furniture and agriculture implements. Two mobile vans, one for carpentry and another for blacksmithy equipped with simple power operated machines are also attached to each of these workshops for visits to villages and to teach the village craftsman the methods of using improved tools and equipment. The scheme also provides for the training of 15 artisans for carpentry and 20 in blacksmithy for a period of one year.

Pettai :

The building for the workshop excepting the smithy shed was completed by July 1957. In the meantime, production in a limited scale was taken up in a rented building

from July 1956. During 1956-57, articles to the value of Rs. 10,962 have been produced, out of which articles to the value of Rs. 1,198 have been sold. During the year 1957-58, articles worth Rs. 40,000 were produced out of which articles worth Rs. 38,600 were sold. The production has been steadily increasing from Rs. 1,000/- during October 57 to 14,000 during March 58. The various articles produced include standard office furniture, special drawing March 58. The various articles produced include standard office furniture, special drawing room furniture, kisan charkas parts and amber charka parts.

Both the mobile vans have also been fitted up with machines and they visited a few villages and also participated in some of the important exhibitions.

The building for the smithy has also been completed and regular work has commenced from April this year.

Cuddalore.

Pending completion of the permanent building, the unit started production in a rented building from 14-4-57 and standard office furniture worth Rs. 71,000 were produced out of which articles worth Rs. 69,000 were sold. The permanent building has been completed and power wiring is in progress.

Mannargudi.

The main building has been completed excepting for minor items of work and the erection of machines and power wiring are in progress. The unit is expected to go into regular production shortly. The two mobile vans are also expected to be on the road shortly.

18. Splints and veneers factory at Tiruvottiyur.

In view of the shortage of soft wood in this State, it is proposed to manufacture splints and veneers of good quality from Andaman timber and supply them to private match factories in this State, the Government Match Works, Perambur and the Co-operative match factories proposed to be set up by this department. The target of production fixed in 30,000 maunds of splints and 30 lakhs gross of veneers per year. The machines provided in the scheme have been imported and the building is expected to be ready by August 58. Arrangements have also been made with the Chief Conservator of Forests, Andamans for the regular supply of 2500 tons of logs per year.

19. Government Match Works, Perambur:

Even though there are large number of private match factories in this State this scheme has been taken up by the Government with the specific object of providing employment for about 900 persons belonging to the lower income group, wives of Police Constables and the inmates of Vigilance Homes etc. The target of production is 5 lakhs gross of matches per year.

The factory commenced production from September 1956 in the premises No. 10-A, Krishnadoss St., Perambur purchased from Sri S. R. V. S. Upto 31-3-57 goods worth Rs. 85,112 were produced out of which goods worth Rs. 17,600 were sold.

Matches in 40s. and 60s. of standard and baby sizes and Deluxe varieties were produced during the year 1957-58. The brand by the name "SUDAR" soon became popular on

account of the quality and the get up. Agents were appointed both within the State as well as outside and gradually the production and sales steadily increased, as could be seen from the following figures:

Month.	Production.	Sales.	Stock.
	Rs.	Rs.	Rs.
October 57 ...	23,000	27,000	7,000
November 57 ...	34,000	28,000	9,000
December 57 ...	56,000	50,000	15,000
January 58 ...	50,000	56,000	9,000
February 58 ...	59,000	11,000	57,000
March 58 ...	67,000	4,000	1,20,000

Till the end of January, the unit was making a steady progress both with regard to production and sales. But unfortunately the introduction of 30s and 50s on the representation made by the Cottage match workers has created a scare and uncertainty in the market with the result that the products of both the Government Works as well as that of private Cottage Industry has not been moving. During the year 57-58 the total value of goods produced amounts to Rs. 4,24,000 out of which goods worth Rs. 3,71,000 have been sold. In view of the depressed market conditions, a price reduction of Re. 1 per bundle of 5 gross matches has been effected from May 1958. The market conditions have improved since June '58 and regular orders are being received from Agents.

20. Service centre for pressed metal products at Walltax Road:

The Service Centre will provide common service facilities for the large number of small units near about Walltax Road, giving them right guidance by supplying them dies, punches, tools, jigs fixtures, undertakes testing and finishing of their pro-

ducts and also provides servicing for grinding, press work, milling etc. for which the private units do not have adequate facilities. The Government have also constituted an Advisory Committee consisting of the Director of Industries and Commerce the Deputy Chief Mechanical Engineer, Integral Coach Factory Perambur and the Director of Small Industries Service Institute, Madras for organising the production of simple parts required by the Railways.

The centre started production early in April 1957 and during the year 1957-58 servicing work to the value of Rs. 90,000 was completed out of which articles to the value of Rs. 84,700 have been sold. During the initial period, the small units were scared of the scheme and suspected that the Government Unit would take away part of their work. The departmental officers went round the small units and convinced them that the centre was set up for their benefit and gradually the small industrialists had come to realise that they could with the assistance of the Service Centre, undertake orders which they could not hitherto tackle. At present there are as many as 100 units registered in the Service Centre as regular customers. The production has also been steadily increasing from Rs. 160/- during April 57 to Rs. 12,000 during March 58. The Smithy and Electroplating Sections were set up by the end of March and during the current year the turn over is expected to be more.

21. Common Tool Room Shop, Erode.

The object of the scheme is to make available to small Units, tools required by them at cheap prices and also undertake servicing work involving

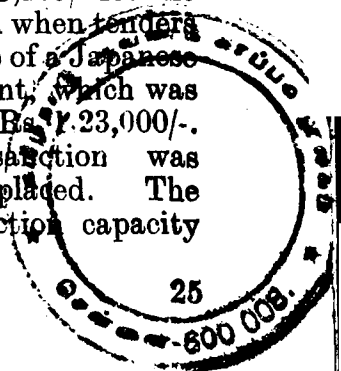
the use of costly machinery requiring high precision. The bulk of the machines ordered have been received and the building is expected to be ready by June 58 when production will start. A Superintendent has been posted during May to complete the preliminary arrangements including lay out erection, etc. Two of the Production Assistants have also been appointed and they are undergoing training in the Hand Tools Unit at Guindy.

22. Two Model Foundries in the Lower Bhavani Projects.

The object of the scheme is to supply castings which are not available locally to small units in the Lower Bhavani Project area. These units will be run departmentally in the first instance and later converted into Industrial Cooperatives. In view of the cut in the allotment in the Small Scale Industries, it is proposed to start for the present only one foundry at Erode. All the machines provided in the scheme have been ordered and only the grinders have been received while the cupola is expected shortly by which time the building also is expected to be ready.

23. Bolts and Nuts unit, Erode.

The object of the scheme is to set up a demonstration Centre for the manufacture of bolts and nuts in view of the large demand for this article. In the original scheme there was provision of Rs. 73,225/- for the purchase of machines and when tenders were called for, the price of a Japanese make for a complete plant, which was the lowest offer, came to Rs. 1,23,000/-. Therefore additional sanction was obtained and orders placed. The machine with a production capacity



of one ton of bolts and nuts per day is expected by August-September this year. The construction of the building is in progress and is expected to be ready shortly.

24. Service cum training centre for lock industry, Dindigul.

The scheme was drawn with the assistance of a Danish Lock Expert, deputed by Government of India for improving the existing lock industry at Dindigul. The service centre is intended to bring down the cost of locks by introducing improved manufacturing techniques, supply of various lock parts at cost price to the large number of cottage type lock units at Dindigul, introduce better designs and reduce the weight without reducing the quality and supply correct raw materials and special tools for the industry. The scheme contemplates training 20 apprentices per year with a monthly stipend of Rs. 30/- in improved methods of assembly and production. The Danish Lock Expert continued to assist the department, in the selection of machines, their erection and in the training of workers and staff. With a view to avoid delay in the implementation of this important scheme, the first set of dies for the manufacture of door lock was also imported. The Unit started regular production from June, 1957 and Messrs Vulcan Trading Company, have been appointed as Sole Selling Agents. There was an initial technical difficulty in successfully electroplating and painting these zinc locks and providing suitable handles and these have also been since solved. With the experience gained from the first set of dies imported, the officers in the unit have succeeded in making in the workshop itself dies required for

different types of locks. These varieties have also been successfully produced and as a result of the market survey made by the agents, Mortice latch, rim and cycle locks have also been taken up for manufacture. Apart from this, various parts required for the padlocks produced locally have also been made and a co-operative society consisting of local lock makers have been organised with a view to enable them to take up their assembly as per the specifications laid down by the Indian Standards Institute. Raw materials have also been supplied to the lock makers at cost price.

25 Service centre for Textile Mill parts, Madurai.

The object of scheme is to encourage the establishment and development of small industries for the manufacture of simple textile mill parts by providing them with technical guidance and undertaking servicing work which cannot be had by the small units. The entire machinery required have been ordered out of which the bulk has been received. The construction work is also in progress and the building is expected to be ready by August, 1958. In the meantime, a production assistant has been appointed and deputed for training in Textool & Company, Coimbatore in order that the unit may start functioning on right lines.

26. Service centre for farm implements at Trichy :

The object of this centre is to encourage the establishment of small units for the manufacture of farm implements and agricultural machinery which are in great demand. In consultation with the Indian Agricultural Research Institute, New Delhi, it is also proposed to encourage the manu-

facture of improved farm implements such as Japanese and Orissa plough, rice puddlers, green manure trawlers, Japanese seed drills, Japanese weeders, etc., The Department is also in touch with the Agriculture Department for meeting the requirements of the ryots. The building for the Unit has been completed and bulk of the machines have been received and they have been erected. Workers are at present being trained in the operation of these machines and regular production is expected to commence shortly.

27. Service centre for Hurricane Lanterns, Palani.

There are a large number of tin-smiths engaged in the manufacture of tin containers. With a view to enable them to produce better type of containers and take up additional and new lines of manufacture such as Hurricane lanterns, a departmental servicing centre has been sanctioned. Provision has been made in the scheme to give training to ten apprentices for a period of one year in the manufacture of component parts of hurricane lanterns.

The building has almost been completed and the bulk of the machines have also been received. The layout for the machines is under preparation and the erection and power wiring will be taken shortly. In the meantime, the latest type of lantern has been purchased in the market and the die designing work is in progress. Attempts are also being made to arrange for training for one of the departmental officers in a Hurricane Lantern Factory in North India.

28. Service centre for brassware, Kumbakonam:

This service centre will stock the required raw materials and supply

them to workers at cost price and also undertake certain processes such as press work, and also introduce new lines of manufacture such as water taps etc. The centre will be run departmentally for a period of three years and handed over to the Co-operative Society which is already functioning close to the centre. A Small Cutlery Section, has also been sanctioned as an adjunct to the Service Centre. The building has been completed and the erection and the power wiring are in progress. The first set of dies for making watertaps on a pressure die casting machine has also been imported so that the unit could start functioning without delay. One of the Assistants training in the pressure die casting plant at Dindigul has also been posted to this Centre.

29(a). General purpose Engineering Workshop, Rajapalayam.

The workshop will demonstrate the manufacture of certain cycle parts using modern machines, undertake jobbing work for small scale industries, encourage artisan to undertake work which they cannot do with their existing equipment. The workshop will consist of a Machine shop, forging shop and an Electroplating section. Ten apprentices are also trained for a period of one year in the manufacture of quality products and in the use of modern machines. The workshop started production actually in July, 57 in a rented building pending construction of permanent buildings. Articles worth Rs. 29,901 have been produced and articles worth Rs. 13,630 have been sold during period from July, 1957 to March, 1958. These include cycle carriers, fittings for tube lights, requirements of electricity department, steel furniture Kisan charka parts

(Metal) etc., The local Small Industrialists for whose benefit this workshop has been set up have not yet taken full advantage of the facilities available and the departmental officers continue to popularise the scheme.

29(b). General purpose Engineering Workshop, Vellore.

The object of the scheme is the same as that of Rajapalayam. The unit commenced production on 9-3-58 and has done servicing and production work to the extent of Rs. 6,753 upto 31-3-1958 out of which articles worth Rs. 6,400 have been sold.

29(c). Cycle assembly unit, Vellore.

This unit will be attached to the General Purpose Workshop at Vellore. The scheme is similar to the one proposed at Guindy but to the total cost of Rs. 2.80 as against 2.20 for Guindy. This is due to the fact that certain machines not available in the General Purpose Workshop at Vellore, have to be purchased.

Tenders have been called for, for the construction of the building and tender details for the General Purpose machines are being finalised.

30. Galvanising Plant, Mettur :

The object of the scheme is to galvanise steel structure used in electric transmission towards and to service as a servicing centre for galvanising fabricated articles like drums, buckets, pots, tubs etc. The scheme also provides for training six apprentices for a period of one year in methods of galvanising steel products. There are no galvanising plants in this State, capable of dealing with long steel sections and at present the requirements are being met by firms

at Bombay and other places. The present scheme will cater to the needs of the Electricity Department and it is for this purpose that the unit is located at Mettur close to the Electricity Department, Workshop where transmission towers are fabricated. The production target is to galvanise 3000 tons of steel per year. Both is in progress. A Superintendent, trained in a similar factory at Bombay has been posted for completing the preliminary arrangements and for commencing production. Raw materials required for the initial charge and the refractory bricks have also been purchased.

31. Ceramic Factory at Vriddachalam.

The object of the scheme is to set up a model Production Centre for the manufacture of low tension insulators, and other items such as Sanitary ware, decorative wares etc., by utilising the china clay available from Neyveli. The production target will be 300 tons of finished goods per year. There is also provision in the scheme to train 10 persons per year on a monthly stipend of Rs. 50/- each. A modern Ceramics Laboratory will also be set up for testing and standardising the various ceramic raw materials and finished products. The factory will also function as a service centre by supplying processed raw materials such as ready made body, glaze, colours, moulds, saggar mass etc.

The bulk of the machines ordered have been received and the construction work is in progress. Regular production is expected to start by the end of this year. In the meantime, 2 production Assistants and 3 skilled workers have been selected for being

deputed for training at the Bengal Ceramic Institute, Calcutta.

32. Quartz Crushing Plant, Salem:

Most of the Glass factories situated in this State by the private sector were not working properly, one among the reasons being the non-availability of good quality sand at reasonable cost. As a measure of support for the glass industry, this scheme was drawn for crushing quartz; which is the form of sand supplying to the Industry.

Incidentally the lime stone required for the industry will also be crushed and supplied. The production target is to crush per day 40 tons of quartz and 3 tons of lime stones.

Subsequent to the sanctioning of this scheme, the Government of India announced a drastic cut in the allotment of funds for the Small Scale Industries. At that time, this was one of the few schemes on which no expenditure was incurred and no financial allotments were also made. Therefore, no active steps were taken to implement the scheme during 1957-58. Now that there is hope of getting more funds the machines have been ordered and tenders called for the construction of the building.

33. Service Centre for Tanning and Leather Finishing Near Ambur:

The scheme is intended to provide facilities for preserving raw hides and skins in cold storage and also finish the half tanned or rejected leather available in the North Arcot District, which is well known for leather industry. By this process of full conversion and utilisation of rejects, the tanneries of North Arcot District will be able to earn a better return for their products and also to earn much needed foreign

exchange for the country. The scheme also provides for the training of 20 persons in the modern methods of tanning and finishing including Bark tanning. Part of the finishing machines have been received and also the cold storage plant. The construction work is in progress and the building is expected to be ready shortly.

In the mean time, a production Assistant has been selected and it is proposed to depute him for training in the Central Leather Research Institute, Madras.

34. Establishment of six Foot Wear Units:

(a) Perambur :

Even though Madras State leads in the matter of tanning; production of foot-wear has not been developed with the result that finished goods are being imported in large quantities from the other States. For the Second Five Year Plan Period, the target fixed for the country for increasing the production of Footwear (Small Scale) is 20 million pairs. In view of the fact that large quantities of raw materials are exported from this State and as there are very many cobblers who are either unemployed or under-employed. Schemes were drawn for setting up 6 Foot-wear units for undertaking production Servicing and training.

In the G. O. dated 30-3-55, Government have sanctioned setting up of a Small Service Centre at Perambur where there is a large number of cobblers. During August, 1955, the Government of India, deputed a German Footwear expert who studied the local conditions and proposed a revised scheme on the lines of a Footwear Unit set up by him at Agra. The

object of the scheme is indicated below: -

1. To supply cut components such as insoles, outsoles, heel pieces, skived stiffeners, skived toe puffs, ready made straps, complete uppers complete set up of patterns etc.
2. To undertake servicing work for skiving, finishing, sole stitching, pinking and gimping etc.
3. To train in a year 20 young cobblers in improved manufacturing techniques.
4. To undertake production on a limited scale in order to demonstrate improved methods of manufacture.

The revised scheme was sanctioned on 13-3 56, and by the end of March, 1956, a building at Perambur was purchased for housing the Footwear unit. After necessary repairs and improvements to the building, the training programme first started during May, 1956, under the guidance of the German Footwear Expert. The need in this case was not merely taking the regular trainees but to first recruit and train the officers, staff and workers. Gradually after the unit staff got trained in adopting modern techniques and operating modern machines trainees were taken and limited production undertaken. After noticing that the unit staff and the trainees have taken to the modern methods quickly and the results were encouraging, the Expert also initially was reluctant to introduce heavy and specialised machines, prepared and expansion scheme so that the Service Training Centre will be a complete and model one. The expansion

scheme which was sanctioned in the G.O. dated 24-12-56, provides for the following.

1. Additional machines for servicing and training and for making volts.
2. 3 years intensive training for 10 selected persons.
3. Setting up of a designs section for bringing out attractive designs for the benefit of private trade and also the Government Units.

The additional machines provided for were ordered and in order to popularise the Footwear, 3 Scooters were also purchased, attractive show cases built and put on the road. During the year 1956-57, Footwear articles to the value of Rs. 80,850 were produced, apart from the training programme, out of which articles worth Rs. 48,988 were sold. During the year '57-58, articles worth Rs. 1,13,912 were produced out of which articles worth Rs. 85,702 were sold. With a view to enable the cobblers to take full advantage of the facilities available, a Co-operative Society has also been organised at Perambur. But the main problem facing the Footwear Industry (Small Scale) is lack of adequate marketing facilities. The stockists who have long Associations with large scale establishments and firms from North, are reluctant to the new products. However, 15 stockists have so far been appointed both in the city and in the districts and steps have been taken to appoint more. It is also proposed to open shortly departmental sales depots at Mount Road, Chetput and few other places in the city as well as one depot in each district. It is expected that with the opening of

sales depots and appointment of more stockists, the footwear products of this State could be popularised to a larger extent and production and sales increased.

(b) *Triplicane* :

With a view to encourage the production of chappals on new lines, using improved tools and simple machines a model production cum training centre has been set up at Triplicane where there is a concentration of cobblers. After completion of the building and receipt of imported machines, the unit started production from November 1956 and during the year 1956-57, produced goods to the value of Rs. 12,598 out of which articles to the value of Rs. 7,472 were sold. During the year 1957-1958, articles worth Rs. 37,916 were produced out of which articles worth Rs. 35,570 were sold.

(c) *Erode* :

It was considered necessary to formulate suitable schemes for Small Scale Industries in the Lower Bhavani Pilot Project area. Accordingly the Regional Director, Small Industries Service Institute, formulated a scheme for the establishment of a foot-wear and leather goods unit at Erode. The scheme provides for the training of 12 cobblers in the centre. The training is intended to enable the cobblers to produce better quality foot-wear and leather goods in modern designs and shapes at a cheaper cost by using modern machines. The unit is proposed to be run departmentally in the first instance and later converted into an Industrial Co-operative.

All the machines provided in the scheme have been received and the

SUSAMNĀAS

CONSULTING ENGINEERS



'LAXMIDHAR'

14, Raja Street, T'Nagar,

MADRAS-17.

building has also been completed. Necessary technical staff required for this centre have been selected from those who have completed the training in the Government of India Foot-wear Training Institute, Guindy and the unit started production early in June.

(d) *Pallavaram* :

This unit will specialise in the manufacture of all varieties of ladies Foot-wear and provide training for 12 cobblers in modern methods of manufacture.

The machines required have been imported and the building has been completed. Necessary staff have been selected and the unit started production in July 58.

UP INTO SPACE

- 1783—The French Montgolfier brothers make first ascent in a balloon.
- 1903—Orville Wright flies world's first successful mechanically powered airplane.
- 1956—U. S. experimental plane, the Bell-X2, reaches height of 24 miles.
- 1957—U. S. manned balloon ascends 19 miles.
- 1957—Soviet Union launches Sputnik I satellite into orbit 560 miles up; Sputnik II 1,062 miles.
- 1957—U. S. rocket soars to height of 2,700 miles.
- 1958—U. S. satellite Explorer orbits at 1,587 miles.

(Contd. from page 20)

This weak field allows if using light permanent magnets, a factor of importance for the apparatus.

only partly successful. For this reason only low outputs at poor efficiencies are attained.

The generators which have been known for a long time under the names of *retarding-field tube* and *magnetron*, make use of another sorting mechanism for producing groups of electrons. Here, the so-termed false phase electrons are eliminated from the electron stream by means of a special electrode. This process is

Even here, however, it has been found possible to attain the advantageous relationship of the phase-focussed electrons and the utilization of cavity resonators. Only by means of the most careful investigations, of all the elements which produce the oscillation, is it possible to reach this stage of progress as well as the other improvements described previously.

SMALINDUSTRY

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The Small Scale Industries Association

BHARAT BUILDINGS

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SMALL SCALE INDUSTRIES

During the last three years the crop of Small Scale Industries in South India is very encouraging. The enthusiasm roused in the public, thanks to the Government and other public bodies like Small Scale Industries Association etc., is phenomenal. We have published continuously the various benefits afforded to the Small Scale Industries in South India by the Central and State Governments, with respect to State Aid, Hire-Purchase Systems, State-Bank facilities for working Capital, concessions and advantages through Small Scale Industries Service Institute, National Small Scale Industries Corporation, Industrial Co-operatives started by the State Govts., and the Industrial Estates started at Guindy and other Mofussil Centres and also the special consideration shown by the Joint Controller of Exports and Imports with regard to import licences for essential raw materials, Machinery etc. and the concessions given to facilitate export of Indian manufactured goods to neighbouring foreign countries. In addition to these, permanent exhibitions of Handicraft Goods and Sales Depots have been opened to facilitate the marketing possibilities of the Small Scale Industries and Handicraft products.

Small Scale Industries and Handicrafts Board has been formed in Madras State who have managed to obtain by the Government allocation of Scrap Steel at a low rate of about Rs. 340 per ton, from the Railways for the benefit of the very Small Industrialists who can make use of these cut lengths of Angles, Sheets, Flats, Rounds etc. for small consumer articles or minor parts of Machinery and bigger units of structural fabrication. Similarly arrangements are being made to obtain Non-Ferrous Scrap also from the Railways periodically and stock the same for the present at the Guindy Industrial Estate. A suggestion for the permanent show rooms in the heart of the city for exhibiting the products of the Small Scale Industries for the potential clientele to inspect and choose their respective suppliers is being envisaged. It is also gratifying to note that the Board has split itself up into a number of Sub-Committees to collect the Statistical Data and

formulate the various benefits still required by the Small Scale Industrialists and to prepare the reports on the existing conditions in the respective industries and to overcome the difficulties and satisfy the grievances of the individual units. We understand there are Sub-Committees with convenors to handle the questions regarding finances, raw materials, technical know-how, technical education and training of skilled workmen, and marketing of the products.

If this Board with such an ambitious programme in its front, acts successfully as liason between the Government and the actual Small Scale Industrialists and achieve even a portion of its object it will be doing the greatest service to the public. The only remedy to solve unemployment amongst the educated and skilled workmen is to set up as many Small Scale Industries as possible and keep them going with continuous flow of raw materials and orders, as otherwise they are bound to close down in spite of all enthusiasm with which they are started. The employment of the unemployed is unsteady and creates more mental worry to all concerned, which may ultimately lead to dejection, desperation and final collapse, entailing greater set back to the progress of Small Scale Industries, proving detrimental to money and energy on this account. They are too small in society to withstand even the smallest knock unlike the major industrialists who have years of experience and the support of major Banking Institutions, as well as the influence in higher circles of authority.

There is a saying that even the mother does not give the child what he wants unless it is asked for. In the process sometimes he kicks up a row in the household and makes a nuisance of himself and even gets a beating. It does not mean that the mother gets venomous and permanently angry with the child. She will continue to have the affection and kindness due to the child. This is the relationship that has to be developed between the Government, and the Public as long as the public enamoured of the present technical advancement in the age of Satellites, ask for the moon from the Govt. The continuous agitation and unceasing expression of grievances and wants by the Small Scale Industrialists should not be mistaken by the individual officers in authority and others concerned as destructive criticism hurled at them constantly without reason and rhyme. To err is human, to forgive is divine, but to realise the error either by themselves or by others pointing out is real God-hood. As long as the Governmental Officers in authority fully realise that they are part and parcel of the public in this Democracy and that they are not sitting on the other side of the table separating the Public and the Government, every problems can find a solution to the advantage of all concerned.

Smals in Shorts

Believe it or not:

Mr. Per Jacobsson, Managing Director of the World Bank says that the Bank will encourage financial assistance to Small Scale Industrialists and strongly advocates the need for encouraging the same. Mr. Samuel C. Waugh, President of the Export—Import Bank of U.S.A. says that their Bank will advance money to Small Scale Industrialists if the Scheduled Banks here guarantee the repayment.

Contrasting to the above the Central Govt. in trying to trim the outer fringes of the shell to preserve the 'Core' of the second Five-year plan is laying the axe on the Small (ant-like) Industry. The allocation to State Governments for State-Aid is being reduced. Half-way through plans for expansion of Industrial Estates and development of Small Scale Industries are either being abandoned or cut short.

★

Revenue:

Six Naye Paise revenue stamp is now ten naye-paise—Can't we call it 'Revenuer Stamp'.

Metric Measure:

Nearest equivalent to yard is metre which is 30.48 inches only—Probably the price for yard of cloth and metre of cloth will be same hereafter—to raise or lower the Standard of Living?

★

Spending Spree:

A Small Scale Industrialist has managed to get four tons of stainless

steel in justification of two of his spinning latues and is now in a spending spree to start a number of foundries as Pig Iron quotas are being given liberally. Another who managed to get steel quota both from the State and Centre is expanding his production and out-put without corresponding increase in labour.—Lord Venkateswara is really kind if you put a thousand Rupees in the Hundi! Or probably these industrialists are trying to put thousand Rupees worth of their products in the Hundi just as other unhealthy pilgrims put 'legs', 'arms', 'noses' and 'ears' in silver or gold.

★

Men over matters:

An automobile shop after dismantling and checking up the rickety vehicle reported to the owner that it is not worth while repairing the same. The owner refused to pay the bill of Rs. 50/- for check-up and consulted a lawyer about it. He advised him not to pay the bill but charged him Rs. 50/- for the consultation!

★

An applicant has been refused quota of controlled commodities on personal representation and long after he gave up his project and joined the service as alternative employment he was sent by post a quota certificate for the usual 50% of his originally applied quota.—A wind-fall!

★

A major consumer client is understood to have to pay a couple of lakhs

The Madras State Small Scale Industries Co-operative Society No. Ind. 188, Madras

By A. R. Narayana Rao

The Madras State Small Scale Industrial Co-operative Society Limited, No. Ind. 188 has been registered and started on its work on 14-7-58. Its postal address is: 27/28 Armenian St., Madras-1.

The objects of the State Society are to promote the economic interests of the Small Scale Industrialists and the Industrial co-operatives admitted as members and to assist them in procuring such raw materials, machinery accessories and other produces as are required by them for carrying on their business. It will also purchase and stock controlled commodities such as

steel, iron, coke etc. for distribution to members, undertake in some cases even the processing of articles for supply to its members, arrange for the export of the finished goods of the members whenever possible and also purchase either outright or on consignment basis the finished products of its members and sell them to the best advantage.

The liability of the members is limited to the share capital subscribed by them. The authorised capital of the society is Rs. 2 lakhs made up of 2,000 shares of Rs. 100/- each. The value of share is to be paid in one

to a supplier for more than nine months but passed a bill for about Rs. 20,000 twice on the strength of the original and duplicate of the bill within three months!

★

A distressed Small Scale Industrialist could not get interview with an officer in the office but a clerk fixed up an appointment at a specified rendezvous and satisfied the 'distressed'!

You can't approach God without the sanction of the 'pujari.' But 'pujari' himself can grant the boon as long as the God is as good as illiterate to put signature—cum thumb-impression on the papers put up—Excuse is always there that they are overworked and have to handle as many

files as persons in the short time available along with domestic matters and other avocations to keep up the 'Standard of Living.'

★

One: How do you do?

Other: O. K. Thank you. How do you do?

One: I am just doing what the other has done in the way the Govt. and Labour want me to do but I am doing nothing for myself, my family and children.

Other: Then you must be a martyr to the future well-being of the society—Leave it to me to write the ode on your death and the obituary notice to the press.

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SMALINDUSTRY

5

SMALINDUSTRY

lump sum on allotment. Any person over eighteen years of age who is competent to contract and who is engaged in industrial pursuits on small scale basis residing within the Madras State is eligible for admission as a member. Any industrial society in the State can also become a member of this society. The Board of Directors of the society may admit persons other than small scale industrialists as sympathiser members. An Industrial Co-operative Society or an Industrialist or a sympathiser admitted to membership should take at least one or three of five shares respectively but no one should take more than 10 shares. Every member shall pay an entrance fee of Rs. 2/- for each share subject to a maximum of Rs. 15/-.

The executive management of the society shall vest in a Board of Directors consisting not more than 9 members of whom not more than one shall be elected from among member societies, one from among sympathiser members and four from among the ordinary (industrialists) members. The remaining three directors shall be nominated by the Registrar of whom one may be a nominee of a finance bank. The members of the Board of Directors other than nominated Directors shall be elected by the General Body from among the members for a period of 3 years. After the members of the Board of Directors are elected by the General Body, they shall elect from among themselves a President and a Vice-President. But the first set of directors including the President and the Vice-President shall be nominated by the Registrar for a period of three years.

The Society has applied to the steel controller for its appointment as a "Controlled Stockist" of Iron & Steel and it will be advantageous to the small scale industrialists to enrol themselves as members of this society. So far 32 members were admitted with a paid up share capital of Rs. 27,400/-. The services of a Co-operative Sub Registrar, free of cost have been sanctioned by the Government for attending the work of the society as its Secretary.

The Society's registered office is No. 27/28 Armenian Street, G. T. Madras. The executive has been functioning from the last two months. Godown space near Salt Cotaurs is being procured for stocking steel and other raw materials required by the small scale industrial co-operative members. The functions of the society is to serve the small scale industries who are suffering from various difficulties in procuring the raw materials in the open market. By this co-operative effort, it is the belief of the promoters that the solving of their difficulties would be given the first priority and their problems could be represented at top levels by an active and a vigilant management and their interests are thus safeguarded. It is also expected that there will be appreciable reduction in the prices of raw materials like iron and steel, copper, etc. as full Government assistance and sympathy is assured. It is hoped that all the small scale industrialists will muster strong and enrol themselves as members and shareholders and unite together to make their voice felt at the appropriate levels.

ORGANISATION OF CO-OPERATIVES

"TOO MUCH OFFICIALISATION": NEHRU'S CRITICISM

Prime Minister Nehru urged the need for revising the existing co-operative laws in the country so that the co-operatives as such might benefit the people at large. "Some of our States", Mr. Nehru deplored, "have too much officialisation hoping for quick results". He made these remarks intervening in the debate on the organisational resolution that was placed before the plenary session of the All-India Congress Committee on 25th October.

Mr. Nehru emphasised the need for co-operatives for the progress of the country and observed that what he had in mind was something deeper than credit co-operatives. "It was of vital consequence what shape their co-operatives should take. 'The essence of co-operation is', Mr. Nehru observed "working together, not a big boss sitting in the office. I do not like co-operation being officialised. I am sorry to see that some of our States have too much of officialisation hoping for quick results. I am convinced first of all that co-operation is a way out for India almost in every field. Secondly, co-operatives should be in intimate touch with the official machinery. But it should not be official. It should develop a spirit of partnership of the people and the spirit of co-operation with the possibility of making mistakes. Let them make mistakes. We will learn from them. I believe in small village co-operatives for two or three nearby villages. It produces some sense of

intimacy, partnership and co-operation. Some people may say—and rightly again—that whenever we have these panchayats or co-operatives these people fight with each other, form groups and misbehave. We have to learn from experience of failure. Therefore do not be afraid. You can only make them trust-worthy by trusting them, by giving them authority and power within limits. Give them authority and responsibility within that limited sphere."

Adverting to co-operative laws in this country, Mr. Nehru said that the laws which governed the co-operative movement in India today appeared to have been devised by some genius to prevent the co-operative movement from establishing itself. (Laughter). "We merely go on with them. Eleven years after independence," he said, "I think the first thing which every State should have done is to change these laws completely." After referring to how he suffered personally on account of the existing co-operative laws, the Prime Minister stated that all kinds of rules and regulations were produced week after week and month after month till all the energy was dried out of him. That might be an extreme example. "If you want co-operatives to thrive you should have to encourage and not discourage them."

"HINDU"

Bulletin of the Small Scale Industries Association, Madras

Extracts from the speech of Mr. H. L. Werner at the meeting
arranged by Small Scale Industries Association
at Guindy Industrial Estate on 14-9-58.

(Please see photos in centre page)

.....You will have learnt from our sales programme that quotations for the following branches of small scale industries can be submitted to you:

Textile plants including knitting plants, workshops for the metal and woodworking industries for the production of industrial goods, workshops for doing repair jobs, manufacture of implements as well as special parts needed by the industry.

Furthermore we can offer you quotations for non-ferrous metal foundry and gray cast iron foundry.

Keeping in view the necessity and the importance of handicrafts and local small scale industries, a number of industrial small scale plants have been proposed. These plants may form a useful basis for the industrial development in countries taking up industrialization. In industrialized countries our small scale plants might be useful to relieve the existing industry and to produce semifinished goods, or, badly needed consumer goods much in demand.

As small scale plants can be erected within a comparatively short time, the production of the goods required can be started very soon. Owing to low investments and the other general expenses, the plants are very economical and there is great scope for this

in this country. Facilities of extending the plants to higher production capacity have been taken into consideration. From our experience we would like to mention that in many cases small scale plants have been the starting point for bigger plants.

Apart from the small scale plants, the service workshops which we have proposed have been designed to deal with the repair and maintenance of machinery and equipment of the various branches of industry, agriculture and household goods. The continuous technical improvement of the production machinery required more and more suitable maintenance and repair shops. As these jobs could not be executed due to a lack of corresponding workshops, the supply of such workshops was included in our export programme.

The erection and extension of an industrial small scale plant depends on the state of machinery, the capital available and the availability of raw material. Prior consultations with experts guarantee the manufacture of certain articles by a few carefully selected machines, equipment and tools.

We think it is a pleasant duty to assist and advise you how to solve all problems. To make such small scale plant profitable, it is of utmost

(Contd. on Page 34)

SMALINDUSTRY



March of Science :

Electric Robot will handle Radiocraft materials

An electrically-controlled robot device that can carry 30 pounds continuously and 50 pounds intermittently has been chosen as one of the outstanding exhibits by visitors to the U. S. section of the industrial exhibition held in connection with the U. N. Atoms-for-Peace Conference in Geneva. The robot has electronically controlled "arms", a cable crane and stereo-television for auxiliary seeing. The machine, a forerunner of devices which will be used in radio-active laboratories, is designed so that it will make complete repairs by remote control on other remote control equipment and also handle highly radioactive materials such as plutonium. The robot was created by engineers at the Argonne National Laboratory near Chicago.

New Method for Diagnosing Arthritis

A new procedure for diagnosing arthritis of the joints has been developed by three medical researchers at the Arthritis Research Laboratory of University Hospitals at Cleveland, Ohio, in the United States. The procedure can produce an early correct diagnosis of different types of arthritis in many cases, the researchers have

reported to the American Academy of Orthopaedic Surgeons.

In using the procedure, an analysis is made by a new method of the clear fluid resembling the white of an egg that is found in various joints and sheaths of tendons of the body. The analysis makes it possible to classify accurately the type of infection or inflammation present in the joints in two groups with distinguishing characteristics.

High-Speed Movie Film

A new high-speed 35mm. movie film for cine-fluorographic studies which is about twice as fast as previous films has been announced by the Eastman Kodak Company of Rochester, New York.

Designated as Kodak Cineflure Film, the new film offers radiologists and medical technicians performing cine-fluorographic studies the alternative of obtaining the same amount of footage with reduced exposure time or exposing twice as much movie footage without subjecting the patient to increased exposure.

The film is especially designed for photography of green fluorescent images by very highly specialised 35mm. cine-photographic equipment having medium-to high-speed frame rates.

SMALINDUSTRY

It is expected that the new film will aid physicians by providing motion studies of internal organs for detailed study. For example, through the knowledge gained by high-speed movies of the heart's action, the radiologist and the surgeon are able to diagnose more easily the source of the patient's trouble and obtain more complete information as to the optimum surgical approach to the diseased or malfunctioning organ.

★

Another New Translation Device

Development of an electronic "brain" that can convert English verbs directly into electronic instructions for computers has been reported by the U. S. Air Force. The machine, called AIMACO, or Air Material Command Automatic Compiler, was developed by technicians of Air Material Command (AMC) at Dayton, Ohio, and scientists of the Sperry Rand Corporation. Though AIMACO's vocabulary is limited at the present time, Air Force scientists hope to increase its range to a much wider use of the English language. The importance of AIMACO is that it eliminates manual translation of the spoken word to machine language. The device uses a giant computer to make the conversion electronically for itself and for such other electronic "brains" as the Remington Rand UNIVAC.

★

Pre-Spaceflight Training Programme

The U. S. Air Force is planning the world's first pre-spaceflight training programme at Edwards Air Force Base in California. Specially qualified USAF personnel will go through close simulations of the stresses expected from spaceflight. Their training will

take about two years. Aim of the programme is to create a nucleus of men fully trained to man the vehicles that the Air Force will have developed concurrently.

The space trainees will undergo rigorous physical and psychological tests to determine their ability to face the stresses of spaceflight. After careful pre-screening, those chosen to embark on the programme will receive survival training in the field. They will be tested for their ability to withstand isolation and to work effectively in groups and in unconventional time schedules. Careful attention will be paid to the effects of diet on performance and to possible correlation between glandular functions and human abilities to perform unusual requirements.

—(American Newsfeature).

★

Market Research Assistance to Small-Scale Manufacturers

The Small Industries Service Institute, Madras, has started a new service of Market Research Assistance to small scale manufacturers through a scheme of Manufacturers' Distribution Aid Survey.

The surveys will be undertaken on behalf of individual producers. The purpose of these surveys is to find out potential distribution outlets for and to increase the sales of the products of small manufacturers. Through such surveys the Small Industries Service Institute will help small manufacturers to determine the major distribution centres for their products, to identify wholesalers, stockists and major retailers who handle similar products, and to establish contact with these dealers. Dealers' and Con-

sumers' reactions relating to the quality, design, workmanship, prices, etc., of the products will be obtained and passed on to the manufacturers, to enable them to alter, if necessary, production techniques or marketing practices so as to enhance sales. They will also be advised about prevailing dealer margins and the retail prices at which similar or comparable products sell in various centres. If there are any specific marketing problems or any specific questions regarding markets and marketing which the manufacturer desires answered, the Small Industries Service Institute would study them and try to obtain answers.

The service is free.

Small Scale Manufacturers in Madras, Andhra Pradesh or Kerala who desire to avail of these facilities may write to the Director, Small Industries Service Institute, 20, Rutland Gate, Madras-6.

★

"Foreign Credit and Exchange for the Private Sector"

The Federation of Indian Chambers of Commerce and Industry have recently published a brochure entitled "Foreign Credit and Exchange for the Private Sector." This brochure is intended to give basic information to businessmen in India and abroad about the various foreign and Indian Institutions and the facilities available from them for obtaining foreign exchange and credit.

★

Industrial Souvenir

The All India National Congress is as usual publishing its annual Industrial Souvenir this month. Members are informed that the last date for sub-

mitting advertisements or write-ups is 12th August.

★

Business Contacts Desired by German Firms

Ref. No. Enquiries Received

- R. 76 German manufacturing concern seeks representation in India for rolled steel products e.g. fine, medium and thick sheet iron, reinforcing steel, bar and profile iron etc.
- O. 77 German firm manufacturing non-ferrous semi-products e. g. sheets, circles, rods, strips etc., wishes to contact importers in India. (Catalogue available for inspection.)
- O. 78 German export firm having connections with German manufacturers of wood working machinery, veneer taping machines, veneer composers, veneer dressers and dryers, grinding machines, automatic lacquer spreaders etc., desires to export machinery to India. (Leaflets available for inspection.)
- E. 56 German import-export firm is interested in the import of manioc meal from India.
- E. 57 German manufacturing concern wishes to contact manufacturers in India of special Indian medicines and dietetic foodstuffs in order to either sell these products or manufacture them under licence in Germany. Factory premises available. German firm would also be willing to buy recipes of interesting specialities.

E. 58 German firm importing oils and fats is interested in contacting Indian exporters.

★

Institute of Technology :

On 7th August an agreement between India and Germany was signed, according to which Germany will set up an "Institute of Technology" in Madras. For this purpose the German Government has sanctioned an amount of 15 mill. DM (approximately Rs. 1,725 crores.) Twenty German Lecturers and four Workshop Instructors will be assigned to the Institute for a period of three to five years.

The Institute will start functioning in August 1959 with its theoretical and practical courses. When in full swing, which will take some years, approximately 2000 students will be accommodated.

The preparations are conducted by Professor Dr. Ing. R. A. Kraus, who

has worked as Professor at the Institute Technology in Kharagpur for seven years. The Institute in Madras will comprise of nine scientific departments and numerous workshops. Both, Professor Kraus and the Indian authorities concerned, consider these workshops essential, in order to enable the students to acquire through practical experience apart from theoretical knowledge.

★

Metric system of weights & Measures:

The new system of weights and measures will be introduced throughout the country, with effect from 1st October 1958.

The Jute industry has already adopted this system as from 1st July 1958. Tables of other industries which have also started to use the metric system are available for inspection at the Chamber.

★

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Constitution of the National Productivity Council

NPC is an autonomous body registered as a Society under the Indian Societies Registration Act of 1960. Its membership is limited to the maximum of 60. The following organisations of employers and labour, Ministries of Government of India, and institutions have nominated representatives on it :—

Ministry of Commerce & Industry
Ministry of Finance
Ministry of Labour & Employment
Planning Commission
Ministry of Education & Scientific Research
Ministry of Transport & Communications
Ministry of Steel, Mines & Fuel
Ministry of Railways
Indian National Trade Union Congress
All India Trade Union Congress
Hind Mazdoor Sabha
United Trade Union Congress
National Federation of Indian Railwaymen
National Federation of P. & T. Employees
Federation of Indian Chambers of Commerce & Industry
All India Organisation of Industrial Employers
Associated Chambers of Commerce of India
Employers' Federation of India
All India Manufacturers' Organisation
Engineering Association of India
Indian Engineering Association

Indian Chemical Manufacturers' Association
All India Management Association
Council of Scientific & Industrial Research
Indian Statistical Institute
Indian Standards Institution
Institution of Engineers (India).

In the constitution of NPC, it is provided that the number of representatives of employers, workers and the Government will be equal. These representatives collectively co-opt on the Council representatives of other interests, namely, local productivity councils, technicians, technical institutions and organisations, public sector enterprises, consumers, small industries, consultants and scholars. Two members of Parliament have been nominated to represent the interest of consumers. Technicians on the Council are technicians working in industries and dealing with the formulation and implementation of policies regarding introduction of productivity techniques and processes at the shop floor. Six seats have been set apart in the Council for co-opting such technicians. Six seats have similarly been set apart for representatives of local productivity councils. In taking representatives of the local productivity councils parity between employers and workers will be maintained.

The executive organ of NPC is the Governing Body. Membership of the Governing Body is limited to 20.

The Governing Body will be elected annually by the NPC. In the Governing Body, as in NPC, parity between employers, labour and Government has been prescribed in the constitution.

President, Chairman of the Governing Body, and Executive Director of NPC are nominees of the Government of India. Minister of Industry, Government of India, has been nominated President of NPC. Two Vice-Chairmen are elected by the Governing Body, one from among representatives of employers and the other from the representatives of workers.

Local Productivity Councils

It is sought to stimulate and facilitate the establishment of productivity councils in industrial centres all over the country and also on industry-wide basis as well as eventually on State or regional basis. The objective is to carry productivity drive to individual industrial units and to stimulate the establishment of productivity committees at the plant level with the participation of management and labour.

A model constitution has been prepared for facilitating the establishment of local productivity councils (LPCs). This constitution envisages that LPCs will, like NPC, be registered as Societies under the Societies Registration Act. They will be autonomous organisations, independent of the Government as well as NPC in the matter of control or supervision. Their membership will be open to industrial units, organisations of industry and labour, educational research and other institutions, and also to individuals interested in productivity. It has been provided in

the constitution of NPC that those who become members of the LPCs will automatically become Associates of NPC.

Executive authority of an LPC will vest in the Governing Body which may have membership of 15 or a suitable number. 1/5th of the members will be representatives of Government, 1/5th of employers, 1/5th of labour, and the remaining 2/5th will be representatives of various other interests including technicians, consumers, institutions, scholars, etc. Members of the Governing Body will be annually elected by the general body of LPC. In the constitution, it is provided that parity will be maintained between the employers, labour and the Government in the Governing Body. Governing Body will elect the President of LPC. It will also elect two Vice-Presidents, one out of whom will be an employer and the other a representative of workers.

Emphasis is being initially laid on the establishment of LPCs in industrial centres instead of on State or regional basis. It is considered that after a number of productivity councils are established in the industrial centres they might eventually be federated at the State or regional level.

Although the LPCs will be autonomous organisations, having their own constitution and finances, it is envisaged that they will be affiliated to NPC and work their programmes in collaboration with national organisation. NPC has taken decision that it will render financial assistance to each LPC in the form of matching grants which will be equal to the income derived by the LPC from its member-

(Contd. on page 24)

SMALINDUSTRY

AMERICAN NEWS FEATURE

Electronics is Gladys Montgomery's News Beat

by Kathleen Ayres

Gladys Montgomery recalls an occasion during her college days when she and some classmates were discussing their plans for the future. One wanted to be a teacher, another a social worker. "I said I wanted to do something different, but I certainly didn't dream how different it would turn out to be."

Today she is a top-flight reporter in science and technology, specialising in electronics. Enthusiastic about her career, Mrs. Montgomery says, "I wouldn't trade my job for any other. I think there is a tremendous field for women in scientific reporting. It is about as challenging as anything they could do."

As a member of the Washington staff of McGraw-Hill, a New York magazine publishing firm, the petite blonde just stumbled into her present specialty of reporting news developments in electronics. "None of the men in the office wanted the assignment—there was no flashy news in electronics when I started in that field in 1942," she explains. "As the only woman reporter on the staff at the time, the job fell to me."

Her first assignment was to do a story pointing out the abuses of patents in the electronics field. "I arranged for interviews with the U. S. Attorney General and the Chief of the Patent Office," Mrs. Montgomery says. "My great joy was that I, a reporter green to the field, received letters from

both of them complimenting me on the way I had presented their views."

Soon Gladys Montgomery's name appeared on the masthead of the magazine *Electronics* as Washington editor. During her 12 years as editor, she concurrently served for six years as Washington correspondent or editor of *Nucleonics*, another McGraw-Hill magazine. A highly technical publication, it was the first atomic energy magazine in the United States. When it shifted its emphasis from science to engineering, Mrs. Montgomery deserted it for *Electronics* which, to keep pace with the rapidly expanding industry, has been changed from a monthly to a weekly publication. Since no one person could possibly keep up with the entire field, Mrs. Montgomery is now one of a number of science reporters contributing regularly to it and other technical magazines. She is also on the staff of *Business Week*, another McGraw-Hill publication.

With no academic background in science, what is the secret of Gladys Montgomery's success in her highly technical fields? "For one thing, I have made it a practice never to bluff," she explains. "At the beginning of my career, I developed the technique of going to the expert in charge of the project I was to report. I would tell him that I was an accurate reporter, not a specialist, and that if he would give me the technical information I'd guarantee to produce a correct story."

This attractive, soft-spoken young woman started early in proving her worth as a reporter. Two years out of college, while teaching in a secondary school, she was offered a one-month job in Washington working on a special report for Babson's Statistical Organisation. After two weeks, Mr. Babson returned from a overseas trip

"Dismayed to find an inexperienced woman on the job, he fired me," Mrs Montgomery recalls "I suggested that since I had only two weeks to go, he be a good sport and keep me on. He agreed grudgingly."

Six months later he made Mrs. Montgomery the head of the Washington office "I can't understand how a wisp of a girl like you who doesn't know anything about finance, can get a better story than experts, but you do," Mr. Babson said. She held the job until she was married three years later.

Mrs. Montgomery, widowed some two years ago, devotes her time to her profession and her friends. "I wouldn't be an accurate reporter if I said I was a housewife at heart," she admits. "But I do love to cook and entertain informally."

Industry Developing new uses for the Sun's Energy

Industry is beginning to find a number of new uses for solar cells, the devices that convert sunlight into electricity, recent reports indicate.

The cells are now being used in radios, clocks, industrial control instruments, power relay stations and an experimental telephone system. Their successful use as solar batteries to provide electricity for one of the United States Vanguard earth satel-

lite's radio transmitters is probably their most widely-known application up to this time.

Solar cells were first developed by the Bell Telephone Laboratories in the United States after its scientists discovered that small cells made of crystallised silicon would convert sunlight and, to some extent, incandescent light, into usable amounts of electricity.

The Hoffman Electronics Corporation of Chicago, Illinois, was one of the first companies to put this discovery to commercial use. In 1957 it began to market a portable radio that converts sunlight into electricity and stores it in the radio's battery.

Other companies are now actively following the Hoffman Corporation's lead.

The General Time Corporation of New York is marketing a solar clock that will run for a month on the electricity obtained from one day of sunlight.

Other companies believe that solar cells will be most useful in industrial control instruments. Thus, both the General Electric Company and the Westinghouse Corporation are making them for temperature detectors for controlling the rate of withdrawal of steel ingots that have been heat treated. When the proper temperature is reached, the cells automatically start the machinery that removes the ingots. Without a solar cell an operator has to examine each ingot during the heat treatment process and remove it manually at the proper time.

The U. S. Coast Guard is using solar cells to provide electric power for coastal lights that are in isolated

(Contd. on Page 21)

A view of our new premises "Bharat Buildings", Mount Road, Madras-2.



The Small Scale Industries Association, Madras.

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Photo taken on the occasion of the S. S. I. A. meeting held on Monday the 15th Sep. 1958 at the Enquiry Office of the Industrial Estate, Guindy in honour of the East German experts of the D. I. A. Organisation.



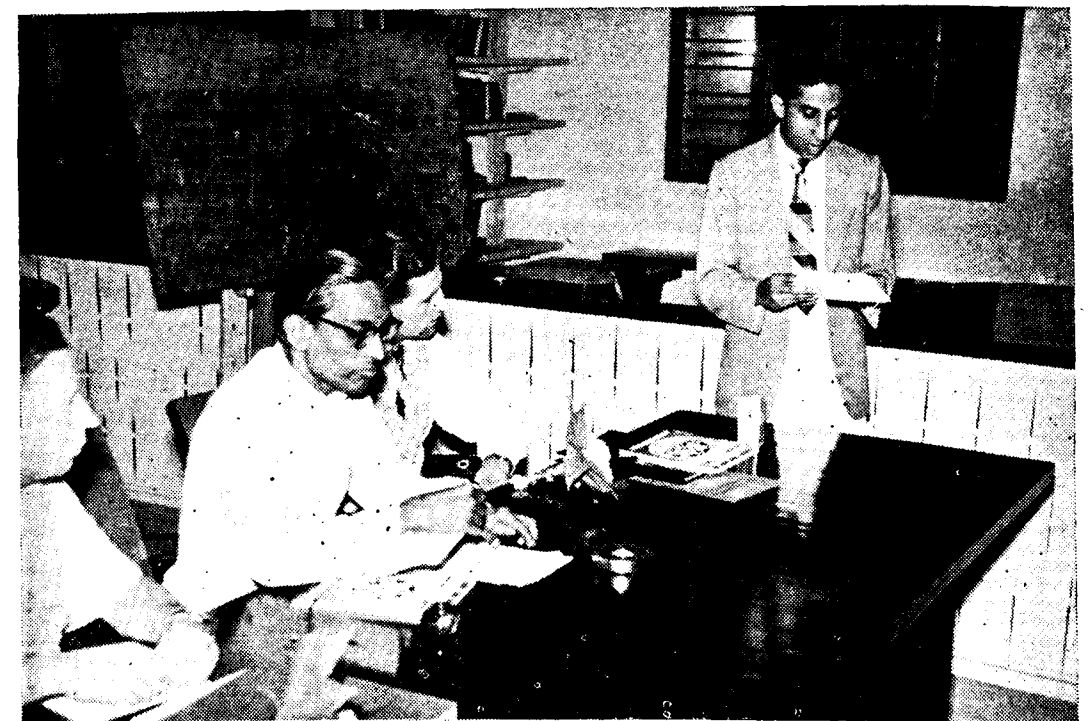
Sri. I. S. Rao, President S. S. I. A. is seen garlanding Mr. H. L. Werner of DIA, German Democratic Republic. Mr. E. R. Schmidt, the Technical expert of the Dia & Sri. A. N. Srinivasa Rao, the Hony. General Secretary are also seen in the Photo.



Mr. H. L. Werner is seen replying the Welcome address.



A wing of the audience while the President is Welcoming the East German Guests.



Sri. A. N. Srinivasa Rao, Hony. General Secretary is seen offering the Vote of Thanks.

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MADRAS-15

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locations, and the U. S. Forestry Service is putting the cells in power relay stations.

In an experimental telephone system, the Bell Laboratories linked together several solar cells on a square plate. The joined cells converted enough solar power into electricity to permit the transmission of conversations over the wires of the system. Excess energy was stored in batteries for use at night.

Bell reports that the cells produced 100 watts of electrical power per square yard. This means that 11 percent of the solar energy was converted into electrical energy. This efficiency is about the same as that of a good gasoline engine.

It has been estimated that solar cells will be as widely used as vacuum tubes, or valves, in about 10 years. In the near future, it is possible that electric fans, phonographs and even lawnmowers may get their power from solar cells that use the energy contained in sunlight or from a strong electric light bulb.

The Hoffman Electronics Corporation is currently studying the possibility of building houses that would get all electric power for lights, radios and electric appliances from solar cell shingles on their roofs. The shingles would generate power that would be stored in batteries. Five days of sunlight would create enough electricity to take care of all the electrical needs of an average house for a year, the company says.

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Compulsory Quality Control of Exports in Japan

D. V. KARMAKAR

In an article on "How Japan Has Tackled the Problem of Inspection of Goods for Export", some information has been given relating to the Export Inspection Law (Law No. 97, 1957), the new legislation promulgated by Japan, which came into effect on 1 February 1958. In this article, reference has been made to Japan as one of the biggest competitors of India in engineering goods. Both before and after the war, Japanese goods had the reputation of being cheap but inferior. As a result, there was a feeling in some quarters that all goods with the trade mark 'Made in Japan' were inferior. When Japan's trade with the world re-opened after World War II, this weakness of Japanese export received considerable attention, and it was decided by the Government of Japan that efforts should be made to ensure that Japan exported good quality products at reasonable prices.

The Export-Control Law of 1948

Keeping this in view, the 'Law Concerning Control of Export Commodities' (Law No. 153) was enacted in 1948, by virtue of which Government established 181 items of good requiring inspection and their standards and packing requirements as well as the marks to be indicated on the goods in question. Of these, 59 items of goods were established by Government as exceptions, which were subject to compulsory inspection by Government Inspection Organs, or the inspection organs authorized by

Government. The remaining 122 items were left to the manufacturers and exporters themselves who were required to make such indication on the goods in question which passed successfully their inspection.

However, as brought out in the article referred to above, with the considerable increase in the Japanese foreign trade during the past decade many sections of the original law became outmoded and inadequate to fulfil the original purpose.

'One of the short-comings of the law was that even the most inferior goods could be exported if they were correctly graded as low quality goods. Thus it was impossible under the law to stop entirely the export of inferior products. Further, the very fact that inspection was left to the producers and the exporters themselves, there was bound to be laxity. Among the authorized inspection agencies, there were some who had small facilities for efficient inspection. The penalties imposed were so small that some of the exporters did not mind sending inferior goods even though they knew that they would be penalized'.

The New Export Inspection Law.

The defects enumerated above have been attempted to be remedied by the new legislation which covers 411 items against the 181 covered under the old law.

The essential features of the new law are as follows:

- (1) The export goods designated by Cabinet orders shall not be exported by Government Inspection Organs or inspection organs authorized by the Government Ministry concerned.
- (2) The inspection standards and inspection methods for such designated export goods are established for each of the goods by Government ordinance concerned. In case of necessity, the standards for grading the export goods shall be established.
- (3) If some of the export goods require thorough inspection in respect to the quality of the materials used in production or in respect of their manufacturing processes, such materials and manufacturing processes shall be subject to inspection.
- (4) In view of the public nature of inspection organs, the State Minister concerned appoints inspection organs from among those corporations which applied for inspection organs, and which are substantially strong both in respect of personnel as well as inspection facilities and are characterized as neutral and impartial inspection organs covering nationwide areas.
- (5) In view of the public nature of the inspection organs, the State Minister concerned exercises strict supervision on the operation of the inspection organs and controls appointments and dismissals of their officials or inspections, planning, revenue and expenditure budget of the inspection organs, and in case of necessity, can order the dismissal of inspectors or alteration of their business rule.
- (6) A special case for inspection is provided where the State-operated inspection organs or authorized inspection organs are found unfit to perform inspections. In such cases, the exporters or manufacturers themselves are allowed to conduct their own inspection on their export goods in accordance with the inspection standards specified in the new law, and indicate the result of their inspection on the goods in question as required by the same law.

The purpose of the new law is to achieve sound development of export trade and to maintain and enhance good reputation of export commodities by carrying out inspection on for export goods.

Article 3 of the Export Inspection Law provides that the designated commodities of which the maintenance or improvement of quality is necessary and which belong to the list of commodities prescribed by a Cabinet order shall not be exported unless they have been inspected in accordance with the method prescribed by competent Ministerial ordinance, by Government organs, or persons designated by the competent Minister, who examine whether the qualities are in conformity with the standards set by the Ministerial ordinance and on which indications have been put to the effect that they have passed the required inspection.

Some of the Japanese Industrial Standards, which are established by the Japanese Industrial Standards Committee, set up under the Industrial Standardization Law, 1949, in order to govern export commodities, provide grades, requirements for quality and minimum requirements of packing.

(Contd. on page 29)

(Contd. from page 14)

ship subscriptions. The membership subscriptions will thus determine the size of the programme that the LPCs will be able to organise. For the time being the schedules of subscriptions which are generally being adopted by LPCs range from the maximum of Rs. 1000 per annum payable by the bigger factories to Rs. 50 or 25 per annum payable by factories employing not more than 10 or 20 workers. The subscriptions payable by trade unions are nominal, ranging from about Rs. 25 per annum to Rs. 5 according to the membership strength of the unions. Similarly the subscriptions payable by educational and other institutions are comparatively small ranging upto about Rs. 25, and subscriptions for individuals are nominal. Provision has been incorporated in the model constitution for subsequent revision of the schedule of subscriptions. It is envisaged that according as the councils prove their utility to the industries, they might in due course be able to increase the rates of membership subscriptions.

Programme of NPC

The programme chalked for the NPC aims at generating productivity consciousness in industries, an urge to incorporate the techniques and processes which can lead to increase of productivity, and an appropriate climate of trust and co-operation between management and labour for launching the productivity drive. It aims, simultaneously, at stimulating the provision of productivity services for which demand will be generated by rousing productivity consciousness. Objective of the programme is to carry productivity drive to the plant level so that the various tools and media

are made use of for increasing productivity. Main items of the programme are given below in greater detail.

Information : For rousing productivity consciousness in industries, a comprehensive programme of information activities of NPC has been drawn up. It includes the publication of a journal on productivity which will disseminate to the industry a review of the productivity drive, articles on different aspects of productivity and its measurements, ways and means of utilising the tools of productivity, and useful information available from abroad. This item of activities also includes the publication of pamphlets and booklets on individual subjects related to productivity, reports of various committees of NPC and productivity teams which will be sent abroad, and adaptations and reproductions of foreign literature on productivity. NPC and LPCs will organise exhibitions, arrange procurement and distribution of films on productivity subjects, and utilise other audio-visual media for propagating productivity consciousness. Lectures, seminars, conferences, and round-tables will also be stimulated.

It is proposed to organise a technical digest service and technical enquiry service. The former will aim at disseminating to industries the technical information collected from Digests and journals of foreign countries. The latter will invite technical problems from industries, process them within the country and abroad, and make replies available to the industry.

A complete library of productivity literature will be built up. A nucleus of the library has already been created by securing a large number of publications from the Technical Co-opera-

tion Mission of U. S. Government. A comprehensive documentation service of the productivity literature will also be established.

Training in productivity subjects : The objective is to organise on a comprehensive basis the provision of training facilities for all levels of management and supervisors in various subjects related to productivity. Courses of different durations and syllabi, to suit respective levels of management, in individual subjects, will be organised. In organising this programme it is proposed to utilise, to the extent of their capacity, the local productivity councils and existing institutions and organisations dealing with various aspects of productivity.

For facilitating preparation of the programme of training in productivity subjects NPC has set up a Productivity Personnel Survey Committee for conducting a detailed survey of existing availability and future requirements of such personnel in industries. On the basis of this survey, the training programme will be implemented.

Productivity Research : Another item of the programme of NPC, as also of LPCs at the local level, will be that of organising research on problems of productivity. It is not proposed to set up research organisations within the productivity councils for this purpose. Instead, it is proposed to sponsor research on individual problems to existing institutions, organisations and universities, and to provide requisite finances to them where necessary.

Circuit Scheme : Inter-plant visits in industries, in industrial centres as well as between different industrial centres, will be promoted and stimulated by NPC and LPCs. In this

scheme, small teams consisting of about two representatives of management, two of technicians and two of workers from one plant will visit another plant for holding discussions and exchanging ideas on subjects related to productivity. When it is ensured and propagated that the purpose of such team visits is to stimulate technical exchange in the general subjects of productivity, such as scientific management, human relations, work study, plant layout and material handling etc., and that the purpose is not to ascertain the technical knowhow which may involve processes guarded as trade secrets, it is envisaged that there will be no hesitation on the part of industry to promote and participate in the exchange of such visits. It is not contemplated that the inter-plant visits will be only within the same industry. In fact, this exchange is sought to be promoted within the same industry as well as between different industries, between private sector and public sector industries, and between different industrial centres. The LPCs will put the plants in touch with each other for the exchange of visits.

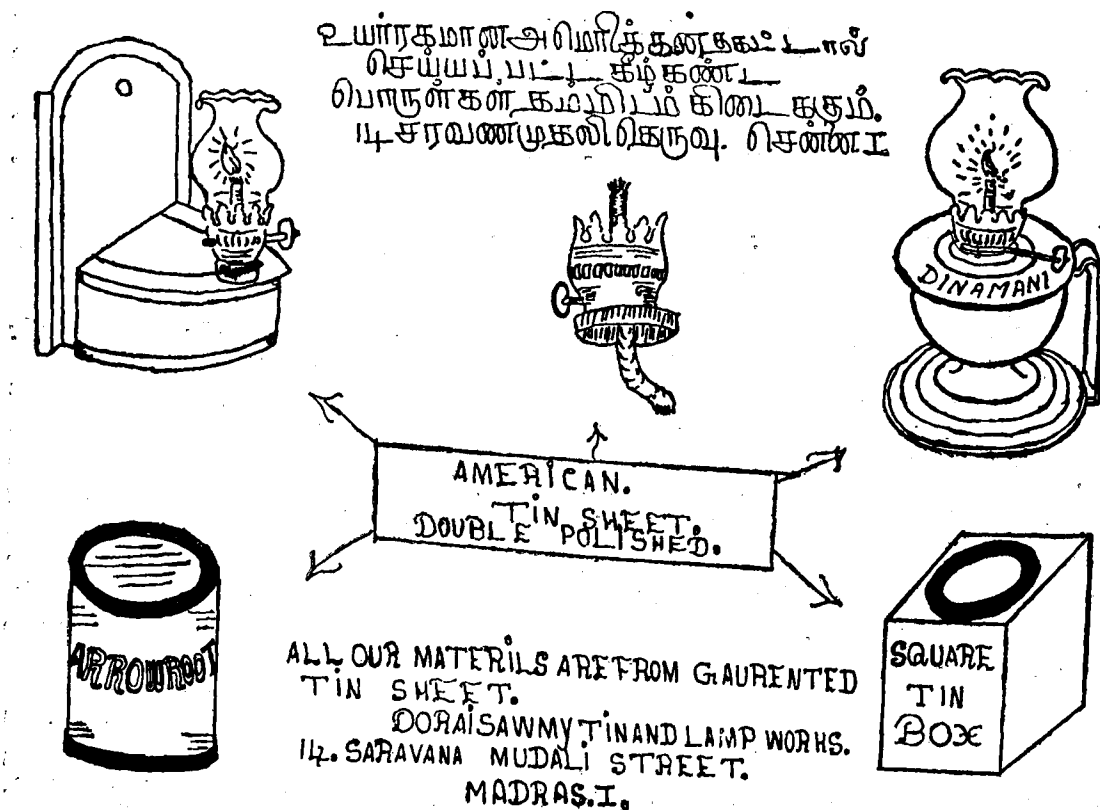
Productivity Teams to be sent abroad : While in the domestic sphere, technical exchange will be stimulated through the circuit scheme, it is sought to initiate similar exchange in the international sphere by sending productivity teams abroad. A large number of similar teams have been profitably sent by other countries in the post-war period. These teams are generally six weeks' study teams, composed of about 10 persons drawn from management, technicians and workers. They go to other countries to study general productivity techni-

ques as well as specific problems related to individual industries. They first undertake a study of the problems in the domestic field before going abroad for the study. On return, they produce a report which is disseminated to the industry. They also impart their experience and observations in meetings, lectures and seminars organised in industrial centres. It is proposed to stimulate this activity by sending teams to various countries. Aid from U. S. Government has been promised for sending abroad 38 productivity teams of 10 persons each in the next three years. Subjects of study, composition of the teams and their itinerary will be determined and recommended by the NPC.

Productive Training abroad: Provision has also been made for sending

abroad trainees for one-year training in various subjects related to productivity. The trainees will be sponsored by NPC. Provision has been made for sending abroad 40 trainees in the first year and 50 trainees in each of the two subsequent years.

Foreign Specialists and Consultants: NPC will secure foreign specialists and consultants in specific subjects of productivity for organising productivity training and provision of productivity services through LPCs and other various organisations and institutions. Substantial provisions have been made in the aid offered by U.S. Government for securing foreign specialists. Subjects in which the specialists will be secured and the mode of utilisation of each respective specialist will be determined by NPC.



For the programme items of sending productivity teams abroad, sending one-year trainees abroad, securing foreign specialists and consultants, and for securing various items of equipment for audio-visual activities of NPC, the aid offered by U. S. Government aggregates to about \$ 2.8 million for the three years ending 1961. It is envisaged that where necessary this aid will be supplemented by aid which might be available through other international agencies.

Committees of NPC: In organising this programme NPC propose to set up several standing and adhoc committees. Standing committees will be constituted for subjects such as the following:—

- Productivity Training
- Human Relations
- Wage and Bonus Incentives
- Management Accounting
- Quality Control
- Documentation
- Productivity Measurement
- Product Design

The Committees will co-opt specialists in respective fields. Similar committees may in due course be also set up by NPC for dealing with specific problems of individual industries. The Committees will be in addition to the normal functional committees, which have been set up by NPC, such as Finance Committee, Productivity Research Committee, Foreign Technical Assistance Committee and Productivity Training Committee.

Scope and Potentialities

It is envisaged that eventually productivity drive will include in its scope all economic activities of the nation. In various spheres such as agriculture, forestry, commerce etc.

several measures are already being taken by Government agencies to increase productivity. These measures will need to be co-ordinated into a comprehensive productivity drive. For the present, however, it has been decided to limit the scope of functioning of NPC to the sphere of industries. In this sphere, however, the drive will cover large-scale, medium and small industries in the public sectors as well as the private sector.

Principles of the Productivity Movement

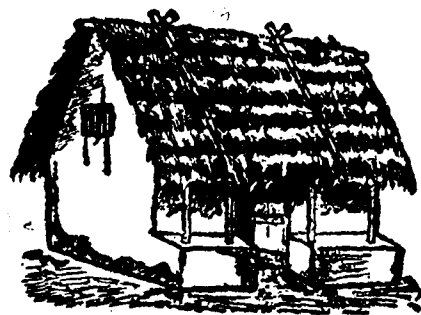
Of great importance and significance are the principles which emanated from the deliberations of Productivity Seminar held at Delhi in November 1957 and which were accepted by the Government of India while announcing the decision to establish the National Productivity Council. These principles constitute the chief plank on which productivity movement, as conceived in the programme of NPC and LPC, is to be based. In these principles it is sought to remove the misconception and misgivings which unfortunately attach themselves to the word productivity. These principles and their preamble, are as under:

“For increasing the national wealth and per capita income, and for improving the standard of living, people must first be made aware of the significance of higher productivity as the means of achieving these objectives. It is, therefore, necessary to create among labour, management and the general public attitudes receptive to the idea of productivity, thus ensuring the favourable climate of opinion which facilitate the introduction of modern techniques—social and technical—for increasing productivity. In a campaign for productivity, full co-operation of the emp-

loyers, labour, Government and all other interests is indispensable. For ensuring this co-operation, it is considered necessary to enunciate the following principles upon which the productivity campaign should be based:—

- (i) In the productivity drive the objective should be to increase production and improved quality by improve techniques which aim at efficient and proper utilisation of the available resources of men, machines, materials, power and capital, raise the standard of living of the people, and improve the working conditions and welfare of the labour, taking into account the social implications of these changes. The movement does not seek the intensification of labour's burden through increasing work loads and speed-up.
- (ii) Increased productivity in a growing economy will ultimately help in increasing employment by stimulating development of industry. The Government, employers and the labour should take specific measures to obviate the possibility of any unemployment.

- (iii) Benefits of productivity increase should be equitably distributed among capital, labour and consumers, and these should lead to the renewal and expansion of plant, machinery and equipment.
- (iv) Productivity drive may eventually be launched in all the spheres of nation's economy. It is of importance to achieve integrated improvement in productivity in all activities of the nation. In the field of industries it would cover the large-scale industries as the medium, small scale and light industries in the public and the private sectors.
- (v) Increase of productivity cannot be achieved without the fullest co-operation between management and labour. In order to carry through the productivity programme effectively, it is necessary to create a climate for increased productivity through encouragement of joint consultations, participation of labour in management, and promotion of mutual understanding between management and labour, in each industry and in each individual enterprise."



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(Contd. from page 23)

The Japanese Industrial Standards Committee upon making deliberations on the drafts of Japanese Industrial Standards to govern export commodities, watches the industries so that they export commodities of quality sufficiently high enough to meet with the consumer's demands.

The establishment of an Export Inspection Council in the Ministry of International Trade and Industry has been provided for in the Export Inspection Law. The function of the Council is to deliberate on important matters concerning export inspection. It is to be composed of not more than 60 members, and Expert Committees may be established within the Council to carry on studies on special subjects.

For those offending against the provisions of the Export Inspection Law, strict penalties have been laid down. Any person who exports the designa-

ted commodities in contravention of the provisions of the Law, is punishable with penal servitude of not more than three years or a fine of not more than three hundred thousand yen (approx. Rs. 4000). Any officer or employee of the designated inspection organs, who acts in contravention of the Law, is punishable with penal servitude and a fine.

Foreign buyers have been advised by the Inspection Section, Ministry of International Trade and Industry, that they should take full advantage of the inspection standards in the purchase of Japanese goods by specifying these standards in their contracts as their conditions to ensure the quality of goods in question. In so doing, the foreign buyers can simplify their contracts and may prevent any commercial disputes that may otherwise arise.

(By acknowledgement to ISI Bulletin)

What is Productivity?

Few words have assumed great significance and importance in the post war era in the context of economic development of a country than the word "productivity". Developed as well as underdeveloped countries place reliance on productivity as recipe of the millenium. It is increasingly recognised that higher productivity is not an end in itself but a means of promoting social progress and strengthening the economic foundations of human well-being. In the final analysis, the level of productivity of a country determines its national wealth and per capita income and standard of living of the people.

In a broad and fundamental sense the drive of increasing productivity implies the full, proper and efficient utilisation of the available resources of men, machines, materials, money, power, land etc. It connotes a mass attack on waste of every type and in every sphere. It implies development of an attitude of mind and a constant urge to find better, cheaper, quicker, easier and safer ways of doing a job, manufacturing a product, and providing a service. It aims at the maximum utilisation of resources for yielding as many goods and services as possible, of the kinds most wanted by customers, at the lowest possible cost. It leads eventually to the lightening of the burden of men while increasing the burden of machines, making men work more humanely and the machines more inhumanely.

Formally, the word "productivity", stands for the ratio between the "output" of wealth produced, in the form

of goods and services, and the "input" of resources used up in the process of production. In depicting this ratio in easily measurable terms, it is often stated to be the output per man, or output man-hour, or per unit of labour-time. The input of labour is, however, only a part of the resources that go into production. In measuring productivity only in terms of labour-time expended, therefore, an incorrect perspective of the concept of productivity is likely to ensue. The "input" and "output" aggregates have all to be comprehensively viewed for determining productivity ratio. In the broadest concept, productivity may be taken to constitute the ratio of available goods and services to the potential resources of the group, community or the country.

Productivity and Production

Productivity should not be confused with production. These words have separate and distinct connotation. We can increase production in a manufacturing unit by employing more labour, installing more machinery, and putting in more materials, regardless of the cost of production. Production is mere volume of output. Increase of production does not necessarily mean increase of productivity, though higher productivity will lead to higher production. 100 men employed in a factory may be producing same volume of goods over the same period as 125 men working in another similar factory. Production of the two plants is equal, but productivity of the farmer is higher than of the latter. Production in itself does not raise the standard of living. It must be accompanied by increase of

Brief Summary of the discussions held in the Sub-Committee on Engineering Industry on the problems of conversion to the Metric System

(Ministry of Commerce and Industry, Development Wing Standing Metric Cell)

In August, 1957, the Standing Metric Committee of the Ministry of Commerce & Industry decided to set up a Sub-Committee to make a continuous and intensive study of the Engineering Industry's problems relating to the adoption of the metric system in the Engineering Industry. The Sub Committee consisted of representatives of the Indian Engineering Association, Engineering Association of India, Ministries of Commerce & Industry and Railway, D.G.O.F.,

Indian Telephone Industries, Indian Standards Institution and the Iron & Steel Controller. Some of the problems to be considered were:—

- (a) the impact of the change on the design of existing products,
- (b) necessity for maintaining duplicate stocks of spares, and
- (c) the effect on plant and equipment

This Sub-Committee has met twice during the last six months and arrived

real income, purchasing power of the people. This can come about only through increase of productivity.

Why Productivity?

In the present competitive world economy, we cannot afford to lag behind in our techniques and processes which reflect on the measure of productivity. We have to expand the markets within the country. The increase of productivity will constitute a substantial contributing factor to the expansion of our economy. We have also to carve out a niche for ourselves in the world markets. This we can do only if the prices and quality of our goods stand up effectively in competition against the price and quality of goods of other countries. For making our prices competitive we must lower our production cost, which we can do only by increasing productivity.

To the nation the increase of productivity means more national wealth and higher standard of living. Higher productivity is admittedly the key to

higher living standards. It also means to the nation more markets, internal as well as abroad.

To the industry higher productivity means reduction in the cost of production which enables the products to more effectively compete in the markets. Reduction of the cost of production, and consequently of the sale price, leads to expansion of markets and greater profits to the industry. Increased profits enable expansion of the industry by expansion of investment.

To the workers the increase of productivity means higher wages. Wages of workers are highest in countries where the level of productivity is highest. It leads to shorter working hours, improvement in working conditions, more leisure to enjoy the goods and services, and greater work satisfaction.

To the consumers the productivity increase results in lower prices, better quality of the goods, and consequently greater satisfaction.

at certain conclusions. These are :—

1. Raw Materials and changes of Designs

- (a) A selection of sizes of raw materials from among the preferred sizes published by the Indian Institution should be adopted by the manufacturers.
- (b) In case of light industries, the most suitable available sizes should be made use of, as the quantities in special sizes that would be required for such specialised industries are not such as to have a serious impact on the needs of the engineering industry generally.
- (c) In most cases, the manufacture of components in converted sizes i. e. from inch to millimetre, within the tolerances allowed, would be practicable, but a certain amount of change in the design is inevitable, and this problem is to be left to the individual designers.

2. Indian Standards

Several Indian Standards relevant to the change-over to the metric system have already been published, which include, among others, a guide for conversion of values from one system of units to another; rolled steel beams, channels, angles, sections; dimensions for screw threads below 6 mm; hot rolled structural steel bars, bulb angles; preferred dimensions for metal products; thicknesses of sheet and diameters of wire; sizes of strips, sheets, flats, plates, angles, channels etc. Several other standards which are necessary for early implementation of the metric system in the Engineering Industry are also in the process of formulation. Some of those are:—

- (a) Standards for screw threads above 6 mm.
- (b) Commercial Bolts and Nuts.
- (c) Metric Scales for use in workshops, factories, architects, engineers and surveyors, schools and colleges etc.
- (d) Commercial weighing instruments like weighbridges, platform weighing machines etc.
- (e) Thicknesses of sheets and diameters of wire.
- (f) Steel Tubes for structural purposes, and
- (g) Metal Containers.

3. Production of Small Tools.

From an assessment of the production of small tools in the country, and its anticipated future requirements, it is apparent that the demand for these small tools will be continually growing. There is already a small amount of production of metric small tools in the country to meet the current demand, and there is ample scope to increase the production of these small tools. The Indian Standards Institution has been apprised of the urgent need for the preparation of Indian Standards for metric small tools, to enable the manufacturers to adopt them at an early date.

4. Recalibration of Weighing Machines

With the introduction of the metric weights in certain selected areas and in some major industries, from 1st October, 1958, the problem of recalibration of weighing machines assumes urgent importance. Several of these machines have already been converted, and it is left to the users of the machines, who are the best judges of

their requirements, whether to recalibrate them in dual or in single calibration. A small Working Group has been set up consisting of the representatives of the manufacturers and the Railways to study the problems of recalibration of these weighing machines. This Working Group will commence its work in the near future, and assess the total capacity for conversion that is existing at present, the necessity and extent of foreign exchange requirements, and will explore the possibilities of developing a scheme on a broad basis.

5. Training for Craftsmen in metric system in small Engineering Industries

The Sub-Committee came to the conclusion that:—

- (a) There was necessity for training both in the organised industries and in small industries, but the organised industries would be able to give training to their own personnel.
- (b) Instruction Sheets covering the salient features of the metric system including the conversion tables, weights, precision measuring instruments, and some common machine tools should be prepared and distributed on a wide scale to all concerned to facilitate the training programme.
- (c) Suitable representatives of small industries would be in a

position to give training to their labour with the help of the Instruction Sheets.

- (d) Central Institutions like Small Industries Service Institutes and the Industrial Training Centres of the Ministry of Labour, should organise this training for the use of people that would like to take advantage of them.
- (e) To explore the possibilities of preparing film strips at the Central Institute of Audio Visual Library Unit, to supplement the Instruction Sheets for effective training.

6. Utilisation of Steel Section in Metric Dimensions

Steel Sections in metric sizes would be available in the market in the near future. It is expected that there will be no difficulty in the consumption of these steel sections by the Industry in general.

7. Relevant information about the progress of the 'Metric System' is published in 'Metric Measures', a Bi-monthly journal issued by the Ministry of Commerce & Industry, New Delhi. Information regarding the manufacturers of the new weights and measures, metric steel sections that would be rolled in the steel mills, notes regarding the adoption of the metric system in various industries has already been published.

(Contd. from page 8)

importance that all machinery and equipment should be carefully selected. Therefore it is recommended to consult an expert and to deal according to his advice. This help will be adapted to the local conditions and will be of an individual character.

We are in a position to supply complete small scale plants including all manufacturing machines, equipment, hand-operated machines and tools. Moreover, we should like to point out that attachments, moulds and patterns are included in our supplies, too, for small scale plants. This will enable an immediate beginning of the production after the plant has been erected so that products of first class quality can be manufactured.

It is not only our intention to supply a complete small scale plant. We are quite prepared, of course, to send our specially trained erectors to you for the assembly and setting the tools. Our experts have good experience in setting up plants and are familiar with the latest technical development.

On request of the clients, our experts are also prepared to train your personnel and to grant you every help when putting the plants into operation. By this manner the beginning of the production will be possible under expert's care and any difficulties arising during the start-up will be reduced considerably.

We are convinced that our experts will succeed in taking up production within a short time and bring it to full capacity. This will be an important fact for an economically working small scale unit. Our foreign enterprise will be glad to train your supervisory personnel in the respective factories of the German Democratic Republic and make them well versed with the latest development of techniques.

It is of great importance to know that there is a special development agreement between India and the German Democratic Republic since 1957. All payments for complete small scale plants and costs for the erection can be made under this agreement, and all payments can be made in non-convertible rupees and no foreign exchange is needed. We would mention, too, that the German Democratic Republic is importing Indian goods with the help of this agreement.

As our foreign trade enterprise DIA INVEST EXPORT is competent only for the exportation of complete industrial plants, your demands for supplying single machinery will be duly noted and immediately forwarded to the other competent foreign trade enterprises of the German Democratic Republic.

Sri I. S. Rao presided over the meeting and Sri A. N. Srinivasa Rao Hon. General Secretary explained the activities of the Association and proposed vote of thanks.

Private Units in the Industrial Estate, Guindy.

(Published by Ind-Com. Journal)

OCCUPANTS OF "A" UNITS

1. Easwaran and Sons

Manufacturers of oil circuit breakers upto 60 KB (50 Nos. per month) fused switches (120 Nos. per month) and Buzbar trunking (1,000 feet per month). Suppliers to all Government Departments and Directorate General of Supplies and Disposals, New Delhi.

2. General Industries

Manufacturers of Polythene films for bags to the value of about Rs. 10,000 per month. Will be manufacturing shortly the pipes also.

3. Lamiwax Corporation

Machines under erection for the manufacture of waterproof and speciality papers.

4. K. R. Kothandaraman & Co.

Will instal machines for making H.T. Accessories and electric motors.

5. Sri P. A. Sanjeevi

Machines under erection for a rolled gold mill required for making fountain pen nibs. Claimed to be the first in India.

6. Vummidiars

Machine under erection for manufacture of screws with automatic machine and metal spraying.

7. Srinivasa Engineering Company

Machinery under erection for fabrication of Railway coach fittings and argonarc welding.

OCCUPANTS OF 'B' UNITS

1. Hivelm Industries, Private Limited.

Manufacturers of high voltage group operated disconnecting switches for 11 KV, 33 KV, 66 KV, 110 KV and 132 KV, current ratings up to 1,200 amps meeting the demands of Projects like Damodar Valley Corporation, Sharavathi, Tungabhadra, Periyar and other Government Electricity under-

takings throughout India. Annual production—300 Nos. of 66 KV. or 110 KV. The factory will be shortly shifting to A Units.

2. Railway and Marine Engineering Works

A factory for casting (5 tons per month) underground cable joints, C.I. pulleys, etc.

3. Madam R. Garnier

A wood working unit engaged in furnishing 3 Railway coaches per month for Integral Coach Factory and also high class furniture.

4. Vijay Engineering Corporation

A general purpose Engineering workshop with ferrous casting facilities. At present about Rs. 20,000 worth of orders are being executed per month.

5. Gears (India)

Manufacturers of precision cut spur, Hederal and Worm gears (by the generating process), Industrial Gear boxes and Gear pumps. Claimed to be the only small scale unit manufacturing Reduction Gear Boxes and Gear pumps. Turnover about Rs. 40,000 per month.

6. Resa Company

Manufacture Radios and amplifiers using only 30 per cent of the imported radio parts. The company produces at present 200 sets a month. The factory is being run on two shifts to meet the increasing demand.

7. Varun Industrial Corporation

A small scale unit approved, with the production programme for the assembly of 5,000 bicycles per year.

8. Indian Wire Products Industries

Manufacturers of wire nails and panel pins. etc. Production capacity 3 tons per day in two shifts.

OCCUPANTS OF 'C' UNITS

9. Amco Engineering Corporation

Manufacturers of electrical washing

machines, film printing machine and plastic articles. Monthly turnover Rs. 25,000.

10. Pressed Metal Products (Private), Limited.

Undertakes all press work and specialised in the manufacture of lamp shades, soap boxes, etc. Proposes to instal an anodising plant shortly.

11. Metal Container Co. poration
Manufacturers of tin containers and screw caps of all sizes.

12. Elite Optical Industries
Producers of spectacle frames out of cellulose nitrate sheets and rolled gold frames at the rate of about 450 frames per day.

13. Palani Industries
Manufacturers of Builders' Hardware such as 'T' hinges, butt hinges, padlocks, hasps and staples, tower bolts, handles, etc. Turnover Rs. 12,000 per month.

14. Prabhakar Products
Manufacturers of air-break switches from 11 to 33 KV. Monthly production 50 switches.

15. General and Industrial Leathers
Produce industrial belting, buffer bands, etc., with monthly turnover of Rs. 10,000.

16. Precision Works
Manufacturers of precision ground components for automotive engines against orders from large scale establishments. Monthly turnover Rs 9,000.

17. Electrical Accessories (Private), Limited.

Manufacturing of tube-light fittings, brass lamp-holders, post top lanterns, chokes, etc. Monthly turnover Rs. 6,000.

[Evidently the turnover production figures are anticipated. The occupants are requested to inform correct turnover at present, labour force employed, steel and other raw material allotted and the total expenditure and income sine occupation along with their other difficulties experienced for the benefit of the authorities and the general public. — Ed.]

18. Ace Engineering Corporation
Undertakes hot dip galvanizing to the extent of 7 tons per month.

19. Coogans
Supplies various types of die cast parts to the extent of 3 tons per month.

20. Nishat Industries
Produce motor pump parts and other automobile parts. The unit has just started and the annual turn is estimated at Rs. 2 lakhs.

21. Southern Conduits
Machines are under erection making about 3,000 feet of con pipes a day.

22. Armcess Engineers
General purpose Engineering workshop with a monthly turnover Rs. 10,000.

23. Pandian Industrial Corporation
Manufacture of paper pins and clips.

24. Electronic Industries
Assemble and manufacture transistor radios, radios, amplifiers, H systems, oscillators, morganite vol controls, transformers and me radio parts, etc.

25. Bharat Engineering Works
Manufacturers of automobile water-pump shafts, water-pump diaphragm for CAV pump shaft pump drive P6 with a production get of Rs. 1.5 lakhs per year.

26. Pagoda Metal Industries
Producers of mathematical instruments, index files with filing machine bond clips, etc.

27. Tepco Tool Works
Manufacturers of round head r. roofing hooks, cycle carriers and s drivers.

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Glu-Vit-D (Calcium Tonic with Vitamins C & D)

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Metazyme (Enzyme Preparation)

Calcium C (Calcium with Vitamin C)

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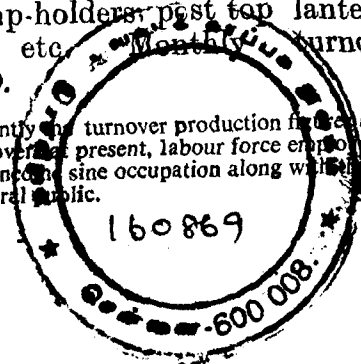
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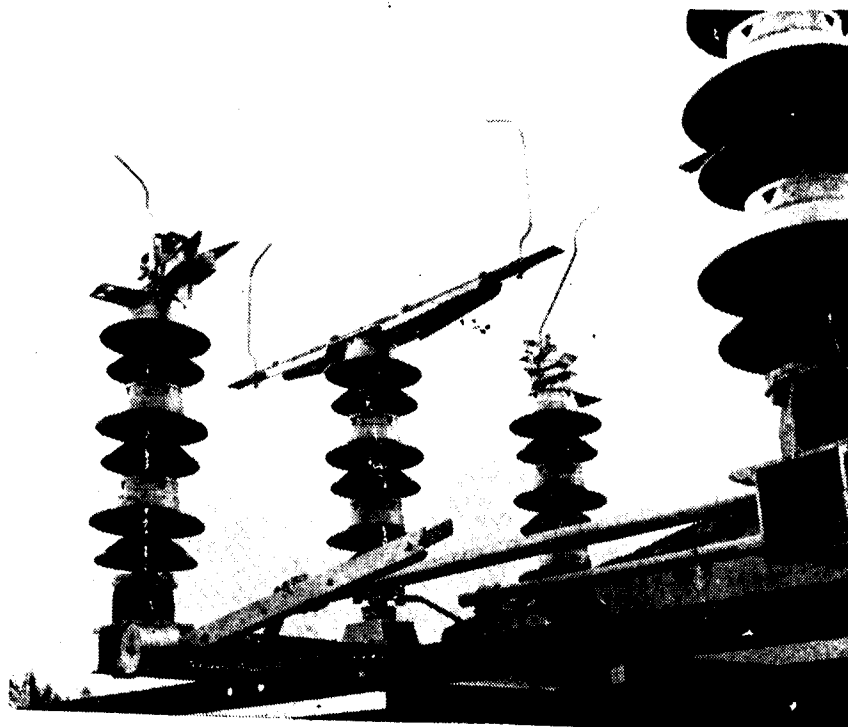


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