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# Mulki Industries



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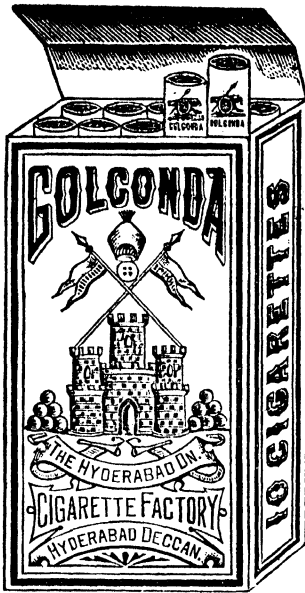
No. 8

A Monthly Magazine devoted to Indigenous Industries

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(Signed) L. BORNAND.



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### CEMENT ROOF TILES.

**C**EMENT concrete buildings are in the vogue now and both from the utility and ornamental point of view cement has definitely replaced lime and mortar. Floor tiles, balusters, kerbs and rails for buildings are becoming common building materials, while garden ornaments like flower beds, sun-shades and a multitude of other adornments in and around the yard have struck a new branch of the business. CEMENT ROOF TILING is however, a new product in the market and will rapidly come into the fore as a vastly better building material than the clay roof tiles. The advantage of the cement tile over the clay is undeniable. The cement tile is invariably a more finished product both in point of uniformity and exactitude size. They are thus a better rainproof. While for the matter of durability the cement tile, like all other concrete materials, increase in strength due to exposure.

#### METHOD OF MANUFACTURE

The tile can be made by the usual process of moulding. The Pallet and the Striker shape the underside and the top of the tile respectively. Of the many machines in use the simplest one consist of a bench on four legs with a top space of 2' 6" in square. A foot pedal operates the pallet through a hole. Cut away at the centre of the table. The Pedal is fitted with an iron plate at one end for the foot pressure and a balance weight on the other for the release. The method of pin-hinging the pedal at its fulcrum and at its intersection with the vertical timber carrying the pallet can be seen at a glance to prevent the pedal rising too high on release. An iron bar is fixed across the front legs of the bench at such a height that when the pedal comes to rest, the pallet is at the bottom of the mould. In forming the hole in the top of the bench a space of 1/16 in.

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should be allowed around the plunger to ensure easy working. The sides of the mould are formed with  $\frac{1}{4}$  in. angle-irons bolted to the bench top.

### MATERIALS TO BE USED

As the tiles have to be thin the materials used cannot be coarse. Only sand and cement should be used. The proportion should be one part of cement to three parts of sand. All coarse grains of sand or salt must be removed to prevent efflorescence. The rapid hardening of Portland cement will ensure strength and prevent damage in releasing the moulds early. The stiffness of the concrete used is a factor in detaching the pallets early. However, it will be difficult to give a proportion of the water, partly due to the moisture of the sand itself which can be determined only by careful experiments.

### COLOURATION OF TILES

Red is the popular colour and is obtained by using red oxides. The use of other colours is a question of improving on the traditional taste of our people. The colouration may be on the surface of the tile or the whole of the concrete. The surface can be done by a finer coloured concrete paste being brushed and then pressed in by an iron striker after the body has already been made. Otherwise a dry colour mixture can be spread over the body, sprinkled with water and then pressed in by the iron striker. When coloured throughout the colour

is mixed dry with the concrete mixture preferably in a ball-mill to ensure uniform distribution. For sand-faced tiles sand is sprinkled on the wet tiles and then water is added to bring about the desired consistency, through a fine sieve in the bottom of a shaker box mounted over the mould.

Rough faced tiles can be obtained by using a wood striker and left slightly rough. Random or pattern of variegated colours can be obtained by keeping a supply of all colours necessary beside the operator; the body of the tile may be coloured throughout in the predominating colour and the other shades added by placing small portions of different coloured mortars on this base and ironing them in with the striker, or the different colours may be brushed on to an uncoloured base and iron together so that they merge into one another. When a large batch of tiles is required in uniform colour a note must be made of the exact proportions of colour used in the first batch in order this may be maintained throughout. Any variation in the proportioning in the colour will result in batches of tiles in different shades.

### CURING

For 24 hours the tiles stay on the racks indoors. Then they are immersed in water for 10 minutes and stacked on edge outdoor. Thorough immersion is necessary to avoid further watering. Weather may affect the early maturing and

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the tiles should be under cover during excessive cold weather for fear of damage by frost.

For starting a concrete roof tile factory the following machines and moulds are essential :—

1. "Simplex" Roof Tiles Machine No. 55 fitted with one mould of either "Favourite" or "Ideal" pattern @ Rs. 231/10/- for each F. O. R. Bombay.

30) "Favourite" Pallets item No. 64 @ Rs. 1/10/ per pallet F. O. R. Bombay or alternatively 300 "Ideal" pallets item No. 70 @ Rs. 1/11 per pallet F. O. R. Bombay.

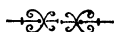
1 Ridge Tile mould No. 152 for making ridge tiles @ Rs. 44/7 F. O. R. Bombay.

These things are manufactured by Messrs Pedershaab Cement Mould Company Ltd, Denmark who are the pioneers in the manufacture of machines and moulds for turning out various types of concrete tiles. The Roof Tile Machine consists of one mould to hold the pallet, one tray at the end for playing the mix and one colour to the concrete tiles. Also it is equipped with a wire-cutting frame just behind the colour box so as to cut clean edges of the concrete tiles. The colour box which is fixed to the machine has got a perforated base. One part of cement to three parts of clean sand should be mixed with 10 per cent

water and this is the proportion which is strongly recommended by the manufacturers of this machine. The colour box of the machine should be filled in with one part of colour to eight parts of cement which is used for colouring the tiles. Before starting the manufacture, the pallets and other moveable parts of the machine should be oiled. The oiling of the pallets facilitates the quick release of the tiles from the pallets. The machines and the relative pallets can be had from Messrs. Killick Nixon & Co., Bombay, who are the sole agents in India, Burma and Ceylon and also from their local agents elsewhere. The sole agents will be pleased to answer any enquiries for these and any other machine or mould for turning out concrete products.

Hyderabad has immense potentialities for a roof tile industry. There are already several local concerns which specialize in concrete products of quality that will stand competition test against any outside products. With the newly developed taste in Hyderabad for concrete buildings of modern types, the demand for concrete roof tiles will be abundant. Messrs. Dadabhoj & Sons, Messrs Reliance Tile Factory and **The Indian Hume Pipe Company** have done extensive concrete work on commercial scale and with the experience they have behind them will find it an easy experiment. All that is required is the preliminary initiative.

# **CEMENT** AND **CEMENT CONCRETE.**



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### WOOD — A COMPETITOR OF STEEL

**T**HE wood preservation expert of the Forest research Institute, explained recently that wood immunised against white-ant attack was a material which could compete seriously with concrete and steel in the construction of bridges, buildings and for electrical transmission and service lines. Pamphlets on his subject, it is believed, are to be issued shortly, says a note of the forest research officer to the Government of Bihar, which has been released for public information.

A few years ago, continues the note, any suggestion that wood could compete in permanent structures in this country, with iron and steel would have been received with ridicule on account of white-ant ravages. But the discovery of 'ascu preservative' at the Forest Research Institute by Mr. Kamesam, has opened up a new era in timber construction. For 25 years the Research Institute has been experimenting all known wood preservatives in an endeavour to find one which would give complete satisfaction. The new compound 'ascu' made by mixing copper sulphate and arsenic pent-oxide, both well known wood preservatives, with potassium dichromate, remains fixed in the wood. The presence of potassium dichromate in some way prevents these preservatives from leaching out as happens when they are used alone.

This discovery to some extent meets the first stipulation of engi-

neers, namely, that structures must be permanent. It is not yet known how permanent ascu pressure treated wood is, as the preservative has only been discovered three years ago. But Chir pine sleepers treated with arsenic pent-oxide have, when protected from leaching, lasted 22½ years, so that it is reasonable to suppose that ascu treated wood will last at least as long—probably longer, for exterior work. For interior work, cases are on record, where wood has lasted hundreds of years.

The claim that ascu is not leached out is supported by laboratory tests which showed that after immersing treated material in water and oscillating for 20,000 times, less than 1% of the arsenic could be detected in the washings. Also treated timber in Madras harbour shows no sign of toredo attack after three years and yet teak has been attacked.

Another point in favour of the ascu preservative is, that the preservative tank is portable. Even poles up to 45' long, require only three sections of the steel cylinder transportable on three bullock carts. The next claim made is that timber joints are now 60% stronger than when wood was bolted together, the method formerly employed. Now rings are embedded in each member, while the bolt tying them goes through the middle. This distributes the sheer stresses which are set up

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and which would ordinarily split the wood. The discovery allows members to be 40% lighter than formerly. Cheapness is another point strongly in its favour. Apparently wooden structures can be erected two and a half times as cheaply as concrete, while if bridges are erected in places where wood is easily available economy in transport increases its relative cheapness.

It is amazing to learn that it is possible to build a wooden bridge with a span of 320 feet capable of carrying a load of 15 tons. Bridges in our forests are simple in cons-

truction and rarely do we exceed a span of 25. Apparently 80% of the road and rail bridges in America are built of treated wood, while Germany specializes in overhead roofs to railway stations. High wooden towers for wireless broadcasting, treated wooden trusses for halls and workshops and wooden bridges of big spans disclose engineering feats in wood, hitherto undreamt of in India.

India has some of the finest structural timbers in the world. With the advantage of antiseptic treatment she has now the opportunity of utilizing them to the ful-

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### CANE CULTIVATION AND SUGAR INDUSTRY. IN HYDERABAD STATE

P. V. RAMANA RAO B. SC.,

**P**ROPOSALS for the improvement of cane cultivation and erection of Sugar Factories, for the establishment of sugar Industry in the Dominions, have been in progress for a considerable time. With the climatic and irrigational facilities in the state it is high time we realised the importance of developing this promising industry.

This growing industry for an efficient development will need the full co-operation of the Government on one side, and of the grower. A comparative survey of the proposition within itself and with reference to other industries, is an essential factor for a clear understanding of the situation in which this industry is placed at present. It is equally necessary to scrutinize the results the Industry has achieved in different places and under different conditions. The industry may thrive well in one place, but may be commercially negligible in another. It is the natural advantages or disadvantages the specific locality holds, that determine the success of an industry. Secondly, the industry needs protection from the Government for its preliminary existence and welfare. Public enthusiasm takes its usual course, impregnated with patriotic feeling. Capitalists should come forward to shoulder the burden, not with a

selfish motive, but with nobler ideal of indigenous effort. Unless such an ideal is realized progress is bound to be slow.

It will not be out of place to sketch here briefly the set backs the Indian Sugar Industry has undergone. It is well-known that India claims to be the mother of sugar industry. While this Industry, was still in its infancy, was quickly grabbed by outsiders who exploited it on more scientific lines. Jaggery making is an ancient Indian industry and still survives as a cottage industry in India. It developed within itself and soon had to compete with foreign trade. In the meantime, sugar making also entered the industrial arena. India once again showed her ingenuity in the manufacture of sugar as well. When Indian sugar industry was in a flourishing state, Europe began to turn out crystal-white-sugar from beet root. Indian market had risen to the position of a first rate exporter of sugar, when it had to face the competition of beet sugar. This was about the middle of the nineteenth century. Since that time, the sugar trade in India had the sad experience of a gradual fall. Taking advantage of this situation, Java hurried to export sugar to India. The world-war resulted in a general trade depression, which

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equally affected all industries in all countries. The British Government also enhanced by steps the import duty on foreign sugar, with a view mainly to protect Indian interests. Soon after the war, Java resumed its exports, which rapidly rose to the extent of a million tons of sugar by 1930. This caused a great anxiety both in the public and the official circles. A committee was organised under the Tariff Board, and protection was granted to the Sugar Industry in India for a period of fifteen years, commencing from 1932.

The post war period experienced the maximum exports from Java, which was a sufficient proof for the justification of the protection granted. It has been suggested by the Tariff Board that during this period of protection the industry will have built itself to be independent enough to require no safeguarding at the end of the protection period. Within these fifteen years India is expected not only to manufacture all the sugar it requires, but also to be in a position to export. In fact, the progress shown within these four or five years has been marvellous. In 1920 the factories in India numbered as low as 20 to 30, whereas 1935 has seen not less than 150 in full swing. The area under sugarcane is 3.3 million acres, and tonnage it yields is 55.6 millions. The average capacity of a factory falls in the vicinity of 600 tons cane crushed per day. Some 80 to 90 Thousand

labourers and 15 thousand officers found employment, and nearly 20 crores have been invested in the industry. The profits are shared by the cultivator, the manufacturer and the capitalist.

This is the progress India has made as a whole. More than 50% has been contributed by U. P. where there are nearly 75 factories. Bihar and Orissa with 37 factories stand second. Madras comes third with a dozen factories. Punjab ranks fourth with another dozen. Bombay and Bengal fall in the fifth class, having 10 and 6 factories respectively. Three are in Burma, and 6 to 10 in the States. Thus the total number reaches 150 to 160 according to the report of 1934-35.

So far Hyderabad has been merely an onlooker. Though the state has long since been cultivating cane and manufacturing gur or jaggery, it has hardly taken to the art of manufacturing sugar or refining gur. In spite of the highly fertile lands, excellent climatic conditions and cheap irrigational facilities, the State has not taken the lead in the march of Sugar Industry in India. It has been importing all its sugar requirements from other provinces, and also gur to the extent of the needs of actual consumption. It is also a point for consideration that the per capita consumption of both gur and sugar within the State, falls lower than that of British India.

But attempts are in rapid progress to bring the facilities to their

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maximum utility. Much research is being done for the proper method of improving cane cultivation. Expert technical advice has been sought from men like Mr. R. C. Srivastava, the Imperial Technologist, Mr. T. S. Venkatraman, the sugarcane expert, and others. There is much scope for the extension of cane cultivation nearly to double the present area. The Nizam Sagar project offers the water requirements for the concentration of cane area upto 20,000 acres or even more. The State can be made self content within a short period, by the springing factories at Nizam Sagar area and other localities. Thus jaggery and sugar needs can be met within the state. The money wasted on imports may be turned to the benefit of the Mulki. The State can be brought to the fore front in the general march of sugar industry with an additional source of revenue.

The factors constituting for such a promise in Hyderabad State for Sugar Industry, become crystal-clear when we review the progress sugar cane cultivation has made in the State. Hyderabad is well suited for cane cultivation from several points of consideration.

Advanced Provinces, (like the U.P.) fail in comparison with the Dominions, as far as cane growing is concerned. Sugar cane requires a tropical climate with dry weather and normal rain fall. Being nearer to the equator, the State offers better possibilities for

growing of sugar cane than the provinces in the North. Madras Presidency may also satisfy these conditions, but falls short of this State. Frost is an enemy to the cane. In Northern India often the crop fails due to frost, but the State is free from such handicap. Being midway between the Eastern and Western Ghats the Dominion shares both the monsoons and has a favourable rain fall. For a normal vegetative growth of cane, rainfall seperated by intervals of dry weather is essential. This condition is satisfactorily met in the State and Deccan lands are said to afford fair prospects.

A satisfactory rainfall, a healthy soil, proper climate, cheap irrigation rates, and suitable drainage systems, are among the important factors attendant on a systematic cultivation of sugar cane. Compared with the cane growing regions, Hyderabad justifies all these wants more, or less thoroughly. Mr. T. S. Venkatraman reports, "the bulk of the soil appears to need enrichment in plant food and improvement of its moisture retentiveness." The required amount of pure water, suiting cane, is made available for cultivation by the Nizamsagar Project.

Government farms have long since been turning out experimental work, besides growing crops for fodder and multiplication of seeds for distribution to cultivators. There are five farms in the Telingana Divi-

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sion, at Himayatsagar, Mahaboobnagar, Sangareddy, Nizamsagar, and Alir. And one farm in the Marathwada Division at Parbhani. Thus in all six farms have been carrying on researches as regards manurial tests with rice, maize, tobacco and other important crops like sugarcane, jawar wheat etc. The Administrative Report of the Agricultural Department states, "It has been found that the chief requirements of the soil are nitrogen and phosphoric acid. Ploughing experiments on paddy soil, chalka soil and garden soil respectively showed that ploughing with soil inverting ploughs has been advantageous."

"It was ascertained after repeated experiments that sugarcane planted in January gave more output than that planted in December or February," describes the chapter on Agriculture in the administrative Report of H.E.H. the Nizams Govt., 1340 F. Thus experiments with a number of new and modified varieties, with their characteristic early and late ripening behaviour, it is possible to prolong the crushing season over 5 to 6 months. Proper attention has to be paid for the seasonal plantation and timely harvest of the cane crop. A systematic rotation of cane with rice, maize, tobacco and other crops, which are among the chief in the State, helps to increase the retentive capacity of the soil for plant food. Any deficiency in the supply of food stuffs in a particular soil, can be qualitatively and quantitatively

determined by analysis in the laboratory, and the shortage supplemented from the store of artificial manures, such as ammonium sulphate, sugar phosphate, sodium and potassium nitrates, potash etc.

Demonstrations of the various Agricultural implements and their proper usage give a clearer and educative idea to the cultivator, who is the person to receive immediate prize for it. Manurial supplements have to be done with proper care, and in co-operation with the cultivator, who should make an earnest attempt to understand the scientific significance of such applications. Blind use in excess or deficiency, works against the crop being a successful one. Variety of experiments has to be continued, and any improvements arrived at have to be readily explained to the cultivators for their benefit.

A propaganda of this type has been in existence long since in Hyderabad. The Administrative Reports supply the necessary information. Varietal experiments were made with groundnut, maize, jawar, wheat, gram, tobacco sugarcane and cotton. The cultivation of groundnut, sugarcane CO 213, transplanting of paddy, manuring of paddy with ammonium sulphate, ploughing with iron plough and other improved implements, and the copper sulphate treatment of Jawar, were demonstrated in almost all the districts of the Telangana Division. The cultivation

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of cotton, oats and sugarcane, use of improved implements, and improved methods of gur making were also demonstrated in the Marathwada Division.

Though sugarcane has been one of the important crops, that have been duly attended to in this State, it has to advance still more compared to cane cultivation in other Provinces, and States like Mysore.

The local varieties in all other places have been almost completely superseded by the improved varieties from the Coimbatore experimental station. The improved varieties have risen much more above the normal yield per acre than the local varieties. Having been developed by crossbreeding, the Coimbatore varieties incorporate the combined qualities of different varieties. They withstand to a great extent diseases like red rot, black rot etc., and attacks like the white ant, and the borer. The local

canes depend on the natural conditions mostly, whereas the improved canes submit to scientific treatment. The local canes demand heavy labour during cultivation, and much attention at intervals, resulting in rather higher costs of cultivation. Coimbatore varieties yield to low cost and less labour, require less irrigation and less manure, and at the same time yield higher tonnage.

They have also been much useful in Hyderabad, and have been adopted under the expert technical advice of Mr. T. S. Venkatraman, Mr. R. C. Srivastava, and Dr. Herald H. Mann D. Sc., As pointed out by these experts, there is wide scope for cane cultivation and its extension in the State. Attention has been drawn to the rich cane crop, which is the most suitable both from the point of view of the cultivator and the manufacturer, fetching maximum revenue to the Government.

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### A PROSPERITY PLAN FOR HYDERABAD.

M. G. LAKSHMINARU, B. COM.

(First Instalment of this article has appeared in our issue of July 1936 — Ed.)

**W**E have at present a few large and medium scale industries like the Textile Mills, Cement Factory, Coal Mining, and small scale industries like Cotton Ginning and Pressing Factories, Rice Hulling, and Oil Crushing, Cigarette and Match Factories in all employing about 25,000 people.

We have no heavy or basic industries like Iron and Steel. We are importing about 42 lacs of Iron and Steel every year. Steel is the basis of all modern progress. Its importance to the development of Industry, Trade and Commerce of a country cannot be over-emphasised. In the absence of our own Iron and Steel Industry it will be beneficial if some arrangements could be made with an indigenous Iron and Steel manufacturing concern like The Mysore Iron and Steel Works on some kind of an interstate co-operation— “a partial unification of human interests by function rather than region”.

#### POWER.

Next to Iron and Steel Industry, Power is considered the most important basic industry that will contribute to the all-round industrial development of the country. Our Power resources are fairly good and is estimated that if all the resour-

ces are harnessed we could easily generate about 80,000 H. P. out of the Thungabhadra, Krishna, Devanur, Purna, Manier and Nizamsagar Projects.

Hyderabad has not yet found a place on the Electric map. Mysore which was, the first to introduce Electricity in India has a total consumption of Electricity per head of population 15 and Madras 15. The total production of energy in Mysore at present is 50,000 H. P. and Madras 36,000 H. P. Madras within next three years is having additional Hydro-steam plants with a total capacity of 56,000 B. H. P. as against a total output of about 7000 B. H. P. in the whole of our Dominions.

Electricity is rightly considered the Master Power. The more power a country applies for production the more prosperous are its people. An American expert goes so far as to say “Where there is no Power, the people are always close to starvation”.

Electric Power is used in a variety of ways and purposes. It helps rural farming. Industries can be carried to villages. Electricity has become synonymous with Modernity, civilised existence and progress. Bombay, Mysore and Madras have made some headway in

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lighting important towns and development of industries Travancore, a much smaller State, has undertaken a big Hydro-Electric Scheme costing about  $1\frac{1}{2}$  crores. Mysore, I understand, is contemplating to generate another 100,000 H. P. at Gerosoppa, and have a "Mysore Super-Power System" interlinking Sivasamudram Krishna-raja Sagar and Gerosoppa Falls.

Major Howard the Chief Electrical Engineer to the Government of Madras, has recently indicated a National "Programme" of covering the whole presidency with a net work of wires to form an inter-communicated electrical Transmission between Pykara, Mettur and generation at Bezwada.

Italy electrified 3000 miles of Railways in 1929. About 75% of the industries are electrified in U. S. A., about 70% in Great Britain.

A comprehensive scheme of development of Electric Power should therefore be launched in these Dominions to supply cheap power for domestic use and public utility concerns. There is no doubt in its contribution to the prosperity of our agriculture, industrial and trade, as it has done in other parts of the world. The small installations of electric plant in Aurangabad, Raichur and Nizamabad have, I understand, already begun to reflect themselves to a noticeable measure in the development of small indus-

tries like flour mills, silk industry etc., and agricultural farming.

### COTTON INDUSTRY.

Every year we import about 3 crores of rupees of Cotton Yarn, piece-goods and hosiery, and export raw cotton worth about 4 crores of rupees. Is this not a serious drain annually on our slender resources. We have ample natural resources. The climatic conditions are suitable for the manufacture of the cotton into cloth. We have a steady and increasing home market. There should therefore be no reason why we should not plan and programme to manufacture at least all the clothing required in the State.

### OIL SEEDS AND OILS.

A business friend of mine in Bombay once told me that the Gold Mine of Hyderabad is in its Oil Industry. This statement is a fact. Nearly 40% of our export trade is in oil seeds, and we are one of the biggest producers of oil seeds in the World.

### CASTOR OIL.

Castor Oil gives us health, wealth and prosperity. The perfection of the Dissolvent process of extracting Castor Oil, its exceptional adaptability for internal lubrication of combustion engines has made it a prominent industry.

It is a well-known fact that among all the oils, Castor Oil alone is insoluble in mineral oil and

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further Castor Oil is the only oil that is least affected in its viscosity by intense cold. Due to its physical and chemical properties, its ability to retain viscosity in high altitudes and nonsediment character it is pre-eminently suited for Aeroplanes. The best Motor Oils are compounded with Castor Oil (Castrol "R"). The oil used by Sir Malcolm Cambell in his world speed record, I understand, contained 90% Castor Oil and 10% mineral oil. It may also be mentioned here that the best oils manufactured in America for Home Market are all compounded with Castor Oil.

The recent race for a parity of armaments among the nations of the West and the sanction of £ 150,000 by England, and U. S. A's sanction for an additional number 6000 machines, Japan, France, Germany and Russia all trying to maintain a parity, it is anticipated that there will be another 30,000- 40,000 more planes within the next 12 months making a total of about 70,000. These factors help the growth of the demand for Castor Oil ten fold in the World within the next few years.

In India alone we have over 200,000 cars., buses and lorries, in daily use, which means a monthly consumption of 100,000 gallons of lubricating oil per month. This market is growing every day.

We export annually about 1 crore rupees worth of Castor Oil

seeds. Instead, if a plant is erected for the manufacture of Castor Oil lubricants for Motor and Aeroplane a gold mine will be struck in Hyderabad and the general prosperity of the people will increase by one stroke. This is a question which needs to be carefully and urgently investigated.

There are also various other uses of Castor Oil such as making Turkey Red Oil, Disinfectants, greases etc.

### GROUNDNUT SEEDS.

We are annually exporting over 3 crores of rupees of groundnut seeds. Groundnuts can be utilised for making a substitute for ghee or Tallow, Hydrogenated groundnut oil, in fact, all the Hydrogenated oils will be very useful in Textile Industry in sizing.

### SUGAR.

We are annually importing about Rs. 1 crore of sugar and jaggery. The per capita consumption of sugar and jaggery in these dominions are at present 3 and 16.7 lbs respectively as against lbs 6 and 20 in British India. It is therefore evident that the demand for sugar is bound to increase with the rise in standard of living of the people.

Our Agricultural Department have proved that the soil and climatic conditions in the Nizamsagar Zone are suitable for cane growing. The Nizamsagar Project, which has been completed about five years ago

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at a cost of nearly five crores of rupees is anxiously waiting for co-ordinated efforts to confer its full benefits upon this country. There are about 20,000 acres of land eminently suitable for the growth of cane.

The present time is most opportune to start the Sugar Factory. Capital is ready, labour is cheap and available in plenty. Money is cheap. The market is at our doors. This is an industry which can develop within a year. The development of this industry will therefore not only increase the prosperity of the State but will augment the revenues of the State. More than four years of the guaranteed protection is steadily passing away and we seem to be still sleeping.

There were so many proposals, so many meetings and everything seemed certain, but still the Sugar Factory is not yet an accomplished fact. In Mysore the Sugar Factory which was started about three years ago has now doubled its plant, its entire output is sold in advance and after providing large reserve funds has declared a very high dividend. It is earnestly hoped that ere long that we will have the pleasure pay the pride of having a Sugar Factory in Hyderabad. Every minute delay is a serious and irreparable loss to our State.

### PAPER

We have extensive bamboo forests and our bamboo seems to be

quite suited for the purpose of making paper. The demand for paper and paste boards is about 7,00,000 every year. An up-to-date factory to manufacture all the paper required in the State, provide employment for a large number of people and convert the raw material which is practically going to waste is an urgent need.

### HIDES AND SKINS

We are exporting annually about 30 to 35 lakhs worth of Hides and Skins, raw and tanned, and importing in return about Rs. 8 or 9 lakhs of Boots and Shoes. There is ample room to develop an up-to-date shoe Factory. A small country, Czechoslovakia has been exporting large quantities of boots and shoes. We can make at least a beginning to supply the requirements of the local and neighbouring presidency markets.

### BONE FACTORY

We are exporting considerable quantity of bones. These bones could be used for manufacture of bone-meal.

The question of manufacturing caustic soda and bleaching powder, sulphuric acid, calcium cynamide and other chemical manures should be seriously investigated.

### PERFUMERY AND SCENTS

We have a good local market for perfumes and scents. A well equipped perfumery factory can be

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started along with the Industrial Laboratory for the manufacture of perfumes and scents, by importing sandal wood oil from Mysore or other essential oils from abroad if necessary.

### GOLD AND SILVER THREAD FACTORY

We are importing about 6 to 7 lakhs worth of gold and silver thread and there is considerable scope for starting a plant to manufacture these.

### PETROL FROM COAL

The production of petrol from coal has been possible by the research work conducted by the Imperial Chemical Industries Ltd., for more than 8 years in collaboration with the Standard Oil Co., The Royal Dutch Shell Co., and the I. G. of Germany. These companies have pooled their patent rights, exchanged technical information and formed themselves into an International Hydrogenation Patents Co., the petrol produced being marketed through the existing Oil Companies. Experiments should be conducted whether our Singareni Coal has sufficient bituminous content and is of suitable quality for Hydrogenation.

### CENTRAL INDUSTRIAL WORKSHOP

India is buying every year about 40 crores of Railway Plant and rolling stocks. Our Railways import about Rs. 50 lacs worth of Railway

Plant yearly. We are further importing large quantities of agricultural implements, rice hullers, doors and window fittings, knives, spoons, bolts and nuts, screws etc. We have at present three Workshops, the Railway workshops, Mint Workshops and the Engineering College Workshops. If all these institutions could be pooled a big Central Industrial Workshop could be organised to manufacture a considerable portion of the above mentioned articles. This can gradually be developed into a big Factory to make all the Plant and rolling stock required. This institution should be developed as a Federal concern enlisting the interest and co-operation of the Government, of India, Hyderabad, Mysore and Madras. An agreement with an English or American Company to depute experts for the lay out of the plant, to manufacture and to market the products on profit sharing basis for about 10 to 15 years will be a beneficial contract and a certain means of developing this branch of industry, secure the Government of India's patronage which is absolutely necessary and to acquire the benefit of the experience of the West without mortgaging the interests of the country or posterity.

### FILM INDUSTRY

In recent years the import of Films have increased enormously. Cinimas, if rightly developed, organised and regulated, could be used as a powerful weapon for educating our people, to fill the popular

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imagination with higher ideals of life and devotion to duty, to develop the nation-building activities, demonstrating factory industries, agricultural development and scientific research.

The film industry is a Key Industry and many of the Governments in the progressive countries of Japan, Europe and America take special interest in maintaining it at a high level.

Hyderabad lends itself charmingly to the development of film industry. There is sufficient histrionic talent, beautiful scenery and in fact everything that is conducive to the development of this industry and starting of an Indian "Hollywood" at Hyderabad.

By a recital of so many industries I am not unmindful of the fact that only such industries as have natural and other facilities can only be developed. To avoid any possibility of misconception let me at once say that what I am aiming at is not a "self-contained industrial state" (which may be considered by Economists as an "Economic Absurdity,") nor anything that may curtail the free flow of commerce between people and people or State and State, but "the building up of a healthy economic equilibrium by a proper working of the natural resources and labour and proper distribution of industries so as to result in an around increased productively and increased inter-

provincial, interstate and international commerce on mutually advantageous terms"

### AGRICULTURAL DEVELOPMENT

The statistics of our production, imports and exports show that the food supply of our population is too inadequate. Rice is our staple food and it is surprising that we are still dependent upon imported rice to the tune of nearly a crore of rupees. We have a huge irrigation project like the Nizam Sagar. More than about 250,000 acres of land are expected to be brought under cultivation under this scheme. There are several other projects under which several lakhs of acres of land can be cultivated. Although Rice is not an economic crop, it is our food, and it is an economic virtue that as far as possible we should produce all our staple requirements without depending upon other countries. It is a different matter if there are no natural facilities for the production of all our staple requirements.

The outstanding defects of our rural life are "The excessive pressure of the population on land, the small size of holdings and their progressive fragmentation, the primitive methods of cultivation followed, the waste of farm manure, irregular hours of labour, insufficient and uneconomical utilisation of women's services, the lack of finance for farm work, the old fashioned character of the subsidiary

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occupations pursued, the crushing indebtedness of the ryot, short employment, universal illiteracy and phenomenal poverty."

In order to avoid these defects and to see the results of big irrigational projects are a success we should organise land colonisation schemes on a large scale. Ownership of the land should be held in co-operative society or Company and the members of their descendents being entitled to only interest or dividend, land mortgage banks, Dept Redemption and rural Reconstruction schemes should be introduced as in Madras, Mysore, Bhavangar, and Travancore.

Up-to-date and scientific methods of agriculture should be introduced, industrial and more remunerative crops grown to get an increased return from the land. In short we must industrialise our agriculture. "If the inertial of centuries is to be overcome" says the Report of the Royal Commission on Agriculture in India presided by Lord Linlithgow the new Viceroy, "it is essential that all the resources at the disposal of the State should be brought to bear on the problem of rural uplift. What is required is an organised and sustained effort by all those departments whose activities touch the lives and the surroundings

of the rural population". A Board of Agricultural Development and Rural Reconstruction should be constituted to tackle these schemes on a well-thought out plan.

### A NATIONAL SCHEME OF HOUSING

In order to eradicate the insanitary conditions of living, overcrowding, plague and other diseases, to increase efficiency, happiness, peace and security, it is necessary that every citizen should be helped to own a decent home. Co-operative Housing Societies and Public Utility Societies are organised throughout the World to assist people to construct model houses and thus enable "every citizen to become his own Land Lord". In England the Building Society Movement to provide funds to make every man "his own Land Lord" has been growing in space and volume. In 1925 the Ministry of Health issued a circular explaining and illustrating the method by which the individual citizen may be enabled to become his Land Lord. Every progressive country throughout the world has been helping with money on long term loans, land and various special concessions to help this movement. A Board of National Housing Scheme should be appointed to go into this question.

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### AN AGE DEVOID OF MANUAL SKILL

**T**HE first man who grasped the fact that with his opposed fingers and thumbs he could wield the first primitive tool determined the course of human progress. For man advanced in intellect as he became more and more a skilled tool-using animal. It is important to remember this, for it means that there is a close relation between the hand and the brain, writes Sir Herbert Barker, the famous manipulative surgeon.

It is a commonplace that the crafts fathered the arts. But they did much more than that; they actually determined man's intellectual growth. To take a very simple illustration to drive home this point.

Before the first man wrote, forming shapes and designs to clothe his ideas, some man before him had produced the tool without which that mode of recording thought could not be utilised. In a word, first the hand then the brain; the first the handmaiden of the second.

After the stylo, the act of writing; after the movable wooden types of ancient China, that people's vast and inexhaustible literature. It is unnecessary to stress the point, up to a point man progressed as a social and thinking animal to a degree conditioned by his manual skill. The crafts and arts moulded civilisation and are everywhere made manifest to us in our glorious heritage.

But consider what has come about. Man pushed his tool-making proclivities to their logical conclusion. He made tools, not as mere extensions of his two clever hands, but as substitutes for them.

He made machines. Now we find the process turning upon itself. And man, master of countless thundering machines, slowly moves along the dangerous path of manual importance.

In nature there is a strange compensating law or balance. Nature provides nothing free, but all we need—at a price. The price we are now paying for our mastery over the machines is an inevitable return to the unskilled, what I might call the uneducated, hands of our primitive ancestors.

In those ages when men had of necessity to bring manual skill into play to solve the material problems of the external world about them—to fashion saddles for their horses, bows and arrows for the hunt, great timbers for their houses, they practised the manual crafts. Those were the ages of the Educated Hand. And they have passed.

Modern man, speaking broadly, is a complete derelict in his physical environment without the machines. Imagine, say, a dozen cultured men and women suddenly left high and dry on a fertile island. Suppose that their number includes a mathematician, a lawyer, a doctor,

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a novelist a chartered accountant, an industrialist and a carpenter, a fisher man and a farmer.

The farmer could set about cultivation, aided by the carpenter who would fashion for him rough tools; the fisherman, aided also by the carpenter would soon be afloat and drawing sustenance from the sea.

But what of the others, those intellectuals those specialists of the modern world? I imagine they would soon be taking a stock of themselves and revising their standards of values.

I am not trying to run in the face of the inevitable. Machines are here, for good or evil. They need minders, and men must do that minding. What I am saying is this; modern man, by neglecting to acquire manual skill is losing an intrinsic part of his physical inheritance, is slowly returning to inept fumbling.

I think that the first thing a child should be taught is the use of its two hands. Every child desires manual skill instinctively. That instinct is too often thwarted.

Is such a notion practicable? I think it is. It is good that a child should be taught to write. But is not the logical approach through the hands—by the marking of the instrument?

It may be objected that a child could not make a lead pencil. I agree. But the wisest worker always

utilises the simplest material. Any child could contrive a style and discover some surface upon which to scratch its first hieroglyphics and pictures.

Few men and women to-day can boast any skill of the hands at all. That is completely deplorable. We take our "daily dozen" as a matter of course: but our hands, those marvellous prehensile tools provided by nature, lie idle, neglected. They have no skill at all.

Life is enriched by the use of the hands. Life is given a new and exciting interest by increase of manual skill. As the hand progress in cunning, in some mysterious way it nourishes the brain, for the link between the two is fundamental.

Every child, whatever its ultimate career, should be master of some craft. Every man condemned by the nature of his occupation in our highly artificial civilisation to non-manual work should acquire a craft however simple.

One man I know found tremendous zest in the craft of constructing scale models of our old wooden ships. His work was very beautiful. It took his mind along too. He first made a ship—a year's work. He then wrote a biography of the old sea captain who once navigated her.

The full possibilities of the hand are unsuspected by us. There are in this delicate piece of mechanism more mysteries than we suspect.

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Take, for instance, the case of a woman I know who is totally blind. Hand her a number of differently coloured fabrics and she will name the colours. That marvellous feat is, of course, due in part to Nature's compensatory law that endows the remaining senses of the deprived with a new acuteness. She sees with the nerves of her hands.

There are very many ways in which the sedentary worker can find joy and release and a new sense of living by the use of the hands.

Much of the mute unhappiness of many people to-day is due to the fact that they have, unknown to themselves, a desire to create. They are not artists, yet they have deep down within them the artist's creative impulse. Those impulses find an outlet in the acquisition of manual skill.

To make something—to stand back and regard a thing actually made by one's own hands—that is a

joy akin to the artist's joy of creation. And in its humble sphere it is creation. The reward is fuller life and more perfect harmony of the body, closer rhythm between the body and the mind.

Moreover, it is only by working in concrete materials that it is possible to come by a real appreciation of reality. By manual work we learn the character of materials until they seem like something new rather wonderful. And it is the same with colours; we realise we have never before used our eyes.

In my own work I depended entirely upon two educated hands. It was said my hands were different from the hands of other people. The only difference, I may say however, lies in the fact of education.

Anybody can educate his hands and through their medium speed up both mental processes and the quick and vital response to life and all of joy that life has to offer us.

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### *Insurance Field*

#### INSURANCE AS A PROFESSION

**J**UST at present when authorities everywhere are making a detailed examination of the Report of the Sapru Unemployment Committee, a view is expressed by some that Insurance is a profession and a business. There are excellent opportunities in the field of Insurance for intelligent and persevering agents. A prospective Insurance Agent should, before trying for an agency, master the technicalities of the insurance business and should make it a point to acquire a fairly good knowledge of Insurance business in general, especially what facilities this business offers to prospective purchasers of Insurance. This career presupposes zeal for work—canvassing capacity and capable salesmanship would come by itself.

On appointment the first duty of the agent should be to study the prospectus and other literature of the company until he is familiar with the strong points of the company he represents. The Chartered Insurance Institute of London have organised a course of lectures for the training of Agents. Mr. W. Penman, the Chairman sums up the ideals and suggestions as follows:—

1. Competition increases and conditions are difficult; prices are down and expenses up; yet progress is being made. Competition, in fact, helps business.

2. Naturally-inspired salesmen are few. Most of them have to achieve success by learning and using correct methods, by organising their activities to advantage, and by saying and doing the right thing.

3. Every "indoor" man is a salesman for his Office. The way in which letters are answered, the way in which the telephone is attended to, and in which the messengers look after callers should all be part of the office salesmanship technique.

4. One of the duties (of the management) is instructing—another is heartening the staff.

5. A salesman can acquire good selling habits or bad selling habits.

6. Knowledge, Honesty and hardwork are the three essentials to success.

7. Courage, knowledge and service. Courage to initiate knowledge to convince, and service to

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sustain—with perhaps a measure of pride of occupation.

8. Honesty in giving advice to agents and prospective policy holders is essential.

9. Avoid exaggeration. Be meticulously honest and sincere in any statements made. Cultivate enthusiasm and a sense of responsibility. You should be able to regard yourself as an advisor, almost as a professional man—not only a salesman.

10. It is not sufficient to know about the goods you sell. It is necessary also to be able to express yourself clearly about them and in a suitable form.

11. Things are brought, not for what they are, but for what they do. A man does not really buy a life policy—he buys the assurance that his dependents will have a sum of money when he dies, and he buys the quite legitimate sense of satisfaction which that feeling gives him.

12. A purchaser should get something of more service to him than the price paid. The seller is entitled to a fair profit. It is the salesman's duty to see that, the business is such that his employer is involved in no special difficulty in handling it.

13. Good salesmanship is not selling a man something which he does not need—selling him too much is as bad as selling him too little.

14. Most people realise the need for insurance; the problem is to convert the vague recognition of need into definite action.

15. It is sometimes better to dwell on the income which the sum assured under a life policy will produce rather than on the actual amount of the sum assured.

16. It is not necessary to sell the cheapest goods. Don't make the mistake of under-estimating the amount of insurance a man is likely to want. He will appreciate the compliment if you are above rather than below his requirements.

17. Avoid comparisons if possible, but if comparison is necessary be fair. Never "throw mud" at a competitor—to do so to do disservice to the whole business. "Go through life without ever ascribing to your competitors motives meaner than your own. Nothing so lowers the moral currency. Give it up and be great."

18. When possible, it is better to be particular than be general, e.g., it may be better to say "If you die this policy will secure your son's education" than to say "If you die the sum assured by this policy will be available as provision for your dependents."

19. Donot lose sight of the "costing element." Eliminate unnecessary travelling. If you have made a special journey, try to arrange other calls in the neighbourhood which you have to visit.

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### Notes

#### MANUFACTURE OF CAR BATTERIES IN INDIA

**A** new Company has recently been floated in Bombay, primarily for the manufacture of Motor Car Batteries, Bulbs and other electrical goods.

Among the Directors who constitute the Board are some of the prominent businessmen of Bombay. Mr. K. R. P. Shroff, President of the Stock Exchange, is the Chairman of the Company and Mr. Jivatlal Purtapshi, Director of Bullion Exchange is the Vice-Chairman.

The Factory premises of this Company are at Bangalore. True to its traditions, valuable concessions, we are informed, have been given by the Mysore Government for the successful working of the Company.

#### SUGAR MANUFACTURE AS COITAGE INDUSTRY

AN efficient and simple method has been evolved by the Imperial Institute of Agricultural Research for the manufacture of clean and attractive coloured gur and for the manufacture of white sugar by the open pan method which will be within the means of the sugarcane grower (says a press note issued by the Director of Public information, Simla.)

The method and the equipment are so flexible that the ryot can manufacture good quality gur or sugar according to the needs of the market. It is said that this new method which is not a competitor to factory production, has a promising future and is destined to play its role in the future of sugar industry of India.

The Institute has also succeeded in developing starter cultures which are an improvement in practical dairying for producing rich flavour and aroma in butter. These have been tested in a laboratory and are used on a large scale in Bangalore Dairy with very satisfactory results.

A simple method for the cheap production, from locally available materials, of what is well-known as E.C., a chlorine disinfectant has been developed and perfected. It is said that this is now being used extensively as disinfectant in hospitals, railways, sugar factories and a number of other places.

#### TAILORING SCHOOL FOR THE UNEMPLOYED

A tailoring school for the educated unemployed is another decision of the Punjab Government to tackle the problem of unemployment. This school will be shortly

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opened at Amritsar with provision at present for 20 students and eventually for 40.

An English cutter, trained in London and having experience of cutting and tailoring in an European establishment in India, is being engaged for the school. Those who join the school must possess the minimum educational qualification of being a matriculate but some literate tailors may also be included in the schools' rolls. Training period may last two or three years. Average tailoring to-day is not upto the standard and it is hoped that this school may make up this deficiency and also point the way to honourable work for the educated unemployed who, at present, think only of clerical appointments. Boys who will learn cutting and tailoring will also be taught the economics of business so that they might know how to work out the cost of outfitting and thus be able to run their business efficiently when they leave school.

Boys will receive wages during training for the work done which will be calculated as follows. After deducting the cost of the raw material and the cost of any power used, the balance will be divided over in the following proportion. Sixty per cent will be paid as wages to the students, 25 per cent to the teachers and 15 per cent will be retained by the Government as nominal compensation, because the Government will not include overhead charges.

### CENTRAL POULTRY INSTITUTE

THE Government of India have approved of the scheme for the establishment of a Central Poultry Institute at Izatnagar under the administrative control of the Director of the Imperial Institute of Veterinary Research, and have sanctioned for it a non-recurring expenditure of nearly Rs. 2,75,000 for the construction of buildings and roads and for certain other capital expenditure, and an average recurring expenditure of nearly Rs. 56,000 per annum from 1937-38 onwards, for the entertainment of staff, etc.,

The Institute will carry on research on disease, nutrition and genetics of poultry and will act as a bureau for the dissemination of the results of research in this and other institutions. It will also carry on investigations on the processing and disposal of poultry and egg products, and make arrangements for courses of training, if there be any demand for them. Selective breeding work will, however, remain a Provincial subject. It is proposed to organise the work of the institute in two divisions, one dealing with scientific side, the Institute will devote itself to disease investigation and nutritional studies, advances in which are essential for any development of the poultry industry in India. On the industrial side, it is desired to investigate such matters as the grading of eggs for the Indian and foreign markets, the preservation of eggs by pickling, cold storage and

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other processes, the preparation of table-poultry, the best methods of packing and distribution of both eggs and poultry, and the possibility of introducing such articles as egg powder and egg pulp to the Indian market. To carry out the programme detailed above, in addition to poultry, a large number of unfertile eggs will be required daily for experiments. It will, therefore, be necessary to run a Poultry Farm on a fairly extensive scale working up eventually to about 1,000 birds.

### TRAINING CLASSES IN FLAYING OF HIDES

Though possessing excellent hides, India, is losing a great deal of her wealth through flaying and bad handling of hides. To remedy this defect which has been pointed out by foreign buyers, the Skins and Hides Cess Committee of the Punjab Government have decided to ask all municipalities in Punjab to prevent any flayer from engaging in the profession without possessing a certificate of training from the Institute of the Industries Department of the Punjab.

Accordingly, the Punjab Government have decided to open classes at the Jullundur Municipal slaughter house from October 1 next under the supervision of the tanning expert of the Industries Department. Fifteen to twenty persons will be trained at a time and training will last a fortnight. This training is expected to remedy defects in flaying

found all over India and will reduce otherwise excellent hides into a class fit only for lower grade leather work.

### INDIAN STEEL MERGER

THE scheme for the amalgamation of the Bengal Iron and the Indian Iron and Steel Companies has now received the approval of the Boards of the two companies.

Meanwhile negotiations have well advanced for the formation of a company to erect and operate steel works alongside the latter's blast furnace at Hirapur with an initial yearly output of 250,000 tons. Subject to the completion of negotiations, the financing of the new company has been undertaken by Tatas, Burns, Indian Iron and Steel and Birds and Haes, while the share holders of Tatas and the amalgamated companies will be given preferential treatment as regards subscription to the new company's capital. It has been decided to postpone the Bengal Iron and steel Company's annual general meeting, which will possibly be held with the necessary special meetings in the first half of November.

### RECONSTRUCTION OF VILLAGES IN BENGAL

Preliminaries are complete for launching in selected areas, all over the province of Bengal, a comprehensive scheme of rural

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reconstruction based on the co-operative ideal to be run without any outside help. The scheme, which is novel in its character and scope and not hitherto attempted in the province, is being pushed forward by the Co-operative Department of the Government of Bengal. Two or three villages in every audit circle will be selected and a village reconstruction society will be established in each.

Every village society will have mainly three problems to deal with, namely, economic, educational and sanitary. To increase the economic resources of the villagers and to make them self-reliant, the village society will distribute seeds of vegetables, and eggs of "Leghorn," "Red Island" and "Iasin" fowls of Chittagong variety. This will enable the villagers to improve the quality of their vegetables and their poultry. With the help of students of the Serampur weaving institute and other institutions an effort will be made to introduce weaving in the village so that villagers may ultimately become independent in regard to their clothings. A joint and united effort to distribute various crops, which have possibilities of profitable growth but have not been tried in cultivation as yet in the village, will be made.

In the educational field, to avoid over-lapping of efforts of other bodies it will confine itself to establishing night-schools. As regards sanitation the village society will devote a day every week in improving the

roads, clearing jungles or removing water-hyacinth, and will encourage sports and other healthy physical activities.

For all these the village societies, under the scheme, will require neither cash-money in any form nor any other help from the State or from any private individual. It is proposed that at the time of harvesting every village member of the societies should contribute one rupee worth of paddy as his share to the capital of the society. This, it is believed, will bring every year a sum of Rs. 100 as share capital of the village society. Secondly the old system of keeping a daily handful of rice in a pot in every home and collecting it once a month will be revived. It is expected a sum of Rs. 40 per month can be realised this way if there are a 100 members. This amount plus donations will be spent in the management of the village society. The entire management of the scheme will be entrusted to the members of the society. It is, however, proposed that suitable young men in the area, who evince interest in the scheme, should be given training by the Co-operative Department in running the autonomous village society. Rs. 10 per month, as honorarium will be paid to him.

It is estimated that each village society will have an annual income of Rs. 600. This amount is considered sufficient to meet the requirements of the body. Khan Bahadur

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A. M. Arsed Ali, Registrar of the Co-operative Department, Bengal hopes that in all 225 village societies would be established throughout the province. The question of marketing the societies' produce is no doubt a difficult one but certainly not so difficult when tackled in a Co-operative method.

### BRITISH TRADERS TO VISIT INDIA

A tour of India and Ceylon of British Agriculturalists, under the auspices of the non-political organisation of the British National Union, is being arranged with a view to development of Anglo-Indian trading understanding. The party is leaving England on December 18 and returning on March 22. It is the fourteenth tour arranged by the Union but the first to India and Ceylon, the others being to Canada, Australia, New Zealand and South Africa.

"Our aim is to give British producers a chance to study Indian conditions first-hand", said Major F. J. Duncan, Secretary of the Union. "The tour has official recognition of the Governments of India and Ceylon. Thus scientific institutes, not available to the ordinary tourists will be thrown open."

### RESEARCH INSTITUTES

A reorganization of the Research Institute under the Department of Education, Health and Lands of the Government of India is contemplated.

The first step in this direction is the transfer of the Animal Nutrition Institute of India, a section of the Imperial Institute of Veterinary Research, Muktesar. This Institute is at present located at Bangalore. It is proposed to transfer it to Izatnagar, Bareilly, and it will be located in the Imperial Serum Institute.

In addition, there will be a separate section of the Poultry Research Institute.

### FOOD GROWN WITHOUT SOIL

Food production on an unheard of scale is predicted as a result of extensive experiments in crop growing without soil, carried out by Dr. W. F. Gericke at the University of California.

Dr. Gericke grows his crops on straw matting suspended over water tanks, writes the agricultural correspondent of the Sunday Express.

He has produced 200 tons of ripe tomatoes per tank acre when the average production on soil in California is five tons, and 2,500 bushels of potatoes per tank acre compared 120 bushels from an equal area of soil.

Equally satisfactory results have been obtained with cucumbers, tobacco plants, beans and gladioli.

Dr. Gericke grows the crops indoors in concrete or wooden tanks ten feet long, two and a half feet wide, and eight inches deep. Large

## MULKI INDUSTRIES

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greenhouses are filled with them. The tanks are filled with water in which about 1lb. mixture of chemicals is dissolved.

The mixture differs with the crop to be grown but it contains relatively large amounts of nitrogen, calcium, phosphorous, magnesium, potassium and sulphur, and smaller amounts of aluminium, titanium, chlorine, manganese, boron, copper and iron.

Wire netting is stretched over the water and covered several inches deep with straw.

The seeds sprout and their roots down to the water, which is kept at a temperature of 70 or 80 degrees.

The promising feature about Dr. Gericke's experiments is that, for the first time, this method of cultivation has proved successful on a semi-commercial scale.

The experiments have so far been confined to plants usually grown under glass by market gardeners, but two large stations have been erected in California to test the possibilities of the system for the winter growing of green fodder for live stock.

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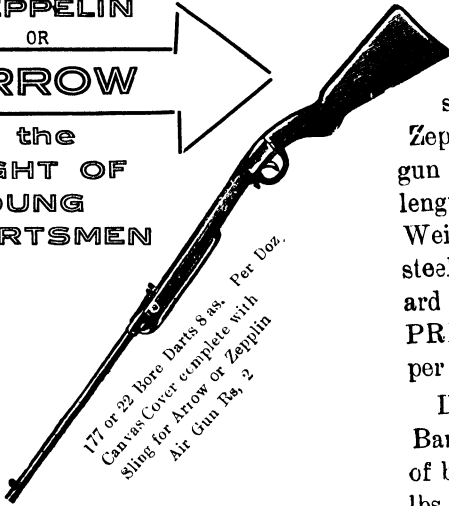
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## MULKI INDUSTRIES

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### DEVELOPMENT OF OUR INDUSTRIES

○ OUR production should take care of the needs of the masses. We had to produce the requirements of the villagers. The moment we undertook the production of goods to satisfy the needs of the wealthy, we narrowed down the market and had to create artificial demand and forced sale. These led ultimately to disturbance of the peace said Professor J. C. Kumarappa of the All-India Village Industries Association when he visited the Shravanabelagola Brass and Copper Industries.

There were two ways of meeting our requirements. One was by conserving our resources and seeing to it that we got the full value out of what we possessed already, such as utilising food material in the best possible way, both in its preparation and disposal. By polishing rice, we lost the large part of the nutritive value of the material in hand and this led to wastage. Similarly, the careless way in which manure, nightsoil, etc., were neglected, led to wasteful use of the materials at our disposal. If we could conserve those alone, it would be a source of nourishment, health and wealth.

The second method was to find various ways of producing articles out of the raw material available on the spot. As far as practicable, in finding out industries that would be useful to us, we must see that no great amount of Capital was invol-

ved in equipment nor much skill needed to learn the methods of production. The market for finished goods should be near by and the articles themselves should satisfy the every-day needs of the people. If these matters were attended to, it would be possible to find industries for the local unemployed.

If we allowed a large part of the cost of the finished product to be made up out of the cost of raw material imported from abroad, it meant that a great share of the production of this country went towards obtaining such goods. As long as we bought goods from distant markets from where it would be difficult to get back the purchasing power that had been transferred back to ourselves by the exchange of goods, our locality was likely to sink into poverty.

As far as possible, we should avoid entering into markets which we could not control. Our farmers and other producers were ill-equipped to gamble in international markets. They might gain or lose heavily. But they were not strong enough to stand tense fluctuations. As long as their influence did not count in international markets, they should be advised to keep out of it. The farther the distant, the greater the chance of there being no return of the value paid for the goods. If this went on for any length

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## MULKI INDUSTRIES

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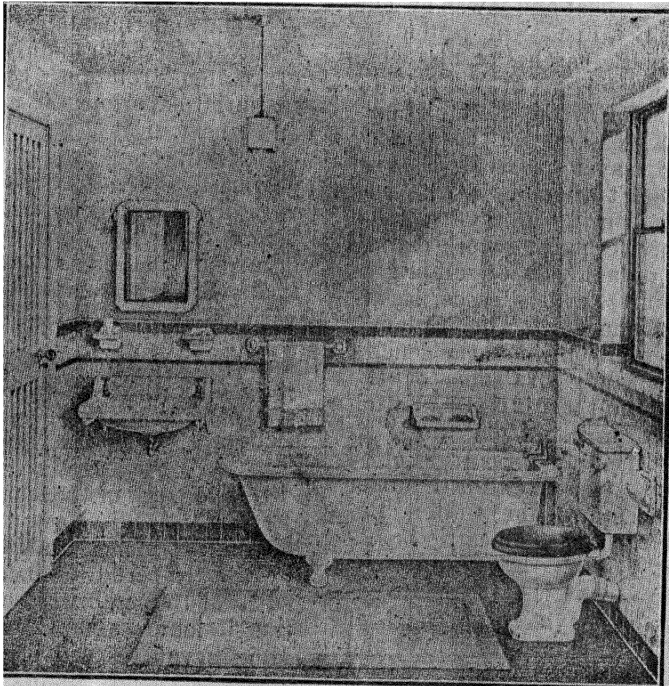
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of time, the country would be slowly sinking into poverty. If the principle of producing goods to satisfy an existing demand was

followed, it would bring prosperity to the people and usher in international peace.

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## MULKI INDUSTRIES

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 ADMINISTRATION REPORT OF THE AGRICULTURE  
 DEPARTMENT FOR THE YEAR 1344 FASLI
 

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**N**OTEWORTHY items of the Administration report of the Agriculture Department for the year 1344 Fasli are—THE RESEARCH AND EXPERIMENT ON rice, castor, wheat and jawar by The Economic Botanist. On cotton by the Cotton Research Botanist who, with his establishment, is paid by the Indian Central Cotton Committee. The Chemical Laboratory at the Himayat Sagar Main Farm was completed and work was carried on during the year. The Agricultural Chemist's work mainly consisted of analyses of samples of soils, manures, waters, seeds, sugarcane juice and gur. The Entomological section continued the general laboratory study of some of the more important insect pests. Cotton Boll-worm investigation work financed by the Indian Central Cotton Committee was continued under the supervision of the Cotton Research Botanist. The cattle breeding and poultry breeding work was continued at the Cattle Breeding Farm, Himayat Sagar and at the Poultry Farms at Parbhani and Himayat Sagar Main Farms respectively.

Manurial experiments were carried out in the West Telingana Division on the Government Farms, with rice and sugarcane, ploughing experiments with rice, planting time experiments with sugarcane, rotation experiments with rice, chalka soil

rotation experiments, comparison of groundnut, bajra, wheat, cotton, jowar, arhar and gram varieties, and experiments with irrigated crops on deep black cotton soil.

The experimental work of the Godavari Division mainly consisted of cotton rotation experiments, manurial experiments with cotton and wheat, trial of paddy on black cotton soil, comparison of long-stapled varieties of cotton, short-stapled varieties of cotton, kharif and rabi jowar varieties, groundnut and sugarcane varieties and preliminary trials with wheat, linseed, and gram varieties.

Horticultural work was continued at the Government Farms and gardens under the supervision of the Horticulturist.

The work of the Dry Farming Research and Castor Breeding Schemes, which are mainly financed by the Imperial Council of Agricultural Research was continued at the Raichur and Himayat Sagar Main Farms respectively.

PROPAGANDA. Demonstration and propaganda work is being carried out in 12 out of the 16 districts of the State. There was no increase in the number of the aided farms in the districts during the year. Government note with satisfaction that the number of demonstration

## MULKI INDUSTRIES

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plots increased from 1288 of last year to 1911. The area under the improved varieties of sugarcane was 14,359 acres as against 6,567 acres of last year. Improved varieties of groundnuts, bajra, rice, and cotton are being introduced. Seed of Gaorani cotton sufficient for 42,953 acres was distributed. The use of castor cake is being recommended for manurial purposes and is becoming popular with the cultivators. Successful campaigns against the red hairy caterpillar and castor semilooper pests were undertaken in the Nalgonda and Mahbubnagar districts.

MISCELLANEOUS WORK. As usual Takavi loans were granted to a number of cultivators for the purchase of agricultural machinery etc., Tractor ploughing was continued through the agency of Mr. Parakh of Sailu and an area of 1315 acres was ploughed during the year. The Rural Development Centre at Pattancheru financed by the Industrial Trust Fund worked satisfactorily. Assistance was given to the Public in sinking wells for water-supply. It is gratifying to note that the destruction of cactus by the introduction of the cochineal insect has resulted in almost complete eradication throughout the State.

SURVEYS. The survey of the cotton crop of the Dominions, which is financed by the Indian Central Cotton Committee was continued throughout the year.

ASSOCIATIONS. The Hyderabad Farming Association continued to do good work. The question of the reorganisation of the Hyderabad Poultry Association is still under the consideration of the authorities of the Association. The number of the co-operative cotton and implements sales societies increased from 4 to 7.

THE COTTON CULTIVATION AND TRANSPORT ACT The Department continued its efforts to maintain and improve the standard of cotton grown in the protected areas with the help of this Act and the licensing system. Government is pleased to note that the Act is serving its purpose well.

GENERAL. The Department was administered efficiently by Mr. Nizamuddin Hyder throughout the year. Government acknowledges the assistance received from the Indian Central Cotton Committees and Imperial Council of Agricultural Research in the form of advice and of grants for various schemes.



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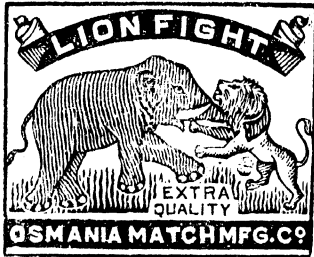
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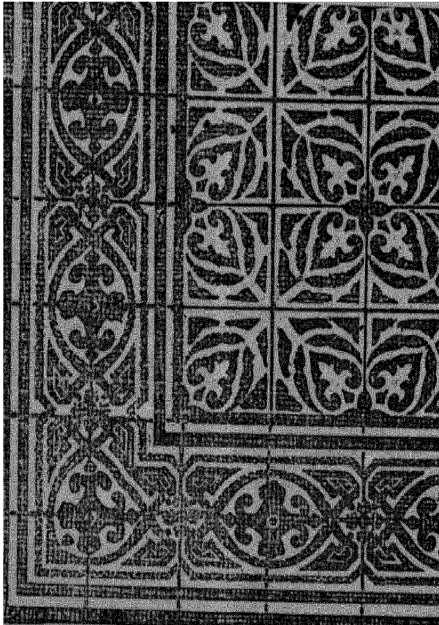
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