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EDITOR: T. V. K. NAIDU.

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# JOTTINGS

## **Trade with Empire Countries.**

The Government of India have under consideration proposals to develop Dominion and Colonial markets for Indian goods and it is regarded as likely that a trade mission may be sent to Empire Countries on the lines of that sent to America.

## **Manufacture of Bleaching Powder.**

The War Supply Board has sanctioned the erection of a Government plant to produce super-tropical and tropical bleaching powder.

Proposals for the production of aero-lubricating oils are also under consideration and reserves of pig iron and other materials are being built up.

## **Sugar Production in India.**

The 139 sugar factories in India and Burma are reported to have produced 3,33,11,363 maunds of sugar in 1939-40 as against 1,75,71,500 maunds in the previous year. The average recovery of sugar from cane stood at 9.8 per cent. The United Provinces top the list with a production of 18.5 million maunds. The share of Madras (excluding Mysore) is 8,44,206 maunds.

## **Lubricating Oil for Aero-Engines.**

The War Supply Board has authorised the purchase of plant for the manufacture of aero-engine lubricating oil in this country. Aviation spirit is already being manufactured from certain Indian and Burman Crude oils from which it can be directly derived. The Burma oils are comparatively rich in constituents suitable for the direct production of aviation spirit.

## **Paper from Arecanut husk.**

The Areca Marketing Co-operative Society at Tirthahalli, Mysore State, has been responsible for discovering an important raw material for paper manufacture. At the instance of the society, the Mysore Paper Mills have made experiments in making paper from areca shell. The experiments have been successful and paper of good quality have been produced.

## **Manufacture of Articles Hitherto Imported.**

It is understood that the Director General of Supply will convene a conference of local controllers in September next. The object of the conference will be to ascertain what imported articles can be manufactured in India. It is intended to place before the conference a list of 20,000 articles and invite each local controller to be responsible for the supply of some articles which have not been manufactured so far in this country.

## **Co-operative Godowns.**

A godown built by the Tuticorin Co-operative Sales Society was opened at a village near Tuticorin recently by the Registrar of Co-operative Societies. The village is in an important cotton area and the godown is intended for the ryots of that area who could stock their produce in it for rent or raise short loans on stock. In opening the godown Mr. S. A. Venkataraman, Registrar said that it would be better if godowns were built with primary help from credit societies and auxiliary help from sales societies and Government.

## **Khaki Dyes from Indigenous materials.**

At the Instance of the War Supply Board, manufacturers, it is understood, are being encouraged to experiment in the production and use of khaki dyes from indigenous materials. While it cannot be expected that the high standard of fastness of mineral khaki dye can be fully attained with vegetable dyes, the latter can be used for many purposes. Certain vegetable dyes have been approved by the Army authorities for such uses as ground sheets, dyed canvas etc., thus releasing the mineral khaki dyeing capacity for more essential purposes.

## **Guaranteed Prices for Crops in Ceylon.**

The Government of Ceylon are guaranteeing certain specified rates of prices to growers of specified categories of crops. The produce should be of good quality to obtain this price the grower should get into touch with the Marketing Department's Collecting Agent nearest to where his crop grows who will pay him the guaranteed price for his crop either through travelling collectors or such agents or at his store. The following are the crops for which prices are guaranteed:—Chillies grade 1 & 2; turmeric (cared), green gram, red onions, dhal and ginger.

## **Cottage Industries in Madras Province.**

A comprehensive memorandum for the development of cottage industries was discussed in Vizagapatam and Anantapur says the quarterly report on the rural reconstruction work in Madras for the period ending March 31. In Cuddapah it is proposed to improve the cotton dyeing and printing industries. The improvement of rope making industry from also fibre is also being considered. In Tanjore the district periodical conference recommended the development of metal works and mat weaving as an experimental measure with a view to providing relief to landless rural labourers.

## "VARTHAGA OOLIAN"

AUGUST 1940

### GOVERNMENTS AND INDUSTRIES.

IN the course of his address to the annual meeting of the United Planters Association of South India H. E. Sir Arthur Hope, Governor of Madras, gave the assurance that it was his aim and the aim of his Government to assist industry in this country and not to hamper it. "I would also like to say," His Excellency continued, "that when questions are put up, they will be looked after from every possible angle and in a sympathetic frame of mind. Things will not be turned down for the sake of turning them down which has happened frequently in the Government of Great Britain in the past and anything which I can do and anything which my advisers can do to help an industry, including yours, we are willing and ready to do. That is not only a pleasure, but our duty." Such an assurance will be welcomed by all engaged in industry. Again His Excellency said: "I think a tendency of Governments is to interfere with the private business of a country and it is a tendency which has been growing very greatly between the two wars. I think Governments are inclined to assume that they know the job of the individual as well, if not better, than he does himself." Such frank expressions of views should go a great way in assuring those interested in industries that they will be better treated in future.

While such assurances are welcome, more is expected from Governments. War has given a great fillip to industry and every effort should be made both by Governments and the capitalists to take advantage of the present situation. Much is no doubt being done by the Central Government and the various Provincial Governments but most of their work is concentrated on war work. This is as it should be, but we should not lose sight of the consequences arising from this concentration of war work. There has been large expansion of industrial activity while the number of trained technicians is

likely to increase very much. Sooner or later, that is, after the war is over, we will be faced with the task of changing over to peace time activities. A large number of war time industries will have to stop while the number of unemployed technicians and skilled men would create a baffling problem. We would have to consider even from now how best the change over to peace time conditions might be effected and how best the men released from war work might be profitably utilised. The Governments in their pressure of war work may not be in a position now to think these matters out, but they can help in arranging a conference or in creating a committee to consider this question from now on so that we may not be caught unawares.

### SOME PROBLEMS OF MARKETING.

THE Dewans of Travancore and Cochin recently gave expression to certain views on the problems of industry which ought to give food for serious thought. Sir C. P. Ramasami Iyer in the course of his concluding speech at the budget session of the Travancore Assembly referred to the opening of the rubber factory and said that the working of the factory was not at all difficult inasmuch as the machinery they had was excellent and the labour force first rate. The difficulty was in marketing the goods produced. "Where could they get the market for the products if they manufactured, for instance, 1000 contraceptives a day. The old management produced similar things which had no large market and that was why it failed. If they could produce rubber tyres and tubes and hose pipes and the like which had a market outside and organise a suitable commercial agency to market them, then it would be a success." The Dewan further stated that an important firm had come forward to market the products.

Thus it is not sufficient to manufacture the goods in a factory. Efficient sales organisations are needed to dispose of them. The requirements of the people, the change of fashions and fads have to be studied, and in

certain cases new tastes and needs have to be cultivated before the large output of an expanded industrialisation in the country could be disposed of profitably. The need of a sales organisation would be evident if we realise that there are in our country very many good products which are known only in the small area in which they are produced and which would find a ready sale if their existence is made known outside through the means of propaganda.

Sir Shanmukham Chettiar dwelt upon another important aspect of industrial development. He expressed the view that trade and industry should develop on sound economic lines and should not be based on narrow party or sectarian doctrines or on dharmic lines. It was no use carrying on political propaganda to help an industry which was not economically sound. He quoted the case of hand-made paper. It was very costly. It was his experience in Cochin that the Government had to use costly hand-made paper when other cheap paper was available because nobody else bought hand-made paper produced by the rural development department of the Cochin Government.

Thus from the statement of the Cochin Dewan we find that the hand-made paper is not saleable and the tax-payer in Cochin is paying for the costly and worn out methods of production. The spirit of patriotism might be harnessed to help a really economical and profitable industrial proposition but to subsidise an industry which has no market for its products is not only uneconomical and wasteful but in the long run ruinous to the interests of those engaged in the industry. There might be other similar cases of uneconomical industries. Since people have to be given employment so that they might live, the problem resolves itself to this. What are the best or fairly profitable lines which could be introduced among the people and in the case of uneconomical industries, what is the best way to make them profitable i. e. to produce goods which though costly might find a sale because of some extra serviceable quality or merit. For instance in the case of paper, it would be worth while investigating if special kinds of paper could be

produced which would have good keeping qualities and which consequently would be in demand for use in, say, account books etc., and in the production of books for constant use.

In the case of cotton cloth, production should have the aim of meeting fashions and fancies and in certain cases these could also be created.

These questions could only be tackled by an efficient and imaginative enthusiastic worker and industrial interests and the Governments should lose no time in organising efficient production and sales.

#### CONTROL OF PAWNBROKERS.

THE objects and reasons of the Pawnbrokers' Bill which has been published by the Madras Government would be welcomed by all who are interested in the welfare of the poorer sections of the population and who are keen on the detection of theft and burglary cases. The unscrupulous pawnbroker might not find the licence fee heavy but the necessity of keeping his account books and documents in English or in the language of the locality would make him more cautious in his transactions. The provision that applications for licence should be accompanied by evidence of good character and that no licence would be issued if no such evidence of good character is produced or if the place of business is frequented by thieves or persons of bad character would have a salutary effect in weeding out undesirable elements in the profession. We hope the rules regarding renewal of licences will be equally strict.

We do not think that the rate of interest viz. 6½ per cent is sufficient. Too low a rate of interest might lead to underhand dealings. Again, as the pawned articles might fluctuate very much in their worth owing to many causes, either the pawnbrokers will be over cautious in their appraisal of their value and give only a very little sum as loan or they would be put to much loss. In order

that legitimate pawnbroking might be allowed to cater for the needs of the poor people, it is necessary that those who are engaged in the business are enabled to get a decent profit. We think  $7\frac{1}{2}$  or 9 per cent per annum simple interest might be allowed. We would also suggest that an account is not allowed to be continued beyond twelve months from the date of the transaction.

A rigorous application of the new law would no doubt weed out many undesirable men from the field and arrangements should be made to enable decent people to step into the field. The Municipalities and District Boards which are longing to take over well established concerns like transport and electric supply (after the initial trouble of placing the business on a sound basis had been shouldered by others) might undertake this business and thus afford relief to the poorer sections of the population in the area under their jurisdiction. We have read that in the West pawn shops are conducted by municipalities and other local bodies and we suggest that a provision is included in the bill to enable the local bodies including the village unions to conduct such shops.

### ONE RUPEE NOTES.

THE issue of one rupee notes will be welcomed by the general public as affording great relief to them in their every day transactions. The dimensions of the notes are very small, but we hope that in case the Government of India find it necessary to print further issues, they would make the notes large enough for easy handling. We pray the necessity would not arise and those who have hoarded the silver coins would soon find such a course unnecessary and bring back the coins into circulation. The hoarding was due to panic and fear and now that the war situation is getting easier, the hoarders would, we hope, soon realise the absurdity of their action.

### THE LATE MAHARAJA OF MYSORE.

THE death of H. H. Sir Sri Krishnaraja Wadiyar Bahadur, Maharaja of Mysore, early this month, removes from this country an enlightened and beloved ruler who had been taking a keen interest in the welfare of his people and who had advanced the condition of his state to such high a level as to earn for it the name of a model state. During the course of his long reign he was identifying himself with the welfare of his people and all his reforms in every field of national life bore the mark of his great solicitude. That Mysore has made and is making great strides in the social, economic and industrial and agricultural progress of Mysore has been due to the keen interest shown by the late Maharaja directly and through his able Dewans. We have no doubt that the new Maharaja would follow in his uncle's footsteps and make the state happier and contented with the able and efficient advice of Sir Mirza Ismail, the present Dewan.

### Manufacture of Casein.

Casein is produced from skim milk obtained after passing raw milk through a cream separator. The skim milk is put in wooden tubs and to it is added a small portion of ordinary whey obtained from the curds produced by souring of ordinary raw milk. The amount of whey required varies from say one per cent to 2 per cent of the amount of skim milk to be treated. The skim milk after the addition of whey is kept for a period varying from 24 to 48 hours depending upon the season. In the cold season it takes a longer time for skim milk to form into curd. The curd is washed with water several times and put into bags and pressed by means of a hand-screw press. Thus during the pressing operation most of the water is removed from the curd. The bags are then taken out of the presses and the solid mass is removed. The mass is then broken up and dried in the sun. When completely dried, the mass is packed in jute bags and is then ready for the market.

The yield of casein is calculated on the basis of the butter or fat contained in the milk. It is calculated that the yield of casein is about half the yield of butter, i.e., if a sample of milk gives about 6 per cent butter, then the same milk will yield about 3 per cent, of casein. —*Indian Farming.*

### Shellac Moulding.

An important section of the work done at the Indian Lac Research Institute, Namkum, has been taking efforts to make the manufacture of shellac moulding powders as such independent of imported materials as possible, states the annual report of the Institute for the year 1939-40.

Of the several heads of research under which progress has been recorded plastic moulding takes the place of foremost importance.

The Institute has developed or adapted methods for the manufacture of urea and formalin in quantities sufficient for moderate sized factories, and work has been done with a new chemical which has the property of further improving the quality of shellac-moulded articles.

This substance, melamine, is easily prepared from calcium cyanamide which, though not manufactured in India, is available in large quantities, being one of the basic fertilisers. The use of much smaller quantities of this melamine than urea is an economic advantage as well, and it is expected that it will pay an important part in shellac mouldings in future.

It is with the same idea of developing a moulding industry entirely based on indigenous raw materials that two other powders have been formulated; a shellac-casein and a shellac-coal-tar powder.

As a result of researches carried out at the Institute it is stated that shellac injection moulding, as distinct from compression moulding, promises a great future in the production of electro-technical goods. Already the Institute has been able to produce by this method electrical switches which can be sold much more cheaply than those made by compression moulding due to the higher rate of production and the simplicity of manufacture of the powder.

### Varnishes and Lacquers.

Researches have also been carried out at the Institute on the application of new shellac varnishes and lacquers. In a country which does not yet possess a solvent-manufacturing industry, the practically exclusive use of alcohol for the formulation of lacquers must undoubtedly have great economic significance. By the use of ten per cent nitrocellulose and 90 per cent shellac compounded in spirit, and a small proportion of esters, quick-drying lacquers have been prepared which show good resistance to weather and mechanical wear.

### Land Colonisation in Erode.

Details of the successful working of the land colonisation scheme for scheduled classes in Erode Taluk is now made available in the report on the scheme by the Special Inspector of co-operative societies. The proposals of the scheme were taken up in 1922 and seven forests of the 13 revenue villages of Perundurai sub-division were dis-afforested and about 2852 acres of land were assigned to settlers. The Inspector in charge of the settlement concentrated his attention first on the construction of houses for the settlers, New settlements were formed. There are now 421 families in the new settlements possessing a total of 2490 acres. Only 65 of these families possessed lands originally.

Village Panchayats have been constituted in all the settlements. There are at present six schools. To improve the economic condition of the settlers, a sum of Rs. 4,300 was advanced by the Labour Department through the revenue department.

It is gratifying to note that some of the settlers by their own determination and courage and with the help of government loans have improved their holdings and are now able to obtain sufficient produce for themselves and their families.

The co-operative societies have introduced poultry farming, mat weaving, sheep breeding etc., in the settlements.

### Sound Records.

These have also been successfully used for preparing film surfaces over which sound grooves could be recorded and reproduced by playing on the gramophone.

It has been found that aluminium discs coated with shellac containing a small proportion of urea produced a record which could be played more than 150 times with but slight deterioration in the quality of music. Experts expressed the opinion that these records were as good as ordinary shellac records in loudness and correctness of reproduction. Further trials, showed that equally satisfactory records could be made by using paste boards instead of aluminium by which means the cost of manufacture could be reduced by from four to five annas.

### Stoving Enamel.

Refuse lac has been processed to yield a baking varnish suitable for use as a stoving enamel. Lac oil varnishes, quick-drying and durable, have also been prepared.

### Cottage Industries in Cochin.

In the programme of rural development in Cochin State for the next year special attention is to be paid to the encouragement of cottage industries. An impetus will be given to the bamboo mat and basket industries. These are now being carried on in many places in the State, but in an unorganised manner, workers being often exploited. It is intended to remove the exploitation and with that object in view, it is proposed to make arrangements for the out right purchase of articles from the workers by organising co-operative or other depots at important centres for which purpose Rs. 2000 is set a part most of which will be utilised as working capital.

A similar organisation is to be created with Rs. 1000 to organise the screw-pin mat making industry, carried on a large scale in the Coastal areas and a few interior parts. These are exports of large quantities of packing mats from the State.

It is also proposed to grant Rs. 500 to societies which will organise ex-students of the Industrial Schools who have not been able to follow the industry they have learnt for want of sufficient capital. Ex-students wherever possible, will be provided with the necessary implements.

A substantial amount is to be provided for experiments in cottage industries. Government consider research work and experiments necessary to see whether any labour saving appliances can be introduced in any cottage industries or to start new industries. Provision has also been made for fisheries research work.

### To Extend Use of Wood.

According to the Travancore Administration Report for 1938-39 research work to facilitate extended use of wood was inaugurated during the year. The following were the subject taken up :—

- (1) Cement sawdust building elements.
- (2) Adhesives for wood to wood, wood to metal employing rubber latex, tamarind seed, casein. and tapioc starch as basic raw materials,
- (3) softening of wood for pencils and of wood veneers,
- (4) reinforcement of cement concrete with bamboo or wood,
- (5) Reinforcement of cement or lime plasters on wood.
- (6) Inexpensive weather resisting media attached to wood.
- (7) Timber joints with bamboo rings.
- (8) Development to cheap but efficient fire-proofing paints.
- (9) Imparting certain colours to Ascu wood preservative,
- (10) manufacture of inexpensive wood plastics.

### Deposit of Trade Marks.

Persons claiming to be owners of trade marks used in British India and intending to apply for their registration may apply for deposits of their marks only between October 1, 1940 and March 31, 1941. This is in accordance with Section 85 of the Trade Marks Act, 1940, recently passed by the Central Legislature to provide for the registration of Trade Marks in India. This section is coming into force earlier than the main provisions of the Act.

The deposit will help the owner in obtaining further registration later and will enable the Registrar, among other things, to notify the original owner in case of any conflicting marks, thus giving him the right to be heard first.

If the trade mark to be deposited is for textile goods, the application will have to be made, at the option of the depositor either to the Patent Office, Calcutta, or the Branch Trade Marks Registry, to be established shortly at Bombay.

After the trade marks have been deposited a list of such marks will be prepared according to the different classes of goods. For this purpose it is proposed to adopt tentatively the classification of goods recommended by the International Conference for the Protection of Industrial Property, held in London in 1934. Copies of the List of Deposited Trade Marks will be open to inspection by the public both at the Calcutta and Bombay offices of the Registry according to the standing orders governing such inspection.

### Selling Exports by "Movies".

Colour films of the goods they are offering for sale may soon be part of the equipment of British Commercial travellers during their salesmanship tours throughout the world, says the *Chamber of Commerce Journal (London)*. The British Film Institute has put forward the scheme to Sir Cecil Weir, head of the new Export Council. The majority of the export groups into which British Industries have been divided for the purposes of the export drive have been approached and most of them have expressed their keenness. According to a representative of the Institute, the film would be in miniature size and made in colour. A traveller can put several reels in a suit case and can hire a projector for a small sum in almost any town. He can then show the films in his customer's own office and by supplying a running commentary, can give the customer a better idea of the product and its qualities than any amount of talk would do.

## PROBLEMS OF NUTRITION

Problems of proper nutrition are now engaging the attention of scientists and social workers to a great extent both in India and in the West. This has been due to a variety of causes. In the past, people had certain food habits and traditions which had been built up through the selection of those foods in each area that proved to have value for keeping people alive and well. Even today among primitive people and peasants living on the land, certain traditional combinations of foods are found, on examination, to be based on good scientific principles. Such food habits were developed by trial and error, over long periods, with much suffering by the way. But men had one thing in their favour. The foods used were natural, whole foods, furnishing the essentials for human nutrition. But today the situation in a modern industrial country and in countries affected by economic and other factors is entirely different. Comparatively few people produce their own food. Production and distribution are commercialised. There is a greater variety of foods, transported over greater distances; but many of them are processed and refined so that they have lost the elements they contained in their natural state. Moreover, when people buy their food, instead of producing it, the economic factor has a more powerful influence on the kind of diet they get. In this situation, tradition and habit are no longer safe guides to the selection of foods. They can lead to dangerous mistakes. As a result we have many diseases and defects which are directly traceable to want of proper nutrition. Some are caused by the absence of certain vital food elements in our diet while others are caused by improper preparation of food. Addition of the missing elements by the inclusion of foodstuffs containing the missing elements and proper preparation of food for the table have in a large measure helped to remedy the defects and cure the diseases. Under-development has been set right, growth has been maintained and even accelerated. There is a growing opinion that certain vital elements in the foodstuffs offer resistance to disease.

Under the present changed conditions of life therefore a knowledge of nutrition, rightly understood and used, furnishes a safe guide in the complex food situation of to-day.

There has been considerable development in the field of nutrition. Much research work is being done in the varied branches of this subject.

This subject has also been utilised to an increasing extent in the care and management of

farm animals and other animals and birds. These animals supply foods to man in one way or other, milk, eggs, meat etc. The production of these foods in an economical, yet profitable, manner is the aim of the farmer.

Under the natural conditions existing in former days, cattle had food available in natural conditions and in abundant quantities. Now, owing to changed conditions food supply for cattle and other farm animals has become a serious problem. Natural food like grass and green fodder has become costly and in many places difficult to get at cheap rates. Like man, animals have to depend to a large extent on artificial food concentrates. Consequently the balanced dietary arrangement of an earlier generation has been upset.

The feeding of cattle has to be determined primarily as a source of income or service to the farmer. He has to study the science of animal nutrition in order to apply it to his varying needs. He has, taking India for example to consider feeding requirements in respect of work and much cattle production of more milk and more butter in milk, better calves and bulls, etc. He has to get the maximum profit out of a reasonable expenditure with the kind of foodstuffs that are easily and generally always available.

A comprehensive account of the general principles of nutrition with reference to men and animals will be found to be very useful and we therefore welcome the publication by the United States Department of Agriculture of their year book for 1939 entitled "*Food and Life*" \* dealing exhaustively on animal and human nutrition. The book consists of two parts, Human Nutrition and Animal Nutrition and the various subjects dealt with are written by experts in their lines. The volume contains both technical and non-technical matter so that it will be useful to different groups of readers.

The part dealing with human nutrition first gives the main facts about the function of the nutrients in foods followed by a group of general articles on human attitudes towards food. Then there are comprehensive articles on the various nutritional requirements followed by articles dealing with the content of nutrients in actual food materials. An article analyses the present diets in the

\* *Food and Life*: Year Book of Agriculture, 1939. United States Department of Agriculture. Price \$ 1.50. For sale by Superintendent of Documents Washington, D. C.

United States while another shows how they could be improved. There are also articles on food preservation and consumer safeguards. The part dealing with animal nutrition covers about two-thirds of the book, 670 pages. An introductory article gives some fundamentals that connect soil and plant management with animal and human nutrition. A series of articles gives the relation of diet to maintenance, health, growth, fattening, meat production, reproduction, and production of wool and hides. The nutrition of young and orphan animals is also considered. Following this are articles dealing with the nutrition and feeding of various classes of livestock—beef cattle, dairy cattle, swine, sheep, goats, horses and poultry. Dogs, fur animals and certain game birds are also included because of the general interest in these animals. A group of articles deals with the principal livestock feeds available to farmers. This is followed by a survey of what is being done in the way of experimental work and what research workers stress as the needs of the future. A set of tables gives up-to-date figures on the composition of the principal feedstuffs.

It is not possible to give any useful summary of what is contained in this book of over a thousand pages in a review. The editorial summary of the various articles itself occupies 90 pages. We have indicated the nature and scope of the subject dealt in this volume. While some of the articles or portions of the articles refer exclusively to conditions in the U.S.A., they would nevertheless indicate to us in India directions along which the question should be tackled under conditions prevalent in India, while most of the other articles would be found very useful not only to research workers but, to a great extent, to lay readers and ordinary agriculturists. A careful study of the volume is sure to open the eyes of many who are averse to change their fads and fancies to meet the requirements of the changed life in which we are living.

### Production of Indian Magnesite.

Five kilns are already working in Salem calcining magnesite. Two more kilns which are nearing completion will be added shortly. These seven kilns will bring up the production from 1,200 tons to 1,600 tons monthly. Undeveloped deposits of magnesite containing 5,500,000 tons of crude magnesite, extend over 1,500 acres of Raja Krishnamachariar in Salem. Tatas also produce a small quantity of magnesite every month. Magnesite is used for making refractories for the lining of furnaces.

## BOOKS RECEIVED.

- Merchant Vessels of the United States 1939.
- Measurement of Vessels.
- Merchant Marine.
- Statistics Fiscal Year 1939.
- The above from the Director Bureau of Marine Inspection and Navigation U. S. A.
- Statistical Abstract of the United States 1939 from the Director Bureau of the Census.
- List of Publications of the Department of Commerce U. S. A.
- Annual Report of the Department of Commerce, Industries and Labour, Baroda State for 1937-38.
- Annual Report of the Department of Statistics, Baroda State for year ending 31st July 1938.
- Statistical Abstract of the Baroda State from 1928-29 to 1937-38.
- Psocids, Annoying House Pests by E. A. Back, Principal Entomologist, Bureau of Entomology and Plant Quarantine.
- Federal Poultry Research by John R. Mohler, Chief, Bureau of Animal Industry.
- Effect of Relative Humidity on Viability Moisture content and respiration of Wheat Oats and Barley seed in Storage by D. W. Robertson, A. M. Lute and Robert Gardner.
- Administration Report of the Ayurveda Department and Public Health Department Travancore State for 1114 M. E.
- Budget Estimate Final Edition, of the Cochin State for 1116 M. E.
- Annual Trade Report of Kenya and Uganda for 1939.
- Administration Reports of the Public Works Department, Maramat Department, Electrical Department, Water Works and Drainage Department for 1114 M. E. of the Travancore Government.

### Manufacture of Grindery for Boots.

A new industry, started for the first time in India, is grindery, some items of which are now being manufactured on a small scale by an Indian concern. The Government of India are giving every encouragement for its expansion.

Grindery is used for the manufacture of boots and comprises metal toe and heel tips, eyelets, screwed wire, flax thread, tacks, etc. Up till now it has always had to be imported from abroad. The new industry, when firmly established, will make India less dependent on imported grindery.

### Bee-Keeping in Mysore.

Thousands of small ryots in Mysore are reported to be making a living out of bee-keeping. Before the Mysore Agricultural Department turned its attention to this source of more income to the ryot, the bees used to be reared in earthen pots and the honey extracted in a crude manner by squeezing the combs. The honey obtained was very impure. Hawkers and middlemen went about from village to village to purchase the honey produced by the ryots. In many cases the ryots took advances to sell the honey to the middlemen during the honey season and the farmer got only a very poor value for the honey. Some of the unscrupulous among the middlemen adulterated the honey with jaggery and sugar syrup and this concocted material was sold as honey in the market.

The Agricultural Department went to the rescue by educating the ryots in the art of bee-rearing on up-to-date improved methods. The Government sanctioned the maintenance of a special bee-keeping staff in the Malnad area about three years ago with the result that today there are about 560 improved hives in 88 villages. Hives are sold at concession rates to the poorer classes of people. When the bee-keepers began to produce first class pure honey, the department helped them by purchasing it and introducing it in the market. As the quantity of good honey produced gradually increased, the want of a special organisation to deal with the collection and marketing of honey began to be keenly felt by the bee-keepers. The want has now been supplied. A Bee-Keepers' Co-operative Society has been started at Saklespur with the help from the Government. The latter have not only given a grant of Rs. 500 to the society, but has also given a loan of Rs. 2,000 free of interest and also timber worth Rs. 500 at half the cost price for the manufacture of improved hives for distribution to bee-keepers. The society will collect honey from the bee-keepers and arrange to market it. It will also render all the necessary help to the villagers and others to take to improved methods in bee-keeping.

### Monthly Railway Time Tables.

The S. I. Ry. Advisory Committee has agreed with the Chairman to the discontinuance of the publication of the Monthly English and Tamil Time Tables, on the ground of expense and as a measure of war economy, but decided to continue them as quarterly publications commencing from 1st October, 1940.

## PUBLICATIONS RECEIVED

London Chamber of Commerce Journal  
 The Pudukkottai Gazette  
 The Industrial Australian and Mining Standard  
 Mysore Chamber of Commerce Bulletin  
 South Africa Standard Bank Review  
 Mysore Information Bulletin  
 Official Journal (Union of South Africa)  
 Indian Jute Committee Bulletin.  
 Monthly Survey of Business Conditions in India.  
 Statistical Bulletin of the International Rubber Regulation Committee  
 The Cochin Government Gazette  
 Monthly Summary of the National Bank of Australasia  
 The Madras Wholesale Market Rates  
 Market Information Bulletin (Ceylon)  
 Madras Market Price Current (Patterson)  
 Share Market Report (Maconochie)  
 Bureau of Marine Inspection and Navigation Bulletin  
 Pudukkottai State War Bulletin  
 Indian Information.  
 Southern India Commerce  
 Indian Soap Journal  
 Circulaire Commerciale  
 Bombay Information  
 Monthly Record  
 The Whip  
 Indian Listener  
 Commercial News  
 The Prince  
 Advertiser  
 The Commercial Opinion  
 Ceylon Radio Times  
 Sunday Observer  
 Indian Concrete Journal  
 Hyderabad Radio News  
 Index  
 The Ceylon Trade Journal  
 Railway Herald  
 Gram Udyog Patrika  
 Economic News  
 Journal Officiel  
 Industry  
 Guardian  
 Indian Trade  
 Batanagar News  
 Indian Sugar  
 Ceylon and the War  
 Sugar Bulletin  
 Eastern Economist  
 The Indian Trade Journal  
 Indian Farming  
 Anglo-American News

### Domestic Broadcast Receivers.

Domestic broadcast receivers have been receiving the attention of Indian inventors, as shown by applications received for patents by the Patents Office. Two of these inventions aimed at the general improvement of radio receivers so as to make them more suitable for Indian conditions.

A single valve circuit has been devised in the country to generate or obtain continuously variable frequencies covering a range wider than hitherto known, to cover frequencies in the telegraphic, audio, or radio band and to be adaptable to high pass, low pass or band pass filter.

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### Speedier Development of Self-Sufficiency Likely.

In his address to the annual meeting of the Reserve Bank of India, Sir James Taylor, Governor of the Bank, reviewed the repercussions of the war on India's economic and financial structure. Referring to the prices of India's export commodities, which suffered a wide and severe slump, he doubted whether these effects would be as drastic or as lasting, as was sometimes apprehended. "They have thrown India back on herself; in particular the cutting off of communications with Europe through the Mediterranean must bring about a much wider and speedier development of self-sufficiency not only in munitions of war, but in all the commodities which previously came from Europe the Central Government are taking active measures to expand all the industries connected with the war and private enterprise, once it recovers from the shock and finds its feet again, will, I am sure, not be slow to follow. With the command of the seas and with the consequent immunity from hostile attack, I see no reason to doubt a rapid and general development which must, in turn, reach healthily on the demand and consequently, on the prices of raw commodities".

### Industrial disputes in India.

One hundred and twenty-eight labour disputes resulting in a loss of 4,003,016 working days occurred in British India during the quarter ending March 31, 1940. The number of workers affected was 273990.

Textile and jute mills accounted for 40.6 per cent of the strike, 80.9 per cent of the workers involved and 88.3 per cent of the total loss of working days.

In 92 of the disputes, or 71.9 per cent the chief demand related to wages or bonuses.

Of the disputes 23 were successful, 39 partially successful and 55 were unsuccessful, while 11 were in progress at the end of the quarter.

The important strikes which occurred during the quarter were :—

Strike in the Dhakeswari Cotton Mill, Dacca with 4,600 workers involved and 112,000 days lost.

Strike of the Scavengers of the Calcutta Corporation with 20,000 involved and 109,400 days lost and that in Bombay Cotton Textile with 156,598 workers involved and 3,101,115 days lost.

### Jamnagar & Dwarka Railway.

The Jamnagar and Dwarka Railway has been strenuously trying to improve the transport facilities to and from Cutch for the traffic that passes via Jamnagar. The through booking of passengers to Kandla from the B. B. & C. I. Railway Stations, through booking of parcels from any Station in India to certain Stations on the Cutch State Railway, the free handling of luggage, etc. are the concrete forms of success achieved by that Railway in the direction of increasing the transport facilities between Cutch and the main-land via Jamnagar. Another important development in the direction is the introduction of the arrangement of through booking of certain commodities of goods between Cutch and any station in India via Jamnagar. The arrangement for the handling of this traffic has recently been concluded with the Cutch State Railway and the scheme which is in force from 1st August 1940 augurs well and is anticipated to fill a long felt want as it will afford a suitable market for the produce of Cutch and will enable the enterprising merchants of Cutch and other places to establish new business connections.

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Extension of the scope of the Zone Tickets (Zones A. C. G.) that will be issued by the B. B. & C. I. Railway in August/September to the main lines of the three Kathiawar Railways, viz., Jamnagar & Dwarka, Bhavnagar & Morvi Railways marks an important announcement in the progress of Kathiawar Railways in the direction of increased amenities to the travelling public. The scheme embraces visits to various pilgrim centres and beauty spots of Kathiawar such as Dwarka, Palitana, Jamnagar, Morvi, Bhavnagar, Harshad and Pindara (both via Bhatia Station) and so on, and being the first of its kind, augurs well to offer a unique opportunity of a visit to the Historic land of Kathiawar at cheap fares. The scheme it is hoped will receive a warm reception from the potential travellers. If it is successful, which it is bound to be, looking to its attractive features, it will it is hoped induce the remaining two Railways viz. Junagadh and Gondal to join hands during a future issue of these tickets, thereby completing a comprehensive tour to Kathiawar including all the celebrated places situated in that peninsula.

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# Industrial Possibilities in Minor Forest Produce

Investigations are being made at the Forest Research Institute, Dehra Dun, on a number of minor products from India's forests with a view to developing their industrial potentialities.

India is the biggest exporter of Rosha or Palmrosa oil, an essential oil of commercial importance, prepared from the grass *cymbopogon martini*. The distillation of this oil in the Central Provinces and Bombay where this grass grows wild, is made under crude processes, imparting a burnt odour to the oil. In spite of this deficiency however, the oil has a consistent demand due to its high content of geraniol, an important constituent of synthetic otto of roses and other perfumes. In fact in 1936—37, 8,129 gallons of the oil valued at Rs. 2,37,000, was exported from India and in the following year 10,837 gallons, valued at Rs. 413,000. But because of the practical monopoly of supply which India enjoys, scant attention has hitherto been paid by the producers to suggestions for improvement in manufacture.

## Scientific Methods.

There is, however, considerable scope for improvement and a demonstration of what can be done to improve the manufacture, both in quality and quantity, by the application of scientific methods and equipment has been arranged by the Forest Research Institute in a small plantation of this grass in Lyallpur (Punjab), where 3,000 lbs. of high quality oil is produced, which always finds a ready sale at a premium.

Thymol, an important anti-septic and anthelmintic, is another subject on which the Forest Research Institute had long been making investigations. Ajowan seeds, when distilled yield thymol. During the last War, a distillation factory was started in Dehra Dun and after a run of several years had to be closed down due to a variety of reasons, one of which appears to be the quality and price of the raw material. The Institute undertook to look out for other possible of thymol and eventually succeeded in finding another source in the oil of *Andropogon Jwarncusa* grass growing wild in Hazara and Sind.

## Thymol from Jwarncusa.

Jwarncusa oil contains a high percentage of piperitone, as high as 70-, a constituent which on oxidation yields thymol. But, unfortunately, this source has not been tapped at all in India yet, though Australian eucalyptus oil, which contains 50 per cent piperitone, is being employed. This, however, is not the only example of forest products, of which the potentialities though revealed by

scientific investigations, yet remain unexploited. Vetiver, skimmia and eucalyptus oil are some of the other objects of commercial importance for the manufacture of which a study has been made at the Forest Research Institute of the chemistry of many of the possible raw materials of forest origins which for various reasons yet remain partially or wholly unexploited. The information so far collected on these products is, however, readily available at the Institute.

## Utilisation of Sandalwood.

Problems connected with the utilisation of sandal wood had also been investigated at the Institute, and it has been shown that sandal wood grown on poor and rocky soils is generally richer in oil content and also that commercially lower grades are not necessarily poor in oil, the grading being based on size, weight or appearance. These investigations have led to better commercialisation and marketing of sandal wood.

## Vegetable Tallow.

The Institute has also been investigating the possibilities of finding vegetable tallow from forest seeds, which could usefully be substituted for imported tallow, which in 1936—37 alone cost India over Rs. 35,00,000. A large number of oils and fats from forest seeds have been examined in detail and a few of them, such as kusum and mohwa oil have already been commercially exploited, while many others such as piney tallow, kokum butter, mohwa fat and chinese tallow have remained of local value and use even though they have been shown to be admirably suited for making size paste, soaps, candles, leather dressing and axle grease, and can replace imported tallow which at present is being used for these purposes. Chemical and commercial information on these facts has been compiled and every effort is being made to bring it to the notice of the consumers.

Another finding of economic significance made by the Forest Research Institute is that fats from seeds of certain trees belonging to the Lauraceae family are a fruitful source of lauric acid. The demand for which is considerable, it being the basic substance for a newer type of detergents useful alike in soft, hard and saline water. The acid has numerous other commercial uses and its source, at present, is palm kernel oil which contains about 35 per cent of it, compared to 80 per cent in some of the Lauraceae fats. There is a big demand overseas for Lauric acid and a survey of the quantity available and the possibilities of plantation is being planned.

# REVIEWS

## Bulletin of the War Information Bureau, Pudukkottai State.

The Bulletins which contain both English and Tamil matter, contains lectures, articles and other interesting matter relating to war. A study of these would give the reader a clear idea of the various aspects of the present great war. Among the interesting sections in the Bulletin is the one in which the misleading broadcasts by the Enemy radios are exposed in detail.

### Silo Types and Construction.

[Farmers Bulletin No. 1820 of the U. S. Department of Agriculture.]

Silos are considered to be an important factor in solving the livestock feeding problem, particularly in milk and beef production. Silage is also much used as a feed for sheep and to some extent for horses and mules. This bulletin which is profusely illustrated gives practical instructions for constructing various types of silos.

The kind of silo to build depends upon the investment warranted and the durability desired. The farmer is the best Judge of his service requirements and will determine whether the need for a silo is temporary or permanent, urgent or ordinary and the availability of cash, labour and materials. If he is a tenant rather than an owner, a portable or low cost temporary type silo may be considered. The farmer in either case is interested in obtaining the most efficient feed storage in keeping with his needs at the least cost.

Silos may be divided roughly into above ground—tower or upright—and the below ground—pit or trench—silo, either of which may be built for temporary or continued use.

Silos are made of brick, tile, concrete, wood or metal and the bulletin explains the comparative merits of the different types. The first three types have the advantage of durability and fire and wind resistance. Well made concrete silos require little attention except for an occasional coat of paint on the walls.

Now that we in India are paying much attention to problem of cattle feeding, the bulletin would be found very useful to farmers and others interested in agriculture in solving to a certain extent the provision of an adequate supply of cattle feed for use in times of need.

## Greenhouse Tomatoes.

[Farmers Bulletin No. 1431 of the U. S. Department of Agriculture.]

This bulletin gives practical advice and suggestions for the successful production of tomatoes in greenhouses on a Commercial basis. Greenhouse tomatoes, when ripened on the vine are stated to be far superior in quality to those grown outdoors in warm sections under conditions making it necessary to pick the fruit green in order to get it into the hands of the distant consumer without undue loss. Successful production in greenhouses requires the use of suitable structures with adequate heating and other equipment, good seed of suitable varieties, fertile well adapted soil and painstaking care in growing the plants and in handling the crop. The greenhouse operator who can provide the high grade equipment necessary and give the crop the care it demands is, it is stated, likely to find an increasing market for his product.

The bulletin gives directions for the construction of the greenhouse, the provision of the heating arrangement ventilators, watering systems, soils and fertilisers, pruning and training of plants etc. injurious insects and methods of over coming them etc.

The yield varies according to season, ranging from 4 pounds per plant in the autumn to 10 pounds in the spring. A grower in the Rochester area (N. Y.) secured a yield of 5000 pounds in a greenhouse about 30 by 180 feet. Gross returns range from as low as 10 cents a pound to as high as 25 cents. These figures will give an idea of the profitable nature of the greenhouse cultivation.

## New Zealand Official Year Book, 1940.

This year book of over 1000 pages gives in a comprehensive manner descriptive and statistical account of the various aspects of the Dominion's national life.

Now that an Indian Trade Commissioner has been appointed for Australia who we think would naturally be asked to look after India's interest in New Zealand also and considering the fact (as stated in the year book) that Australia acts as a re-exporting centre for a certain proportion of goods received into the Dominion from India and Ceylon the year book would be found useful for those who wish to establish or develop trade with New Zealand.

India's share in the import trade of the Dominion has been decreasing of late. The share was 1.58 per cent of the total import trade of the Dominion in 1935 but it fell to 1.25 in 1936, 1.03 in 1937 and 1.02 in 1938. The total value of goods imported from India was £ 579,922 in 1937 and £ 565,285 in 1938.

According to the Year book, India captured the New Zealand Jute market in the early "eighties" and since then there has been a regular import of corn sacks, wool packs etc. In former times the colony imported its sugar from Fiji but in late years Fiji has been largely supplanted by the Netherlands East Indies and Cuba. The Dominion imported sugar to the value of £ 600,000 in 1938. *The Indian sugar interests will please note this.* The import of tea from China has given way to imports from Ceylon. This latter country sends £ 800,000 worth of tea to New Zealand while India's share which was nearly £ 150,000 in 1934 has fallen to £ 16,000 in 1938. It is note worthy that there has been a gradual increase in the export of boots and shoes from India to New Zealand. From £ 5,300 in 1935 when the trade in that line commenced it has now increased to £ 14,442 in 1938. A study of the year book may give an indication of the probable lines along which trade with the Dominion might be developed.

New Zealand's exports to India has been increasing in recent years, the value rising from £ 65,000 in 1934 to £ 137,000 in 1938. The chief classes of goods taken by India are tallow (£ 92,016) butter (£ 27,283) and Dried and preserved milk (379,500 lbs.).

Industrial production in New Zealand has been increasing of late, the total gross value of products in all classes of industries rising from £ 72 millions in 1933—34 to £ 113 millions in 1937—38. The net industrial production arrived at by the "Added value" method has also increased by over 50 per cent the figure for 1937—38 being £ 38 millions.

It is interesting to note that in 1938—39 there were 139 immigrants from India into the Dominion. Of this 110 were Indians, 69 Indians departed from the country. During the last ten years permanent arrivals of Indians have aggregated to 466 while permanent departures came to 193. The total Indian resident population in the country is, however, not known. It should be worth while investigating to what extent the services of the Capable Indians resident there could be utilised to help trade between India and New Zealand.

### Growing Flax in Bengal and Bihar.

A scheme for growing flax in India estimated to cost Rs. 4,50,000 has been approved by the Government of India. About 1,200 acres will be sown shortly in Bihar and Bengal, which have been selected for the experiment. The seed purchased in Holland has arrived in Calcutta and if germination tests are satisfactory, the necessary machinery will be ordered. The scheme includes guarantees to cultivators designed to discount the risks attendant on the growing of a new and unfamiliar crop.

The flax plant belongs to the same species as the linseed which is grown extensively in India.

Experiments on the cultivation of flax in India have been in progress for some years in Bihar, Bengal and the Punjab. These experiments have already shown that there is immense scope for the cultivation of flax in this country. The Bengal Government has been making experiments with seed brought from Ireland and grown at the Government farms at Dacca, Rangpur, Dinajpur, and Berhampore. A new method of extraction of fibre was evolved and special appliances devised for the adoption of this appliances devised for the adoption of this type of work as an item of home industry. The Imperial Council of Agricultural Research granted a total sum of Rs. 5,000 to be distributed over five years for experiments in this connection.

The crop has also been tried out by private growers in different parts of the province. The Government of Bengal have recently sanctioned a sum of Rs. 30,000 to be distributed over three years for purposes of demonstration on a large scale.

### Movement of Traffic.

It has been possible to still further effect an acceleration in the movement of goods traffic booked from Madras to Quilon, Punalur, Madura and Tuticorin.

In spite of the war, the S. I. Railway has wherover practicable continued to offer several amenities and facilities to the public. The provision of two additional trains (Rail Motor Coaches) between Trichinopoly Jn. and Karaikkudi, one in each direction, will be welcomed by the public of the Chettinad area and Pudukkottah State.

### Oriental Life Office.

Mr. A. G. Venkatachala Mudaliar who has been appointed Branch Secretary of the Oriental Government Security Life Assurance Co. Ltd. at Trichinopoly has assumed charge of the Office.

### India's Premier Position in Afghan Market.

India occupied the first position amongst countries supplying goods to Afghanistan, the value of her exports being Rs. 30,43,000 (Indian), states the half-yearly report of the Indian Trade Agent in Kabul for April-September 1939. Japan took the second place and the United Kingdom third.

Among the principal items of imports, India held the Afghan market as usual, in live animals, boots and shoes, leather and cement. In addition, a good portion of the market in drugs, medicines and perfumery, paper and tea was secured. There was keen foreign competition in iron and steel and cotton manufactures, while imports of sugar dwindled to an insignificant figure.

Indian goods met with severe competition from Japan, particularly in cotton manufactures, including cotton piecegoods, and green tea. Of the total imports of cotton manufactures amounting in value to Rs. 37,51,734 Japan supplied Rs. 20,49,367 or 54.6 per cent and India Rs. 15,76,520 or 42 per cent. Imports in the corresponding six months of the preceding year amounted to Rs. 36,96,082 with the percentage share of Japan at 53.3 and of India at 42.1.

About 39.2 per cent of the total supply of green tea was accounted for by India, as against 22 per cent previously, but 45.4 per cent came from Japan. However the entire imports of black tea came from India. Under competition with Java, imports of sugar from India practically ceased.

Imports of cigarettes and other tobacco manufactures from the United Kingdom and India somewhat declined, apparently on account of the import of cheaper and inferior goods from Russia.

Imports of boots and shoes from India showed an improvement of 20 per cent over the figures for the corresponding period of last year. In this line there is no effective competition from other countries. The value of the imports of Indian cement nearly doubled.

The total value of imports into Afghanistan was Rs. 1,23,83,649 against Rs. 1,17,30,589 previously. The total value of exports amounted to Rs. 1,31,90,762 against Rs. 1,08,10,911.

The increase of Rs. 6,50,000 in the total imports into Afghanistan is mainly accounted for by increased imports of cement, tea, cotton yarn and manufactures of cotton (other than piecegoods) from India; machinery and millwork from the United Kingdom; sugar from Java; petrol from Iran; silk manufactures from Japan; and motor vehicles from the United States of America. These

### Mangalagiri Rural Centre and Industrial Institute.

[General Report for 1939-40, Published by the Institute at Mangalagiri, Tinnevely District.]

The rural demonstration Centre and the Industrial Institute at Mangalagiri in Tinnevely district are doing much useful work as is evident from the report of their activities for 1939-40. The Centre was started in 1934. The general activities of the centre are agriculture, poultry farming, bee-keeping, animal husbandry and goat rearing.

There were 43 students in the Industrial Institute, Spinning and handloom weaving, paper-making, carpentry and smithy, tanning and pot making are taught to the students. It is stated that cloth and paper made at the centre are in good demand. Experiments are being carried out to increase the quantity and quality of the output of paper. First class tanned skins and finished leather goods are being turned out from the tanning section of the Institute. The report says that the high quality of the Mangalagiri tanned goods is so well recognised that large orders from out-stations are being received and executed to the satisfaction of the customers. The report also gives details of the propaganda work carried on by the Centre, the working of the Summer school conducted at the Centre and the Industrial Exhibition held every year.

increases were counter-balanced partly by reduced imports of live animals from India; drugs, medicines, millwork and machinery, iron and steel goods and various other articles from Germany; petrol from Burma; and, to a small extent, tea from Japan and China.

In July a German trade delegation visited Kabul and an exchange and credit agreement was concluded towards the end of August. Since the outbreak of war, however, the agreement has remained practically a dead letter and trade with Germany appears to be nearly at a standstill.

A factor which had an important bearing on the economic situation in Afghanistan was the total cessation of trade with Russia during the latter part of the half-year. The effect of this was to increase imports over the Indo-Afghan frontier of certain articles, particularly sugar, and to necessitate efforts by the Afghan Government to find markets for cotton and wool normally taken by Russia.

### Lubricants from Vegetable Oils.

Mineral oil resources being limited in the world, the Industrial Research Bureau has been investigating the possibilities of utilising vegetable oils as high grade lubricants for use in internal combustion engines. India is one of the largest producers of vegetable oil seeds and vegetable oils.

Chemical investigations which have been carried out have resulted in the discovery of a dozen chemicals which are effective stabilizers when used in various vegetable oils such as castor, groundnut, and cotton-seed oil. Rape oil has also been studied.

Several effective combinations of oils and stabilizers were devised, and a series of engine lubricants produced. These have been subjected to practical engine trials, the results of which have been encouraging and show that vegetable oils are a potential source of good quality engine lubricants.

One often hears of castor oil having been employed in aero-engines and racing car engines, where operating conditions are severe and impose a correspondingly severe strain on the lubricant. It is still favoured in India for the lubrication of certain parts of railway engines. In fact, owing to its superior qualities castor oil is regarded as indispensable under certain circumstances. It has one serious drawback, however, which is that it is susceptible to oxidation and consequent thickening and this necessitates frequent renewals, which are costly and only justifiable in the case of highly specialised operations such as racing.

The advantageous qualities of castor oil, such as good film strength, high degree of oiliness, low coefficient of static friction; etc., are shared by most of the vegetable oils, together. However, with the drawback of shortness of serviceable period. The main problem to be solved to render vegetable oils satisfactory as substitutes for mineral oils therefore reduced itself to increasing the stability of vegetable oils under arduous and prolonged service conditions, other desirable properties being already present to a greater extent than in mineral oils.

### மீன் எண்ணெய் உற்பத்தி.

நார்வேயிலிருந்து காட்லிவர் ஆயில் வருவது யுத்தம் காரணமாக நின்றதுவிட்டபடியால், சென்னை மீன் இலாகா, மீன் எண்ணெய் தயாரிப்பது சம்பந்தமான திட்டத்தைப்பற்றி ஆராய்ச்சி செய்து வருகிறது.

### இந்தியாவில் பாங்கு முறிவுகள்.

நவீன, மேல்நாட்டு முறையைப் பின்பற்றிய பாங்குத் தொழில் இந்தியாவுக்குப் புதிதாகையால், பாங்குகள் முறிவது, ஜேராப்பாவிலோ அமெரிக்காவிலோ உண்டெண்ணும் பீதியை விட இந்தியாவில் அதிகப் பீதியை உண்டாக்குகின்றது. உண்மையில் பாங்கு முறிவு இந்தியாவில் அமெரிக்காவைவிட அதிகமன்று. இந்தியாவில் ஏற்பட்ட பாங்கு முறிவுகளையும் அவற்றின் மூலதனங்களையும்பற்றிய புள்ளி விவரங்கள் வருமாறு.—

வருஷம்	முறிந்த பாங்கு களின் தொகை	சேலுத்தப்பட்ட மூலதனம் (1000 ரூ. கணக்கில்)
1925	17	18,70
1926	14	3,90
1927	16	3,10
1928	13	23,10
1929	11	8,10
1930	12	40,60
1931	18	15,00
1932	24	8 10
1933	26	3,00
1934	30	6,20
1935	51	65,90
1936	88	4,90

பாங்கு முறிவு வருஷா வருஷம் அதிகரித்து வருவதை மேற்கண்ட புள்ளி விவரங்கள் விளக்குகின்றன. அமெரிக்காவில் ஏற்பட்ட பாங்கு முறிவுகளைப்பற்றிய புள்ளி விவரம் வருமாறு:—

வருஷம்	தொகை	டிப்பாஸிட் (லட்ச டாலர்கள்)
1921	501	1964
1922	354	1106
1923	648	1887
1924	776	2133
1925	612	1729
1926	956	2724
1927	662	1938
1928	491	1386
1929	642	2345

இந்தப் புள்ளி விவரங்கள், அமெரிக்காவில் பொருளாதார நெருக்கடியேற்பட்ட காலத்தைச் சுட்டுகின்றன.

### உடையாத ஒலிப்பதிவுத் தட்டுகள்.

ஒலிப்பதிவு செய்யக்கூடிய உடையாத தட்டுகளைத் தயாரிக்க முடியுமா என்பதுபற்றி இந்திய அரசுக்கு ஆராய்ச்சி ஸ்தாபனத்தில் பரிசீலனைசெய்து வருகிறார்கள். அலுமினியத் தட்டுகளின்மேல் அரக்கைப் பூசி அதன்மேல் ஒலிப்பதிவு செய்ததில், அந்தத் தட்டை 150 முறை உபயோகிக்க முடிந்ததாம். சாதாரணமாக உபயோகிக்கப்படும் கிராமபோன் தட்டுகளைப்போல இவை பலவளரித்தனவாம். அலுமினியத்திற்குப் பதில் கனத்த அட்டைத் தட்டுகளை உபயோகிக்கலாமென்று இப்பொழுது கண்டு பிடித்துள்ளார்கள்.

# காலை 9 மணிக்கு



## இருந்தாப்போல் இப்போழுது அவன் இல்லை

மணி 11 ஆகிறது. 9 மணி  
யிலிருந்து விடாமல் உழைத்  
ததின் பலனாய் அவனுக்குத்  
தெம்பு குன்றிவிட்டது;  
வேலையில் கவனம் செலுத்த

முடியவில்லை. இதுதான் ஒரு கப் டீ குடிக்க  
வேண்டிய சரியான தருணம். கைவேலை அல்லது  
மூளை வேலை செய்கிற ஒவ்வொருவருக்கும் இந்த  
11 மணி டீ அவசியம். களைப்பைப் போக்கி வேலை  
செய்வதற்கு உத்ஸாஹம் உண்டாக்குகிறது.



## 11 மணி களைப்பைப் போக்க இந்தியன் டீ அருந்தவும்

## சற்கரைக்குப் பதில் தேனை உபயோகியுங்கள்.

தேன் என்பது பலவகை சற்கரைகள் ஒன்று சேர்ந்து அமைந்த ஒரு பதார்த்தம். ஆகையால் சில பொது விதிகளை அனுஷ்டானம் செய்து கொண்டு சற்கரையை உபயோகிப்பது போலவே தேனையும் சமையல் செய்வதிலும் வெகுநாட்கள் சேமித்துவைக்கவேண்டியதும், பதார்த்தங்கள் செய்வதிலும், தகரத்தில் அடைத்துவைக்கும் பதார்த்தங்கள் செய்வதிலும் தாராளமாக உபயோகிக்கலாம். சற்கரை தித்திப்பாக இருக்கிறது. ஆனால் அதில் நரச்சத்தோ எவ்வித திராவகச்சத்தோ இல்லை. தேனிலோ பலவித சற்கரைகள் ஜலத்தில் கரைந்தும் சொல்ப திராவகச்சத்தும் கலந்திருப்பதாக தேன்பூச்சி வளர்க்கும் சாத்திரவல்லோரன C. B. கூட்டர்ஹாம் சொல்லுகிறார். ஒருவேளை சற்கரைக்குப்பதில் தேனை உபயோகித்து செய்யப்படும் பதார்த்தங்கள் சற்கரையைக்கொண்டு செய்யப்படுவதைக் காட்டிலும் இன்னும் அதிக நாளைக்கு நரச்சத்துடன் இருக்குமென்பது காரணமாயிருக்கலாம். தேனைச்சேர்த்து செய்யப்படும் ரொட்டி, பிஸ்கட், கேக் வகை, தின்பண்டங்கள் வெகுநாள் வரையில் ருசி கெடாமல் பசையுடன் இருக்கும். நாளாக ஆக, ருசி இன்னும் அதிகமாகவதாபுச் சொல்லப்படுகிறது. தித்திப்புக்காக உபயோகப்படுத்தவேண்டிய சாமான் சொல்ப மாக வேண்டியிருக்கிற தின்பண்டங்களுக்கெல்லாம் தேனையே சற்கரைக்குப் பதில் பூராவாக உபயோகப்படுத்தலாம். ஒட்டாவா மத்திய பரீக்ஷார்த்த பண்ணையில் செய்யப்பட்ட பரீக்ஷைகளின்பூலம் கண்டுபிடிக்கப்பட்ட விஷயங்களிலிருந்து எடுக்கப்பட்ட அடியிற்கண்ட விதிகளை அனுஷ்டானம் செய்தால் எந்த தின்பண்டத்திலும் தேனை உபயோகித்துக்கொள்ளலாம்.

1. தேனை எப்பொழுதும் அதன் திரவ நிலையிலேயே அளந்துகொள்ளவேண்டும். அது கெட்டிப்பட்டு கட்டித்தட்டியோ இருந்தால் அதை வெந்நீரில் வைத்து இளக்கச்செய்துகொள்ளவும்.
2. உபயோகப்படுத்தப்படும் ஒவ்வொரு கோப்பை தேனுக்கும் தின்பண்டத்திற்கு உபயோகப்படுத்தப்படும் சற்கரை பாகில் 5ல் ஒரு பாகம் உபயோகப்படுத்தினால் போதும்.
3. ஒரு கோப்பை சற்கரையிலுள்ள தித்திப்பும் ஒரு கோப்பை தேனின் தித்திப்பும் ஒன்றுதான்.
4. ஒவ்வொரு ½ அல்லது ¾ தேக்கரண்டி சோடா உப்பு ஒவ்வொரு கோப்பை தேனுக்கும் கலந்து கொள்ளவும்.
5. சோடா உப்பை ½ தேக்கரண்டி முதல் ¾ தேக்கரண்டி வரையில் சமயம்போல் அதிகப்படுத்திக்கொள்ளவும்.
6. கேக்குகள் செய்வதில் தேனை உபயோகிப்பதென்றால் அதில் சேர்க்க வேண்டிய தித்திப்புச்சரக்கில் தித்திப்புச் சரக்கைப் பாதியாகச் செய்துகொண்டு பாதி தேனை உபயோகிக்கவும். பழ ரசங்கள் சேர்த்து செய்யப்படும் கேக்குகளுக்கு சற்கரையே சேர்க்கவேண்டியதில்லை. தேனையே உபயோகித்துக் கொள்ளலாம்.
7. பால் சேர்த்த பணியாரங்களில் தேனை பணியாரங்கள் செய்யும் மாவுடன் கலந்து கொள்ளலாம்.

தேனில் பல தினுசு உண்டு. ஒவ்வொன்றும் ருசி வித்தியாசப்படும். பொதுவாக நிறம் குறையக்குறைய தேனின் ருசியும் குறைவாயிருக்குமென்று எதிர்பார்க்கலாம்.



## பத்திரிகைகள் வாவு.



ஆரம்பக்கல்வி  
செங்குந்த மித்திரன்  
நல்வழி  
மிராசுதார்  
ஜகன்மோகினி  
விதேலை  
சுதேச நாட்டியம்  
சோதிட பரிபாலனி  
சந்திரோதயம்  
நவயுவன்  
கிராம துதன்

சமரசம்  
குமரன்  
கதர் தொழில்  
குடி அரசு  
கூட்டுறவு  
செட்டிநாடு  
கிராம இந்தியா  
அம்ருதவஹரி  
கிராமவாசி  
கிராம பஞ்சாயத்து பத்திரிகை

## தாவர எண்ணெய்கள்.

எஞ்சின்களுக்கு உள்ளே அவை நன்கு வேலை செய்யும் படியாகப் போடப்படும் பசைமிக்க எண்ணெய்களுக்கு சாதாரணமாகப் பூமியிலிருந்து எடுக்கப்படும் எண்ணெய்களை உபயோகிக்கப்படுகின்றன. இவற்றின் உற்பத்தி ஸ்தானங்கள் ஓரளவுக்கு உட்பட்டவையாதலால், இவற்றிற்குப் பதிலாகத் தாவர எண்ணெய்களை உபயோகிக்க முடியுமா என்ற ஆராய்ச்சியில் இந்தியக் கைத்தொழில் ஆராய்ச்சி ஸ்தாபனம் ஈடுபட்டது. உலகில் அதிகமாக தாவர எண்ணெய்களையும் எண்ணெய் விதைகளையும் உற்பத்தி செய்யும் தேசங்களில் இந்தியாவும் ஒன்று. ஆமணக்கு, நிலக்கடலை, பருத்தி விதைகளிலிருந்து எடுக்கப்படும் எண்ணெய்களைத் தக்கபடி சுத்தி செய்தால் உலோக எண்ணெய்களுக்குப் பதிலாக உபயோகிக்க முடியுமென்று தெரியவருகிறது. என்னெண்ணெயையும் பரிசீலனை செய்துள்ளனர். இப்பொழுது விமான எஞ்சின்களுக்கு ஆமணக்கு எண்ணெயை உபயோகிக்கிறார்கள். ரயில்வே எஞ்சின்களில் சில பாகங்களுக்கும் இது உபயோகிக்கப்படுகிறது.

## திருவிதாங்கூரில் விமானத் தொழிற்சாலை.

திருவிதாங்கூர் யூனிவர்ஸிட்டி செனட் சபைக்கூட்டத்தில் திவான் ஸர். லி. பி. ஒரு முக்கியமான விஷயத்தை வெளியிட்டிருக்கிறார். ஆல்வாயில் வெகு சீக்கிரம் அலுமினியம் பாக்கடரியொன்று அமைக்கப்படுமென்றும், அதன் உப தொழில்களாக விமானத் தயாரிப்பு சாலைகளும் இதர தொழிற்சாலைகளும் ஏற்படக்கூடுமென்றும் அவர் தெரிவித்தார். ஒரு பிரபல பிரிட்டிஷ் கனடா கம்பெனி இந்த அலுமினியம் பாக்கடரியை ஏற்படுத்தும். இதன் மூலம் சர்க்காருக்கு வருடம் 10 லட்ச ரூபாய் வருமானம் கிடைக்கும் என்று எதிர்பார்க்கப்படுகிறது. பாக்கடரி ஸ்தாபிக்கப்பட்டால் இந்தியாவிலேயே இதுதான் பெரிய பாக்கடரியாக இருக்கும்.

தகரத்திலடைத்து வைக்கக்கூடிய பதார்த்தங்களிலும் தேனை உபயோகப்படுத்தி பரீக்ஷைகள் செய்யப்பட்டு திருப்திகரமான பலன்கள் கிடைத்திருக்கின்றன. ஜஸ்கிரிச் செய்வதில் சற்கரைக்குப்பதில் தேனை உபயோகிக்கலாம். தேனானது தித்திப்புடன்கூட ஜஸ்கிரிமுக்கு தனிவாசனையும் கொடுக்கும். இன்னும் தேனைக்கொண்டு பலவிதமான பண்டங்கள் தயார் செய்து உட்கொள்ளலாம்.

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