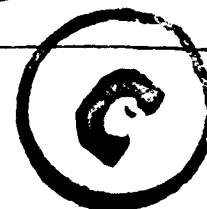


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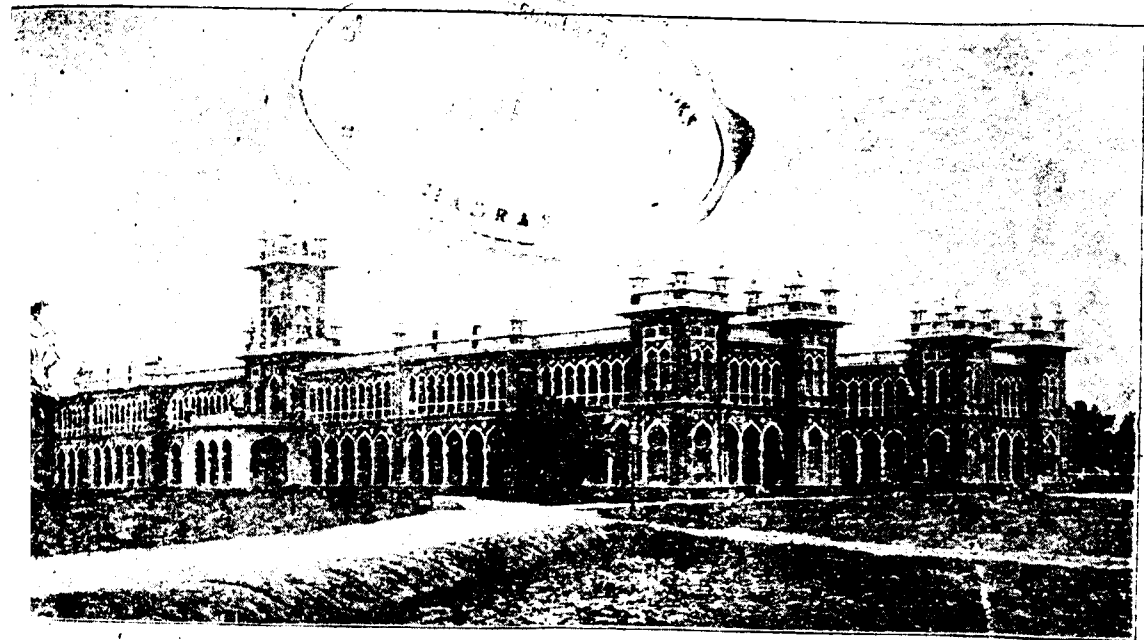
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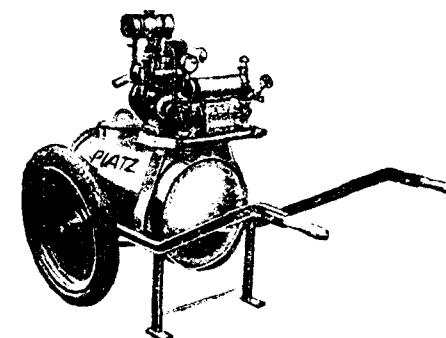
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THE RAMASASTRULA-MUNAGALA PRIZE, 1951.

1. The prize will be awarded in July 1951.
2. The prize will be in the form of a Medal and will be awarded to the member of the Union who submits the best account of research or enquiry, carried out by him on any agricultural subject.
3. The subject matter shall not exceed in length — twelve foolscap pages, type-written on one side.
4. Intending competitors should notify the Secretary of the Madras Agricultural Students' Union with a covering letter showing full name and address of the sender. The author's name should not be shown on the paper, but should be entered under a *non-de-plume*.
5. Four type-written copies of the essay should be sent.
6. The name of the successful competitor will be announced and the prize awarded at the time of the Conference.
7. Paper or papers accepted will become the property of the Union and the Union reserves to itself the right to publish all or any of the papers.
8. All reference in the paper to published books, reports or papers by other workers must be acknowledged.
9. The last date for receipt of papers has been extended upto 1st June 1951.
10. Further particulars may be obtained from the Secretary, the Madras Agricultural Students' Union, Lawley Road P. O., Coimbatore.

T. S. Lakshmanan,
Secretary.

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PROVEN PLANT PROTECTION PRODUCTS

The Madras Agricultural Journal

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March 1951

No. 3

Editorial

The Budget provision for Agriculture in the Madras State for 1951-'52 amounts to Rs. 621.5 lakhs as against Rs. 446 lakhs in 1950-'51. As the Hon'ble Minister for Agriculture Sri A. B. Shetty pointed out, while moving this demand during the last budget session of the Madras Asstmbly, the problem of feeding our growing population at an adequate level of nutrition overshadows all the other problems facing the country today. The recent census figures reveal an almost alarming rate of increase in the population, which is in striking contrast to the static and even dwindling nature of our food resources.

Though the Grow More Food Campaign has now been in existence for nearly eight years, it cannot be claimed, not even by an optimist, that it has succeeded to the extent desired. A large measure of this failure is to be attributed to the fact that people have gone in more for the cultivation of commercial crops like cotton, sugarcane, groundnut and tobacco than for the food crops so badly needed by the country. As the Hon'ble Minister pointed out "during the last twenty years there has been a slight decrease in the area under food crops, while the area under non-food crops has increased, mainly due to the relatively more attractive prices that they are able to secure". As a natural corollary there is now a wide disparity in the prosperity of food-grain growers and the grower of commercial crops. Those who cultivate food crops have also been hit hard by a succession of monsoon failures. The cultivator of commercial crops, on the other hand has prospered very definitely, on account of the highly remunerative prices he gets for crops like sugarcane, groundnut and tobacco and the fact that there is no price control over commercial crops, except in the case of cotton and sugarcane.

This difference in the prosperity of the two groups of cultivators is bound to have, in years to come, even more serious repercussions on the progress of the Grow More Food Campaign,

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unless the Government takes up a more comprehensive policy of price control, to build up an equitable price structure for all agricultural produce, food crops as well as commercial crops. The regulation of agricultural prices should be correlated to a rational system of crop-planning to maintain a proper adjustment of productive resources as between food crops and commercial crops.

In this context it is pertinent to emphasise that in the final count, it is the people who decide the success or failure of any programme or policy that is drawn up by the Government, as the best-laid plan and programme for increasing food production is bound to fail, unless the common man and cultivator realise that controls and quotas, rules and regulations are meant to be respected and obeyed for the sake of the common good, rather than evaded or circumvented, for the sake of personal gains.

OBITUARY

Madras is distinctly poorer by the death, last month, of one of her most brilliant sons, Dr. C. R. Reddy, Vice-Chancellor of the Andhra University.

A distinguished educationist and one of the few real orators in the whole of India, it is a matter of pride for the Madras Agricultural Students' Union to recall that it had the rare privilege of having Dr. Reddy as the President of the College Day and Conference in July, 1941.

Rice in other Countries

By

M. B. V. NARASINGA RAO

Paddy Specialist, Coimbatore

The scarcity of rice in this country is an eye-opener, but a similar scarcity prevails over the whole world. Modern civilization has abridged space and time so much that it is quite easy for anyone to fall in with the One-World ideology. Rice has therefore to be studied as a One-World crop.

A study of this crop in other countries might also help to adapt the practices in those countries to suit the needs of our conditions, not only in the present crisis, but also in the future designs of our crop-planning policies. The general status of the rice crop in the world is presented in Table I.

TABLE I.

Country	Area in Million acres	Production million ton (Rice)	Yield per acre (Rice)	Prewar	
				Imports million ton	Exports million ton (Rice)
1. (a) Indian Union	47.2	18.1	860	1.6	...
(b) Pakistan	22.5	7.4	730	...	...
2. China	45.0	37.6	1750	0.5	1.10
3. Japan	9.8	9.3	2350	1.8	...
4. Indonesia (Java)	9.0	5.9	1000	0.3	...
5. Burma	12.6	5.0	960	...	2.80
6. Indo-China	13.4	4.5	700	...	1.30
7. Siam	6.9	3.1	1030	...	1.40
8. Korea	4.1	2.8	1340	...	1.10
9. Philippines	4.7	1.6	750	...	...
10. Formosa	1.6	1.2	1550	...	...
11. Malaya	0.8	0.4	1100	0.6	...
12. U.S.A.	1.1	0.8	2000	...	0.07
13. Brazil	2.2	0.8	900	...	0.08
14. Italy	0.3	0.5	2000	...	0.15
15. Spain	0.1	0.1	3920	...	0.40
16. Egypt	0.3	0.3	2200	...	0.10
				4.8	8.50

Quantitatively rice is the largest food crop of the world, followed very closely by wheat. It is the staple food for more than half the people of the world. The total world production of nearly 100 million tons of rice over 200 million acres give about 100 lb. only of the milled rice per head of the rice-eating population. This ration is far below the standard for adequate nutrition and health. Considering its importance

to India, it is evident that there is no other field in which well-expanded effort will add so much to human welfare as rice culture. It is the cereal which permits the most intensive fertilisation and at the same time ensures good yields under both drought and floods. It is the crop which permits people to utilise not only all the rain falling on the fields, but also enormous volumes of run-off water from adjacent uncultivated areas. Under good husbandry and favourable conditions rice can be produced more easily than any other cereal. Rice is four times as useful as potatoes, weight for weight. Rice protein, though quantitatively less than in wheat, is considered to possess a better biological value. The wealth of material available in this crop is unrivalled; there being more than 3,500 varieties grown in the countries of South-East Asia alone. Credit should go to the Madras workers for having nearly 2,500 types in their collections which are maintained *in vivo* at the Paddy Breeding Station, Coimbatore.

The variations that exist in every part of this crop, its range of adaptability and its response to good husbandry, do not exist in any other cereal or for that matter in any other crop. Its ecotypes have a cosmopolitan range of geographical distribution in respect of latitudes as well as altitudes.

Rice is also a safe crop. Where rice is the exported crop, the market may slump as it will, without any serious repercussions on the grower in the country, whereas other crops such as rubber, tobacco, coffee, tea or copra can only furnish the money to buy rice to feed the people, and hunger steps in promptly when they cannot be sold or sold well. Thus a cultural system which sacrifices some food for probable money would be an unsound policy.

The exportable surplus of this cereal at present is only a quarter of the prewar average exports; while in 1935-'39, the internal trade amounted to 7.0 million tons, the export surpluses at present are estimated at only 3.0 million tons, creating thus a gap of 4.0 million tons. Asia's importing countries need more rice than its exporting countries can provide in the near future. Thus the task of increasing the total store of rice is urgent and it is more so in Eastern countries, where rice is the largest crop.

Although rice ranks as the first amongst the grain crops of the world, there is no denying that the organisation of its study stands in need of everything. No doubt very good work is being done in individual countries. But there is no reviewing periodical that gives even an approximate idea of all that is written on rice. Recently there is a publication named the 'Rice Journal' but it deals more with the economics of rice cultivation than other important aspects, on this

crop. There has been, unfortunately, no collaboration between the investigators on this crop, though recently the FAO has a Rice Study Group as one of its branches, a good augury for the Eastern countries.

Much of the information on the cultivation practices of rice in countries other than India relates to prewar years. Nevertheless many of them hold good even today and their main principles are accepted.

Spain: The cultivation of rice in Spain has been brought to a higher pitch of perfection than anywhere else in the world. It is recorded that the highest acre yields in the world are obtained in this country with an average of 5,200 lb. of paddy (3,600 lbs. of rice), over an area of 1.2 lakhs of acres. The extent is more or less equal to that of the Tambraparni basin in South India and the area is confined to the deltas of two rivers.

The rainfall is only 17", with a humidity of 64 per cent throughout the growing season, the highest temperature being 105° and the lowest 38°. The high yields are in part due to the season the rice is grown in i.e. from May to October when there is plenty of sunshine and also to the very good husbandry. The outstanding features that distinguish the cultivation of rice in this country are first, a thorough cold weather cultivation, the stubbles being burnt immediately after the crop is harvested. The fields are watered in January and harrowed, under puddle. In the lower lands a special harrow called 'Rallaora' which can be run even when the land is still wet, is worked. The discs are about a foot in diameter and set about a foot apart. When just dry it is again harrowed and later ploughed with a double mouldboard plough, drawn by horses. In recent years the breed of horses suitable for this work has been improved. The land is again puddled in May under water with a harrow.

The second feature is intensive manuring. Green manures are grown in most of the high levels areas. The use of artificials at 240 lb. ammonium sulphate, 300 lb. of super-phosphate and 50 lb. of potassium sulphate is a normal routine.

Thirdly, clean cultivation and aeration of the soil, when necessary, followed by copious but graduated irrigations, provide the conditions for a good stand of the crop.

Short-growing stiff varieties and constant replenishing of the stock offers itself as the fourth point of success in rice growing.

And lastly, most of the operations are carried out by human and animal labour with thoroughness except threshing which, of late, is done by machinery. Polishing is seldom done and this keeps the workers in

good health with all the food value of rice preserved intact. The spacing adopted for planting in most areas is 8"×10" and 3 to 5 seedlings are planted per hole.

Italy: The next important European country recording a high yield is Italy where, it is learnt, only 3 to 3½ lakhs of acres are under rice. Rice is the staple crop in the Po valley. Land rather than labour is the limiting factor of agricultural production in this country, influencing every aspect, from agricultural research to land utilization. The elimination of physical or chemical obstacles to agricultural production has been the main aim of all agronomic investigations. It was the rice crop that made possible the reclamation of large areas in this country. Draining of marshes, protection of countryside against floods, attempts to check soil erosion, long-term financial assistance to develop land as an organic unit with the idea of ruralising have also been the aims of land development in Italy. The sand dunes of Po valley were brought on a par with the most progressive countries of Northern Europe after the fine irrigation systems that were developed. Through such intensive cultivation, an average acre yield of 2,600 lb. of rice (shelled grain) or 4,000 lb. of paddy is obtained. How are these acre yields achieved when we are told that the soils are neither inherently rich nor does the river Po get much silt material? The high yields per acre must necessarily be due more to the methods of culture in vogue, than to the natural fertility of the soil.

The rice area here consists of very level fields not less than 20 acres in area so that it is possible to use some sort of machinery. Multiple ploughs drawn by horses are freely used for dry ploughing and even for puddling. Most of the area it is reported, is broadcast or drilled but the Italians have fully understood the beneficial effects of transplanting and are reported to have evolved a successful paddy transplanter.

The owner cultivators are 59% and the intensity of farming is evinced by the very many peculiar practices of farm enterprise. A few peculiarities in the paddy cultivation of this country may be mentioned:

(i) Weeding very thoroughly by manual labour.

(ii) Economic use of water. Farmers' associations are in charge of distribution of water and other irrigation sources are kept in perfect conditions by the farmers themselves.

(iii) The fields are dried 20 days after sowing and again after the final weeding.

(iv) Wheat and pasture for two years and then rice one year is the rotation practised. Fish culture is also carried on in rice fields.

(v) Over 10 tons of farmyard manure is used per acre and artificials at 1 cwt. ammonium sulphate, 3 to 4 cwts. superphosphate and 2 cwts. potassium sulphate serve to enrich the crop while aiming to keep the soil in good heart.

(vi) Short-stalked rices with heavy panicles and good tillering are grown. Hybridisation methods are commonly used for improvement of rice crop in this country.

(vii) Electrically operated threshers and artificial desiccators for drying grain if weather is bad.

(viii) Crop insurance against damage at 6 to 9 per cent of the gross value.

(ix) Husking done in small mills usually attached to the farms or a group of them, thus helping to retain the by-products with the cultivator himself.

(x) It is said that the Italian varieties are richer in proteins and fats. This is yet to be verified.

(xi) On the part of the Government, there used to be instituted huge prizes to promote competition for best yields. Two to four lakhs of rupees per year were given personally by Mussolini in the presence of a number of high Government officials. Formation of societies for production of good seed was encouraged, the State paying half the expenses of their formation. The Press was also helping by devoting front-page articles on matters of agricultural importance.

China: Coming nearer home, to the countries of the Far East where 90 per cent of the rice production is concentrated, some basic facts have to be borne in mind, namely:

- (1) A large percentage of production never enters trade channels and statistics are therefore, liable to be incorrect.
- (2) Rice consumers in these countries obtain 70 to 85 per cent of their calories only from this cereal.
- (3) Carry-over of rice into the next crop is always never more than two months' supply and no terminal storage facilities as warehouses and elevators, as exist in the West, are available.
- (4) Most of the rice exports are Government-controlled.

Countries like China, Japan and Korea form a group in themselves so far as agriculture is concerned. F. H. King records that "In selecting rice as their staple crop, in developing and maintaining their systems of combined irrigation and drainage, notwithstanding they have a large summer rainfall, in their systems of multiple-cropping; in their extensive and persistent use of legumes in their rotation for green manures to

maintain the humus of their soils and composting and the almost religious fidelity with which they have returned to their fields every form of waste which can replace plant food required by the crops, these nations have demonstrated a grasp of essentials and fundamental principles which may cause any nation to pause and reflect. Every part of land is made to contribute towards food, fuel or fibre."

The high esteem which rice enjoys with the Chinese may be gauged from the fact that the Emperor used to sow on an auspicious day (corresponding to the best day from the agricultural point of view also,) rice seed in seed-beds and the lesser nobles other cereals. Because the Chinese are rooted to the soil by their rice, they have outbred and outlived their conquerors. The population in China and Japan is twenty times more dense than most other countries, such as the U. S. A., but the Chinese are such a hard-working race that their 500 million are being maintained upon products from an area smaller than the improved lands of all U. S. A. put together. This they have been able to do by their resourcefulness and utilisation of all possibilities which science and invention have taught other nations.

The rice area of China is 45 million acres, confined to Central and Southern China with an annual rainfall of about 60", of which nearly 20" falls in July-August. 95% of this rice area is transplanted and the average acre yields of the transplants is recorded at 3000 lbs. of paddy. In areas favoured with longer seasons two or three crops are grown. It is said that the cultivator here is an industrial biologist. A few interesting points may be worthy of mention.

(i) The average size of the fields in China is only 10 cents. More than 75 per cent of the same land matures at least one other crop the same year and much of this may be wheat or barley, both consumed as human food.

(ii) Industrious labour, displayed from day to day in persistent, never-ending endeavours in keeping their land and themselves ever busy in producing something useful, is something surprising; and quite admirable. For them, as Emerson might put it, the natural is the supernatural, the real is the spiritual.

(iii) Fields that had matured two crops of rice during the long summer are thrown into strong ridges for vegetables. Centuries of toiling millions have excavated works of almost incalculable magnitude, building bunds, digging canals, carrying deposits of silt and organic growth and reclamation of lowlands. King truly believes that "if the Chinese had spread and developed in North America, the world would have seen a bigger production of all commodities. There might have been a grand canal, Rio Grande to the mouth of the Ohio river and from the Mississippi

to Chesapeake Bay preventing the run-off and saving millions of acres of soil erosion". One unique feature of China and Japan is the paucity of work cattle. Though beasts are very important to agriculture, it is undoubtedly a luxury in these countries. The human population is already too heavy, for any wealth of bovine species to compete with man in the struggle for existence.

(iv) The foremost consideration in these countries is the maintenance of soil fertility at all costs and the remarkable feature is that China has been able to maintain her soil fertility in spite of 4000 years and more of cultivation. This is due to the scrupulous attention to make everything possible to serve as fertilizer for soil and food for crops. The unique feature of this country as well as of Japan is the scrupulous thoroughness of the utilization of human excreta for fertilising their rice crops. About 20 per cent of the total nutrients are derived from night soil. It must be recorded to the credit of the Chinese that no dung is burnt. Special shrubs are grown (matting rushes) in the vacant sites and canal bunds to be used specially for fuel purposes. Liquid manure is plentifully applied to the fields from time to time.

(v) Another remarkable feature in Chinese agriculture, which incidentally should mean rice culture, is the extent of canalisation with an aggregate mileage more than the roads in the U. S. A. There are two lakhs of miles of canals with a sea wall of 300 miles length as dykes. By impounding water in reservoirs large areas of swamps are reclaimed. By raising the low-lying fields, drainage is improved and soil fertility maintained. Water lifts consist of a long wooden frame with paddles, worked by three men who irrigate 2.5 acres in ten hours, with a lift of 3 to 4 feet.

(vi) Not only does the Chinese cultivator look to the irrigation of his crops but attends also to perfect drainage facilities, so that water melons, egg plants and other vegetables can be grown in rotation on the small paddy fields and sometimes even among the paddy fields.

Japan: The land of the 'Rising Sun' is also the land of bounteous rice crops. It is a country with too many people and too little land. But there are few countries in the world in which crop yields per acre are so high as in Japan or in which they have increased more within recent historical times. Moreover there are few countries in which research has played a more important role in promoting greater production. As in most other countries, Japan has increased her rice yields by a number of factors, including specially improved cultural methods, extensive use of commercial fertilizers, better control of insect pests and plant diseases and better varieties improved by hybridisation. It has about 10 million acres of rice with an acre yield of 4000 lbs. paddy, equivalent to 2400 lbs. of rice. The whole of Japanese rice culture is comparable with scientific horticulture or market gardening. Seven-ninths of the population lives in villages

with not more than 2,000 population. The rice land is divided amongst many small owners, with $\frac{1}{2}$ acre per head of population. Fifty-three per cent of the irrigated rice land is less than $\frac{1}{2}$ of an acre. When the country is not level, the slopes are finely graded into horizontal terraces varying in size with each terrace. There are more than 11,000 square miles of fields thus graded, each provided with bunds, with water supply and drainage channels, all carefully kept in the best repair. They have also the dry-lands terraced, but there are no irrigation systems developed.

In spite of the well-distributed rainfall of about 50 to 60 inches, per cent of the area is irrigated from some source or other. Large and costly irrigation works are established. Except in certain limited areas, cattle and horses are scarce and the great mass of labour is human. The largest and best crop possible rather than less trouble and labour determine the practices.

Active and enthusiastic, happy and efficient, very intelligent, the Japanese have a marvellous sense of assimilation and adaptation to scientific processes. They are the best farmers in the world, both at home or elsewhere. The average extent of a farm is only 2.7 acres but the best use is made of the available area. Tillage is deep and thorough and no slovenly corner is to be found in any field. In April and May, the moist, stubby soil is inverted in deep blocks by long forks. Recently small-sized tractors 'Kataba' and 'O. K.' are coming into use. Extensive as is the acreage, every cent of paddy land is transplanted and 4 or 5 persons plant an acre. Women pull seedlings sitting on low bamboo stools. Transplanting is done in perfect rows. A cord is stretched every 6' apart in the field 4 to 5 seedlings planted in rows one foot apart with a spacing of 8" or 9" in the rows. Sometimes a rake is used to mark the rows. A week after planting, spading is done in the rows with a 4-tined hoe, for loosening the soil and a man again passes along to set the lines in position. Recently there are revolving cultivators worked by hand for this operation. Weeding is done three or four times during the crop growth.

Manuring: The chemical analysis of the rice soils of Japan discloses that they are not rich, but are made very fertile for producing crops by the strenuous and intelligent work of the farmers. No crop is planted without its dose of manure. Fertilization receives the greatest attention everywhere. The pink clover (*Astragalus* species) is extensively grown after rice in the autumn giving 18.20 tons which is spread over 3 to 4 acres. If one is not able to grow green manure it is gathered from the hills and mountains or even cut from the channels. Wastes from every available source, wastes of body, of fuel and of fabric are gathered, taken back to the field, housed against weather and used in the most economical and sensible manner to serve as food for the crop and manure for the soil. In one year it is officially reported that 24 million tons of human manure and

23 million tons of compost were used in the country. Recently artificials are being used. When the world consumption of commercial fertilizers is considered, Japan ranks third for nitrogenous fertilizers, sixth for phosphatic and potassic fertilizers though that country ranks only as the 19th in the world distribution of arable land. Manure is applied in part doses, 3 or even 4 times, which is economical, prudent and sensible. The following is the usual routine application per acre.

110 lbs. of Nitrogen (N)	40 per cent from chemical fertilizers, rest from farm sources.
60 lbs. of Phosphoric acid (P_2O_5)	
60 lbs. of Potash (K_2O) - 75 per cent from farm supplies, rest chemical.	

It was found from experiments that manganese when applied as carbonate increased yields of rice. A word about application of ammonium sulphate. The Japanese apply ammonium sulphate at a depth of 3" of soil to prevent its loss. This is in accordance with the latest findings of research that ammonium sulphate oxidises more rapidly into soluble salts in the upper layers. The Japanese apply $\frac{2}{3}$ of the ammonium sulphate before the rice is transplanted and the rest in two part doses, one and two months after transplanting. One-third of the area is double or multiple-cropped. A variety of crops is grown in rotation to provide a well-balanced diet as also some money for the family, vegetables, wheat or barley even after two crops of rice are taken. This shows the very hard work the Japanese farmer is capable of.

There is a very old Imperial edict in Japan as well as in China, which enjoins the selection of big-sized, well-filled seeds for sowing. The rice seed is put in brine or sea water and all grains which float are removed while the seeds which sink are washed and sown in the nurseries. This method has not given any marked results in Madras. It is, however, a safeguard in eliminating weak and unfilled seed. Most nurseries are raised by the wet method and are very small and narrow; silt with mixture or organic manures and ash are applied to the nursery when the seedlings are one inch old.

Reaping is done by hand and the sheaves are removed and hung on racks or frames, after which they are beaten and the grain separated.

Almost 80 per cent of the total area is devoted to rice varieties improved by breeding, of which 50 per cent is by hybridization. The work of breeding 'better varieties' has spread to such an extent that Salmon has pointed out that due to the evolution of varieties resistant to blast, early maturing varieties that could stand the stem borer, paddy varieties that tolerate or resist low summer temperatures, crop failures which occurred before quite often in many parts of the country, have now practically disappeared. In some prefectures all seed is improved seed

and in certain prefectures the use of uncertified seed is punishable by law. There are 595 Imperial, prefectural, private, main and branch Experimental Stations, of which 150 Stations work on rice. The set-up must be considered lavish considering the area it serves. The enthusiasm of the cultivators is so great that they erected a monument at Akita to commemorate the evolution of a blast resistant variety Rikuu 132 by the Agricultural Department.

There is a keen sense of co-operation amongst the farmers. The Better Farming Societies of Japan are entrusted with (1) Modernisation of farm operations and improvement of agricultural methods by experimentation, (2) publishing pamphlets for augmenting crop yields, (3) arranging yearly competitions and (4) seed production and distribution activities. These are farmers' own independent organisations. There are warehouses in Japan which may be called 'Rice Banks' whose members are mostly farmers and whose business consists in the care of the rice deposited, making advances, establishing exhibitions, diffusing knowledge in the use of machinery, manures etc. Profit is not the object. In one godown the transaction involved about one million tons of rice.

It has been recognised that the agricultural economy and the industrial economy of a nation are always interlinked. In Japan we have an example of how agriculture is made to flourish by developing cottage industries closely connected with farming which provide spare-time work for the families. There is a Japanese slogan 'my home is my factory'. 54 per cent of the industries are one-man workshops and 40 per cent small plants have less than five workers, sometimes one family only. The following figures speak for themselves:—

1945		
	Percentage of population employed	National income
Agriculture	43	18
Industry	29	33
Commerce	7	22
Rest	21	27

This revolution was brought about by a well-organized plan of co-operation between agriculture and industry. There is no illiteracy in the country. Patient, hard working and highly trained mechanics and skilled labourers are at the back of this success of industrial organisation.

In one prefecture with 2.5 lakhs acres of farm land, in addition to rice and barley in the same year the following were produced from straw: 9 million slippers valued at 20 million rupees. This was in 1930. Ten hours of work and no holiday on Sundays are the rule.

When we talk of the Japanese people as industrially bent, there may be a misapprehension that the Japanese might have mechanised rice culture completely. But it is not so. Most of the operations from planting to harvesting are done by manual labour and no need was felt for replacement of manual labour by power. Recently handworked cutting and motor-threshing machines which are community owned, are being used. Electric motors and gasoline engines are used for processing agricultural products, but not for raising crops. The machines are all of low H. P. only. The average H. P. for a gasoline engine is 2.9 and of an electric motor is 1.5 while there is a large percentage of 0.25 H. P. electric motors in use.

Nicholson has truly said "it is neither capital, nor agricultural education nor government aid, nor imported food supplies or fertilisers that keep up Japan but the utilization of those substances and forces which are or may be available in greater or less degree to every farmer in any country. Utilization of all wastes, both in matter, space and time and persistent, dogged and strenuous labour are the secrets of agricultural success in this country." The following figures show the progress in yield per acre.

Year	Area (Million acres)	Yield per acre (rice) pounds
1900	6.2	1,900
1920	6.9	2,400
1930	7.3	2,500
1940	7.8	2,600

Human excreta as manure: As manuring with human excreta is the most esteemed fertilizer in the rice culture of China and Japan, some further details on the methods of collection and application in these countries may prove to be valuable. One analysis gives fresh night soil as containing 6 per cent Nitrogen (N), 3.5 per cent Phosphoric acid (P_2O_5) and 5 per cent Potash (K_2O) giving for one lakh of population about 2 tons of nitrogen, 1 ton of Phosphoric acid P_2O_5 , and $1\frac{1}{4}$ ton of potash. In one of the most popular rice-growing tracts of Szechvan it is reported that 25 million tons of night soil, consisting of $1\frac{1}{4}$ lakhs of tons of Nitrogen, are used. The Chinese agriculturist has no sentiment against handling this material. Probably the Buddhist religion is responsible for this in not only rendering innocuous an apparently filthy product but making it highly efficacious in enhancing the productivity of the soil. China cannot afford to lose this valuable material. No doubt a certain amount of improvement in the handling of it to make it more sanitary and aseptic may be called for to mitigate the probable dangers arising from its use as a fertiliser. The greatest danger it is said, is the contamination and infection by the eggs of the parasitic worm *Ascaris*. But one great natural precaution which the Chinese have taken against such dangers is that all food is taken hot (even

the things sold in the street are hot) and very few vegetables are eaten raw. Hot drinks, consisting mostly of 'green tea' are always used and this to a great extent acts as a safeguard against the danger arising from the use of night soil as fertilizer. And for transport, covered buckets are used. It has also been found that by composting the manure for 2 to 3 weeks all the *ascaris* eggs are killed in the 60° to 70° temperature that is developed. But it has been found that compost value of the night soil is less than the same amount of night soil used for the compost. Again composts are more costly because of the preparation and distribution costs.

Human excreta are collected from house to house, transported in big bins or carts and collected in pits lined with brick and lime. In the compost pits superphosphate is applied to conserve the ammonia liberated.

Japan is the most modern country in Asia. Yet she faithfully clings to the old practice of preserving the night soil in houses. Every home is provided with a disinfectant which is used twice daily to deodorise and the night soil is preserved in a deep pit until the sweeper comes on his round with clean wooden containers (all covered) and these are loaded on carts. Even notice boards on roadside invite passers by to profit the owners of fields on their way, where they are to ease themselves.

Indonesia (Java etc.) The Republic is predominantly a sugar-producing one, but it must be stated that rice was the earliest crop to be studied scientifically in this country. In their efforts to improve the hereditary qualities and yield, Java has led the world. First, extensive work in line selection and hybridization were done here. The rice irrigation in this country is highly developed. The soils are rich and rice is also rotated with dry crops such as maize, groundnut and tobacco. Yields are about 2,000 lb. of rice per acre but here as in India, the poverty of the cultivator is a draw-back for higher production. An interesting industry in relation to rice growing in this country is 'fish culture'. Spawn of gold fish is actually planted in rice fields and this industry provides a cheap and easy source of proteins in the dietary of the country. It was found that soils have responded to phosphatic manure applications very well.

The Government have been helping the rice industry of the country by a unique system of rural finance which keeps prices constant while a combination of warehouses and banks provide the Government with accurate and reliable information regarding stocks etc. There are about 10,000 rice banks in the country. Copeland in his book on 'Rice' gives detailed information on the subject, which is well worth perusal by everyone concerned with rice improvement work.

Burma: India's long association with this country makes it her kin. As a matter of fact rice cultivation in Burma was in the hands of emigrants from this country, and except in one or two points there are not many

peculiar features that merit any special consideration. Since rice is the barometer which measures the prosperity of the country, every encouragement was given by the State to rice industry.

In Lower Burma the construction of a large number of 'canals and embankments', the former to serve as drainage and communications and the latter to prevent inundation, is a special feature. Yet another feature is in the preparatory cultivation practised in Burma. The plough is not so common as the '*Settun*' which combines the functions of a cutter of the soil, a trampler of weeds and a puddler, preparing the soil for planting. The preliminary cultivation is thus rendered easier and is done also quicker.

A third important feature of rice culture in Burma is the well-developed seed organisation in the country. The nucleus seed produced on the Government Rice Stations is multiplied on Government-owned tenant-cultivated seed farm areas which may be called the major seed farm areas and from these, the seed required for the minor seed farm areas owned by the cultivators, is sown. The Department buys a certain portion of this produce and allows the rest of the produce to be distributed by the cultivators themselves, who maintain a register of the persons to whom they distribute the seeds. The Government helps the minor seed farm ryots by special concessions.

Siam: There was an interesting order in 1865 that rice should not be sent out of the country. This would show how the country was stricken with famine for rice and also that the area under the crop was very small. But now this is one of the three great exporting countries that supply the rest of the world with rice.

There are three divisions of the country (i) the flat alluvial plains, (ii) a forest-covered mountain tract and (iii) a small bit of undulating country. On the first type of land rice is the most important crop. About 90 per cent of the area is under rice in this country and this is so because much of the land is flooded and no other crop is suitable to these conditions without expensive and special attention on the land. Again it is a very sure crop with flood irrigation and grows best during the rainy summer and autumn. Finally, labour is cheap and skilled enough for raising a successful rice crop.

In this country, there is also a large area of swampy tracts where the soils are very acid with the pH varying from 3.5 to 6.0. A good many varieties of rices have been developed to suit this area. Broadcast and transplanting are both in vogue. The broadcast fields are furrowed every 5' to 6' with drainage channels 9" to 12" depth to serve as drains in case of heavy rainfall.

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Use of harrows drawn by animal labour and also motor power appear to be common. No large-scale manuring is practised. But it was definitely established that deficiency of lime required immediate attention and that repeated use of ammonium sulphate without addition of lime was responsible for reduced yields. No great differences in other practices are noticed except that the harvested sheaves are kept on the fields for 3 to 4 days to cure and threshed only afterwards.

Only one crop of paddy is grown per year. There are no great irrigation works. Still the Siamese produce some of the best rices for the exporting market. The development of the varieties was designed to suit the millers' profits, the characteristics of good milling aimed at being large size of grain with a cylindrical shape, small embryo, thin husk and a translucent inner structure. Local varieties were improved by selection to reach these standards.

More recent developments in rice improvement appear in the introduction of oil-driven tractor engines of 15 H. P. for cultivation purposes and the use of glutinous rice for distillation of alcohol.

Agricultural Science had been the orphan child of the country until the advent of the Japanese, whose influence has been felt in the improvement of yields by introduction of superior pedigree rices and better methods of manuring and cultivation. However, one factor worth remembering here is that the Government controls and owns all the rice exports through the Thai Rice Company. Recently irrigation projects are said to have been in progress, bringing about 40 per cent of the area under irrigation so that one of the uncertain factors of production will have been eliminated to some extent. Siam exports about 1.6 million tons of rice.

Indo-China: This is an important rice-exporting country and has a larger area than Japan but the production is not even half of that of Japan. The diverse conditions under which rice is grown, with varieties from 90 days to 10 months' duration, poor soils with some degree of acidity and their flooded condition are to a great extent responsible for this state. Like India, Indo-China has a very high birth rate and also large areas owned by temples and the priestly classes.

The main season for rice begins in February and the methods in vogue in rice culture do not vary very much from those of India. As most of the rice is grown for export, the number of well-defined good quality rices is small. For internal consumption only coarse kinds which give higher yields are grown.

Philippines: Possessing an area of little more than a third of the acreage in Madras, the Philippines records of yields are very poor, due to the very imperfect cultivation methods and high incidence of weeds.

It is not a staple industry of the country. The heavy rainfall up to 160" (between June to October) is also partly responsible for the poor yields. Though there is nothing peculiar in the cultivation practices of the country, the method known as the '*Dapog*' system of raising nurseries, appear interesting.

The '*Dapog*' system make it possible to plant the seedlings at a much earlier stage than in the ordinary method and without injury to the seedlings. A plot near the irrigation ditch is harrowed, puddled and levelled. A thick seed rate (20 lb. to the cent) is used in the nursery plots laid with banana leaves in the mud at a depth of 1" below the surface. The entire bed gives the appearance of a carpet of seedlings. After 15 days the leaves are stripped into convenient sizes and carried to the field of planting.

The use of machinery is on a very limited scale, as most of the area is in the hands of small farmers who are poor, so that not much of 'mechanisation' is feasible in this country. Most of the area is cultivated on rentals which vary from 1/3 to 2/3 the gross yield. A certain amount of irrigation has to be done by pumps, in spite of the heavy rainfall, especially in broadcast areas.

Another notable feature of rice culture here is the "terraced" area called the '*Igorots*'. Copeland records that nowhere in the world has it reached quite the perfection of development, either in the extravagance of hand labour or in the completeness of water utilisation as it has among the '*Igorots*'.

The Philippines have only a few varieties of rice under cultivation. This country has a well-established Rice Research Section.

The United States of America: Mechanisation of rice production has so much stirred the imagination of some enthusiasts that it becomes necessary to devote our attention to the prospects offered by such cultivation in India, after examining the results in the countries where it is most popular. Australia in the Eastern Hemisphere and the U.S.A. in the Western Hemisphere may be taken up for such studies.

From an importing country of rice up to 1900, the U. S. A. has become an exporting country by 1915, the exports rising to 700 million pounds in 1920. From 600 million pounds of 'rough rice' in 1915, the production has increased to four times before World War II and in 1949 it produced 4000 million pounds. In this country the production of rice differs from the production of most other crops, in that rice is seldom grown as a minor enterprise. It is generally raised on specialised farms where it has first claim on all production facilities. Rice ranks second as a source of cash income for some of the States. Cultivation of rice in this country has to serve a two-fold purpose, one for utilising land hitherto not used for any crop but left for scanty pasture or on which grain-growing had been declining and another of providing a means of utilising the waters of irrigation systems. The Japanese, Chinese and Indian settlers were attracted to these valleys, the biggest of which is Sacramento Valley. The present area of rice in this country is 1.1 million acres.

The climate of the Sacramento Valley has a maximum temperature varying from 10.° to 115° between June and August with an annual rainfall of 22". The soil is clay to clay adobes and rice cultivation in these States is really an example of cultivation with the aid of machinery, as a substitute for human labour which is both scarce and costly. Almost all the rice land is ploughed up with large tractors under dry conditions to gain time. The usual practice is to plough, double disc, to get a rough seed bed and make drill lines visible for drilling when in condition. The fields are then irrigated from large canals supplying plentiful water.

The average rice holding is 200 acres, with at least one tractor, a set of 3 ploughs, 11 discs, one seed drill and a thresher.

Seedlings are usually done in April-May by grain drills and 'Endgate' seeders and harvested in autumn. Recently in California, rice is seeded by airplane in water and 400 acres are covered in a day. When the land is very foul with weeds, of which the Barnyard grass and Cyperus are very prominent, the land is given a rest, as there is no other way to clear off the weeds except by ploughing and bare-fallowing to destroy the weeds. Incidentally this also improves the fertility of the soil.

Manuring with artificials is extensively practised, though till 1933, rice never got any artificials. Dressing the field with superphosphate is also practised. Most of the commercial fertilizers used is applied by hired planes between the first and second watering.

Rice is cut with binders and it is found that the losses vary from 10 to 15 per cent in the process. The cut bundles are usually 'shocked' to dry the grain as the crop is usually cut before it is fully ripe. Recently a 'combine' is used which cuts, binds, threshes and separates the grain also. This 'combine' is worked by power or may be even horse-drawn. When only the thresher is used, the 'shocks' are taken to the thresher commonly called the 'separator' on bundle wagons. The sacks from the separators are moved by 'bundling out wagons' to warehouses and elevators where about 2 to 3 million bushels (1 bushel=50 lb.) may be stored and the produce well-dried and kept ready to go to the mills. The latest average yield is estimated at 2,500 lb. of grain rice per acre.

Another feature of rice culture in the U.S.A. is the very lavish use of water, working out to a duty of only 50. There are large wells irrigating 100 to 125 acres from a depth of 25 to 35 feet run by private enterprise and large pumps are installed from the rivers, all organised by private companies.

But in spite of ruthless competition in costs, the American grower, fortified by selection of seed varieties, large-scale production technique and his superior mechanical skill is able to secure not only the domestic market but also certain foreign markets. He is able to sell rice as cheaply as any "rice grower in the Orient, where labour is cheap. The American rice grower has increased his *per capita* production to such a large figure that he is successfully meeting the Orient in the world market, sells at the same price, and yet enjoys as large an income as the producer of any other crop."

Australia: The rice culture in this country shows the utilisation of this crop as a means of reclaiming land and it is said that the area under this crop is on the increase.

Australian rice industry is also highly mechanised, due to paucity of population; and naturally on the soils used for rice growing, wet weather creates many problems. Sinking in the bogs is a common feature and sometimes two powerful tractors are necessary to pull the binders and treaders through the crop.

Since machinery has to be used, only the short, stiff-straw varieties from America are used, one of which called *Calorco* came originally from Japan.

A recent Agricultural News Letter says - "The yield in Australia is higher because there are no diseases and there is plenty of irrigational supplies. Rotational cropping with wheat and oats is also practised. The cost of production is estimated at Rs. 170/- a ton including rental, depreciation and marketing."

A recent investigation gives hope of extension of rice crops in the Northern Territory and the river districts in the north of Western Australia. Agricultural Experts consider that Australia has a bountiful new rice-growing land in that zone.

Africa: The next important amongst the other countries of the world producing rice is Africa. The rice area in this country, occupies 3 lakhs of acres and is concentrated in Egypt and portions of Tanganyika. The varieties in rices of this country are numerous and all of them are said to belong to *O. glaberrima*, a very close and allied species of *O. sativa*. The Egyptian rice is of excellent quality - i.e. hard and its acre yields are high. There are model farms of one acre size established in different parts of the country to serve to extend the area of rice and also demonstrate improvements in cultivation. The seed is changed by the cultivator after every 5-year period. The excellent system of irrigation, depositing good silt and the heavy manuring that is also practised, are responsible for these high acre yields.

British Guiana: Rice is second in importance in this country. The East Indians took rice from India with its knowledge as well as tradition early in the 18th century. Nearly 40 per cent of the population are Hindus and they took great trouble to introduce and develop this industry in this country. A number of strains from India, the smaller-grained *Krishnakatukulu*, short duration *Garikasannavari*, G.E.B. 24 etc., were taken from here and used for hybridisation work to improve the local races which were more prolific. It was found that it was not profitable to manure those rice fields which yield 3,000 lb. of rice and more.

Recently tractor implements weighing 2 tons with 3 disc ploughs were found useful even on wet ground on the big farms which are owned by settlers. This may be of interest to us in this country where large tracts of waste land and plenty of irrigation are available. Seed distribution is one of the most important activities of the Agricultural Department in this country.

U. S. S. R. Not much information from this country is available but it is said it has 4 to 5 lakhs of acres under rice, concentrated in Turkestan and Transcaucasia. Rice in this country competes with cotton which is irrigated and it has been found that a crop of rice after cotton gave very high yields.

Other Countries: In recent years rice culture is extending in other countries. In Cuba, during the last four years, the area of 130 acres went up to 1.3 lakhs and yielded rice from 2,000 to 4,000 lbs. per acre. The well-distributed rainfall and rich soils are responsible for this.

Ecuador, which was exporting only 11 tons in 1915 has increased it to 230 tons, by 1944. In Costa Rica a similar increase is visible. In this country even on large farms, manual labour is still used.

Rice was introduced in Bulgaria in 1882. In 1934 it became a State affair and the area is being increased by the State providing the best facilities. An interesting feature in this country is the use of hand-pounded rice produced by the wooden country mill 'the Dinki' - (corrupt name from the North Indian 'Denkhi') a long-levered implement worked by legs.

A word about the inter-relationship of the rice grown in the different countries may not be out of place. The varieties grown in all the countries except those of Africa may be grouped into two broad divisions. The *Indica* group, represented by the rice grown in India, South-Eastern China, and Burma, the Philippines, Indo-China, Siam etc., and the *Japonica* group cultivated in Japan, Northern China and Korea and the European and American rice, the rice varieties went to those areas from Japan. A very large amount of sterility results by the crossing of these two groups: *Indica* and *Japonica*. There are the forms which are intermediate between these two groups such as the varieties grown in Turkey, Egypt, Iraq etc.

The African varieties are classed into a separate species - *O. glaberrima*, but it is doubtful whether they are so distinct as to be given the status of a distinct species.

It is seen from the above that in many countries the acre yields are very high and sometimes they are thrice as high as in Madras. There is a complaint from the Press and platform that our yields are very low and the blame is often put on the Agricultural department.

The major cause of this difference is the total climatic and ecological factors that differentiate countries like Spain, Italy and even Japan from India during the rice-growing period. In these countries, rice is more or less a summer crop with copious irrigation and heavy manuring, favourable for good root development and production of a large amount of dry matter. In India, most of the rice is grown in the monsoon months, when not enough sunshine is available and when only large quantities of water required for rice are available. The high humidity promotes vegetation at the expense of grain formation. The plant also cannot make full use of the manures as in the subtropical countries. Rice crops grown in the autumn months in Madras (June—October) have also given acreage yields of 4,000 lb, over extensive areas as in the Thambraparni valley, Swarnavari crops in North Arcot, South Arcot and Chingleput and the Kuruvai of Tanjore. Our cultivator is in no way inferior to his counterpart in any part of the world. But he is poor and illiterate and therefore not able to follow recent scientific developments, and hence not able to give adequate attention to his land. There is no incentive to manuring due to so many causes. We have good strains in many of the local varieties suitable to different tracts and have evolved suitable manuring formulas. This does not mean that the present low yields should continue. It is possible to increase the yields by at least 40 to 50 per cent, i.e., we could reach at least the yields of the Chinese rice grower. The following suggestions emerge from a review of the conditions existing in the other countries. There may be nothing new about them but their repetition may be excused, because they are so vital to our country.

(1) *Human element*: The first is the human element. As an economist has put it, "The wealth of a nation lies not in the material resources but in the energy, the initiative and the moral fibre of the

the best example. Developing small-scale industries from waste products of rice, and other raw materials, introducing suitable small machinery to direct the excess agricultural labour on to the above, have to be taken up.

(5) Greater and closer attention to seed production and distribution methods. Here again Japan should be the model.

(6) Safeguarding production, costs and prices of produce.

Acknowledgements: My thanks are due to the University of Madras under whose ægis I was enabled to deliver the Maharaja of Travancore Endowment Curzon Lectures for Agriculture for 1950 on the subject of Rice in other countries of the world.

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asked to wait in the visitors room. Raju had a hell of a time waiting there – flocks of girls passed by that room staring at him as if he was an unusual specimen. While he was sitting there and fidgeting nervously, a girl entered and asked him in a sweet, soft voice, “Whom do you want to see, please?” Raju looked up and suddenly he felt a strange sensation. He forgot even good manners and involuntarily stared at the girl. How beautiful she was. Raju was sure he had never seen before such a girl. Soon he woke up from his reverie and realising the awkward situation, blurted out, “Oh! I want to see my sister, – I mean, I want to see Miss Leela.” Quite involuntarily his left hand plunged deep into his trouser pocket and his right hand began to twitch at the funny knot of his necktie. The girl, ignorant of his nervousness, knit her charming eye-brows in perplexity and asked, “Thangam, which one do you mean?” Raju summoned up all his courage and replied. “I mean K. Leela of junior inter.”

“Oh!” exclaimed the girl as if wisdom had suddenly dawned upon her. “Please wait a minute. I will go and call her.”

After a few minutes Raju’s sister arrived along with that girl “Hallo, Raju”, his Sister began, “Sorry I kept you waiting.....By the way, this is my friend and classmate, Miss Sunatha.” And Ramu brought together his palms before his face and murmured “Vanakkam.” That was how Raju came to be introduced to Sunatha.

Needless to say, Raju returned to his room and spent a sleepless night. The figure of Sunatha, her charming eyes, her rosy dimpled cheeks, her red lips, and her slim and slender form began to haunt him. He realised that he had fallen in love with her. He realised that without her his life would be a barren desert, devoid of all earthly pleasures. Alas! He did not know how many barren deserts she had created so far!

A few days later, he received a letter from his sister asking him if he would like to go with her to pictures. By then Raju had come to know that his sister and Sunatha were inseparable friends and his ‘sixth sense’ told him that Sunatha also would be coming along with his sister. So, on the appointed day he hurried to the theatre and there, sure enough, were his sister and Sunatha waiting for him. He bought tickets and they all entered the theatre. It was by pure chance or luck if you please, that Sunatha happened to sit by the side of Raju. He seemed to be deeply engrossed in the picture. But Raju was not a bit interested in it.

If you had asked him what the title of the picture was, he could not have told you. Suddenly Sunatha dropped her kerchief, and Raju gallantly picked up and handed it over to her. While doing so his hand touched hers and he felt she distinctly pressed her fingers against his palm. A peculiar thrill ran through his veins. “Can it be true” he thought, “Does she love me” Why not? He began to imagine himself in the role of Romeo. Suddenly the lights were on and Raju realised with a shock that the picture was over. He returned to his room.

Raju lay awake thinking deeply. Something must be done and pretty quickly too. He could not tolerate this suspense. But what to do? “Why not write a letter to her?” he thought. But supposing she had not really pressed his palm, and the whole incident was only a

the best example. Developing small-scale industries from waste products of rice, and other raw materials, introducing suitable small machinery to direct the excess agricultural labour on to the above, have to be taken up.

(5) Greater and closer attention to seed production and distribution methods. Here again Japan should be the model.

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3. YEGNANARAYANA IYER (A. K.) Field Crops of India 1950.
4. MASEFIELD (G. B.) Short History of Agriculture in British Colonies 1950.
5. LONG (H. C.) and BRENCHELEY (W. E.) Suppression of Weeds by fertilisers and chemicals 1949.
6. CURTIS (B. F.) and CLERK (D. G.) Introduction to Plant Physiology 1950.
7. DUTT and PUGH: Farm Science and Crop production in India 1947.
8. DAVIES (C.) Field Machinery 1949.
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11. HARVEY and HILL: Milk products 1948.
12. LOWE and COLDIE: Students hand book to Milk and Milk Products 1948.
13. WEIDMER (J.) Practical Animal Husbandry 1949.
14. AGRICULTURAL MARKETING ADVISER: Report on the marketing of milk in Indian Union, 1950.
15. VON LOESECKE (H. W.) Outlines of food technology 1949.
16. ALLEN (O. N.) Experiments in Soil Bacteriology 1949.
17. LOWE (L. T.) Students hand book to fertilisers and soils 1949.
18. DARLINGTON (C. D.) and MATHER (K.) Genes, Plants and Peoples 1950.
19. JOHNSON (W. G.) Fumigation methods 1920.
20. MATHER (K.) Statistical analysis in Biology 1949.
21. BARTON (L. V.) and CROCKER (W.) Twenty years of seed Research.

A word about the inter-relationship of the rices grown in the different countries may not be out of place. The varieties grown in all the countries except those of Africa may be grouped into two broad divisions. The *Indica* group, represented by the rices grown in India, South-Eastern China, and Burma, the Philippines, Indo-China, Siam etc., and the *Japonica* group cultivated in Japan, Northern China and Korea and the European and American rices, the rice varieties went to these areas from Japan. A very large amount of sterility results by the crossing of these two groups: *Indica* and *Japonica*. There are the forms which are intermediate between these two groups such as the varieties grown in Turkey, Egypt, Iraq etc.

The African varieties are classed into a separate species - *O. glaberrima*, but it is doubtful whether they are so distinct as to be given the status of a distinct species.

It is seen from the above that in many countries the acre yields are very high and sometimes they are thrice as high as in Madras. There is a complaint from the Press and platform that our yields are very low and the blame is often put on the Agricultural department.

The major cause of this difference is the total climatic and ecological factors that differentiate countries like Spain, Italy and even Japan from India during the rice-growing period. In these countries, rice is more or less a summer crop with copious irrigation and heavy manuring, favourable for good root development and production of a large amount of dry matter. In India, most of the rice is grown in the monsoon months, when not enough sunshine is available and when only large quantities water required for rice are available. The high humidity promotes vegetation at the expense of grain formation. The plant also cannot make full use of the manures as in the subtropical countries. Rice crops grown in the autumn months in Madras (June—October) have also given acreage yields of 4,000 lb, over extensive areas as in the Thambraparni valley, Swarnavari crops in North Arcot, South Arcot and Chingleput and the Kuruva of Tanjore. Our cultivator is in no way inferior to his counterpart in any part of the world. But he is poor and illiterate and therefore not able to follow recent scientific developments, and hence not able to give adequate attention to his land. There is no incentive to manuring due to so many causes. We have good strains in many of the local varieties suitable to different tracts and have evolved suitable manuring formulas. This does not mean that the present low yields should continue. It is possible to increase the yields by at least 40 to 50 per cent, i.e., we could reach at least the yields of the Chinese rice grower. The following suggestions emerge from a review of the conditions existing in the other countries. There may be nothing new about them but their repetition may be excused, because they are so vital to our country.

(1) *Human element*: The first is the human element. As an economist has put it, "The wealth of a nation lies not in the material resources but in the energy, the initiative and the moral fibre of the

people. Without these attributes no country can become permanently prosperous; with them, no unfavourable circumstances can prove an insuperable obstacle".

The economic condition of the Indian cultivator has to be taken into consideration in any scheme of improvement of the crop without whose active co-operation, schemes for increased rice production no matter how sound they may be, will prove ineffective.

To secure success therefore, his lot may have to be made more attractive through improved education and means must be found to improve his financial stability. There must also be closer contact through extension services of the departments concerned between him and the technical experts, to ensure that the results of research are applied to his problems and to the great masses of people to whom rice is indeed the staff of life.

(2) *Maintenance of soil fertility*: At levels which sustain yields and ensure adequate returns for labour spent, it is estimated that to effect a 20 per cent increase in Indian rice production, over 3 million tons of oil cake, 33 million tons of farmyard manure and compost, 22 million tons of green leaf manure, 8 lakhs tons of ammonium sulphate and 3 million tons of phosphate are required. It will take a good deal of time for us to supply the artificials but certainly it is in us to secure the rest. It is reckoned that the 300 million human souls may produce $1\frac{1}{2}$ million tons of nitrogen sufficient to fertilise 100 million acres. This must be secured through ways which are not repugnant to sentiment and health. All farm wastes must be converted into composts and applied. Husks, ash etc., are also useful.

(3) *Improvement of irrigational facilities*: Unlike in some foreign countries where rainfall is received almost throughout the year, in this country it is limited to certain periods of the year and that too is uncertain. Of the two monsoons it has been the experience that the North-East Monsoon is the more fickle and all suitable measures are therefore essential to conserve as much water as possible of the South-West Monsoon by storage and partly by development of all water resources to reduce the dependence of rice on rainfall and occasional droughts. "Rice pays for larger and assured irrigations (i) by larger crops, (ii) by uniformly good crops and (iii) by making two crops a year possible and more safe where one is growing". This will also help the farmer to secure steady employment throughout the year by growing cover and catch crops, providing more grazing for animals.

(4) It should be possible to carry to transform rice-growing from being an occupation and a mode of living into a business proposition for the benefit of the cultivating classes. In this direction, Japan offers us

the best example. Developing small-scale industries from waste products of rice, and other raw materials, introducing suitable small machinery to direct the excess agricultural labour on to the above, have to be taken up.

(5) Greater and closer attention to seed production and distribution methods. Here again Japan should be the model.

(6) Safeguarding production, costs and prices of produce.

Acknowledgements: My thanks are due to the University of Madras under whose aegis I was enabled to deliver the Maharaja of Travancore Endowment Curzon Lectures for Agriculture for 1950 on the subject of Rice in other countries of the world.

Agricultural College and Research Institute, Coimbatore

LIST OF ADDITIONS TO LIBRARY FOR FEBRUARY, 1951.

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3. YEGNANARAYANA IYER (A. K.) Field Crops of India 1950.
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Annual Report on the Progress of applied
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Machines for Farm, Ranch and Plantations
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Starting and managing a farm 1948.
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MADRAS AGRICULTURAL DEPART-
MENT: Report on Marketing of Castor
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INDIAN COUNCIL OF AGRICULTURAL
RESEARCH: Report on Salvage of Milch
cattle for Bombay City 1950

Weather Review — For January 1951

RAINFALL DATA

Division	Station	Total for the month in inches	Departure from normal in inches	Total since January 1st in inches	Division	Station	Total for the month in inches	Departure from normal in inches	Total since January 1st in inches
Orissa & Circars.	Gopalpur	0.0	-0.3	0.0	Central- Coast.	Coimbatore	0.0 tr.	-0.6	0.0
	Calinga- patnam	0.0	-0.2	0.0		(C. B. S.) [*] Coimbatore	0.0 tr.	-0.6	0.0
	Vishakha- patnam	0.0	-0.4	0.0		Tiruchirappalli	0.1	-0.8	0.1
	Anakapalle [*]	0.0	-0.2	0.0	South.	Nagapattinam	1.4	-1.3	1.4
	Samalkot [*]	0.0	-0.2	0.0		Aduturai [*]	0.6	-1.4	0.6
	Kakinada	0.1	-0.3	0.1		Pattukottai [*]	1.2	-0.4	1.2
	Maruteru [*]	0.0	-0.1	0.0		Madurai	0.5	-0.3	0.5
	Masulipatnam	0.0	-0.2	0.0		Pamban	3.8	-1.2	3.8
	Guntur [*]	0.0	-0.0	0.0		Koilpatti [*]	0.9	-0.1	0.9
	Agri. College, Bapatla [*]	0.0	-0.0 5	0.0		Palayamcottai	2.4	-0.7	2.4
	Rentachintala	0.0	-0.0 5	0.0		Amba- samudram [*]	4.0	-1.1	4.0
Ceded Districts.	Kurnool	0.0	-0.2	0.0	West Coast.	Trivandrum	0.7	-0.1	0.7
	Nandyal [*]	0.0	-0.0	0.0		Fort Cochin	0.0 tr.	-0.9	0.0
	Hagari [*]	0.0	-0.1	0.0		Pattambi [*]	0.0	-0.3	0.0
	Siruguppa [*]	0.0	-0.0	0.0		Kozhikode	0.0	-0.2	0.0
	Bellary	0.0	-0.1	0.0		Taliparamba [*]	0.0	-0.1	0.0
	Cuddapah	0.0	-0.4	0.0		Nileshwar [*]	0.0	-0.3	0.0
	Kodur [*]	0.0	-0.8	0.0		Pilicoda [*]	0.0	-0.4	0.0
						Mangalore	0.0	-0.3	0.0
Carnatic.	Nellore	0.3	-1.0	0.3	Mysore & Coorg.	Kankanday [*]	0.0	-0.3	0.0
	Buohireddi- palem [*]	0.0	-0.3	0.0		Chitaldrug	0.0	-0.3	0.0
	Madras (Meenam- bakkam)	0.1	-1.3	0.1		Bangalore	0.0	-0.2	0.0
	Tirurkuppam [*]	0.0	-2.2	0.0		Mysore	0.0	-0.1	0.0
	Palur [*]	0.6	-2.0	0.6	Hills.	Mercara	0.1	-0.1	0.1
	Tindivanam [*]	0.1	-1.6	0.1		Kodaikanal	1.6	-1.6	1.6
	Cuddalore	1.0	-1.4	1.0		Coonoor [*]	2.9	-1.9	2.9
						Ootacamund [*]	0.4	-1.1	0.4
Central.	Vellore	0.0	-1.5	0.0		Nanjana [*]	0.6	-0.1	0.6
	Gudiyatham [*]	0.0	-0.7	0.0					
	Salem	0.0 tr.	-0.3	0.0					
	Coimbatore (A. C. R. I.) [*]	0.0 tr.	-0.6	0.0					

- Note:— (1) * Meteorological Stations of the Madras Agricultural Department.
 (2) Average of ten years data is taken as the normal.
 (3) @ Average of eight years data for Tirurkuppam and nine years data for Pilicoda is given as normal.
 (4) Taluk office normal is 0.07" and rainfall is Nil.
 (5) £ Rainfall upto 4 cents.
 (6) tr. Traces.

Weather Review for January 1951.

Dry weather prevailed generally over the State except in the extreme South of Tamilnad. Rainfall occurred at a number of stations in Tamilnad on 9—1—1951, owing to the strengthening of the North-east Monsoon over the extreme South of the Peninsula on 8—1—1951. A low pressure wave moved westwards across Ceylon on 11—1—1951 and weakened on 13—1—1951. The North-east Monsoon temporarily strengthened in the extreme South of the Peninsula on 16—1—1951 causing fairly widespread rains in Travancore-Cochin, and local showers in South Tamilnad. Another low pressure wave was moving westwards over the South Bay of Bengal on 22—1—1951 and became unimportant by the next day. Yet another low pressure wave from the Andaman Sea moved over the South-East Bay of Bengal on 28—1—1951 and became feeble and unimportant after two days.

There had been nine western disturbances during the month, passing in succession over Baluchistan and the Punjab.

Night temperatures were below normal in Coastal Andhradesa except during the period 16—1—1951 to 25—1—1951. Ootacamund recorded a minimum temperature of 33°F on 7—1—1951, which was 10°F below normal.

Particulars about the noteworthy falls during the month are furnished below:—

S. No.	Date	Place	Rainfall in inches for past 24 hours.
1.	15—1—1951	Pamban	1.2"
2.	16—1—1951	Palayamcottai	2.1"
3.	16—1—1951	Alleppey	1.5"
4.	16—1—1951	Ambasamudram	2.85"

ZONAL RAINFALL

S. No.	Name of Zone	Zonal Precipitation
1.	Orissa & Circars	Below Normal
2.	Ceded Districts	Below Normal
3.	Carnatic	Below Normal
4.	Central	Below Normal
5.	South	Normal
6.	West Coast	Below Normal
7.	Mysore & Coorg	Below Normal
8.	Hills	Below Normal

Summary of Seasonal Conditions of 1950.

Considering the year 1950 as a whole it may be recorded that rainfall in almost all the districts except Bellary, Nellore, South Kanara and Malabar was much less than the normal. Apart from the quantity of rain received, its distribution was definitely bad in twelve districts, mostly in Tamilnad.

Districts like Cuddapah and Guntur recorded, as usual, very high maximum temperatures in April.

Ootacamund recorded the lowest minimum of 36°F. on 26—11—1950.

Agricultural Meteorology Section,
 Lawley Road Post, Coimbatore,
 Dated, 16—2—1951.

M. B. V. N., C. B. M. & M. V. J.

Division	Station	Total rain-fall for the month	Departure from normal in inches	Total since January 1st in inches	Division	Station	Total rain-fall for the month	Departure from normal in inches	Total since January 1st in inches
Orissa & Circars.	Gopalpur	0.0	-0.9	0.0	Central Contd.	Coimbatore	0.0 tr.	-0.4	0.0 tr.
	Calinga-patnam	0.0	-0.6	0.0		Tiruchirapalli	0.0	-0.3	0.1
	Visakhapatnam	0.0	-0.9	0.0	South	Nagapattinam	0.0	-0.8	1.4
	Anakapalle*	0.0	-0.5	0.0		Aduturai*	0.0	-0.6	0.6
	Samalkot*	0.0	-0.8	0.0		Pattukottai*	0.0	-0.8	1.2
	Kakinada	0.0	-0.3	0.1		Madurai	0.0	-0.5	0.5
	Maruteru*	0.0	-0.1	0.0		Pamban	1.2	-0.3	5.0
	Masulipatnam	0.0	-0.5	0.0		Koilkatti*	0.0	-0.1	0.9
	Guntur*	0.0	-0.0 §	0.0		Palayamcottai	0.3	-0.9	2.7
	Agri. College, Bapatla*	0.0	-0.5	0.0		Ambasamudram*	0.0	-1.8	4.0
	Agri. Farm, Bapatla*	0.0	-§	0.0	West Coast	Trivandrum	0.0	-0.8	0.7
	Rentachintala	0.0	-0.5	0.0		Fort Cochin	0.1	-0.7	0.1
Ceded Dists.	Kurnool	0.0	-0.3	0.0		Pattambi*	0.0	-0.5	0.4
	Nandyal*	0.0	-0.2	0.0		Kozhikode	0.4	-0.3	0.0
	Hegari*	0.0	-0.0 §	0.0		Taliparamba*	0.0	-0.1	0.0
	Siruguppa*	0.0	-0.1 (a)	0.0		Nileshwar*	0.0	-0.1	0.0
	Bellary	0.0	-0.2	0.0		Pilicode*	0.0	-0.1 @	0.0
	Cuddapah	0.0	-0.1	0.0		Mangalore	0.0	-0.2	0.0
	Kodur*	0.0	-0.2	0.0		Kankanady*	0.0	-0.1	0.0
Carnatic	Nellore	0.0	-0.2	0.3	Mysore & Coorg	Chitaldrug	0.0	-0.1	0.0
	Buchireddipalem*	0.0	-0.2	0.0		Bangalore	0.0	-0.3	0.0
	Madras (Meenam-bakkam)	0.0	-0.4	0.1		Mysore	0.0	-0.2	0.0
	Tirurkuppam*	0.0	-0.6 @	0.0		Mercara	0.0	-0.2	0.1
	Palur*	0.0	-0.4	0.6	Hills	Kodaikanal	0.2	1.8	1.8
	Tindivanam*	0.0	-0.2	0.1		Coonoor*	0.1	3.0	3.0
	Cuddalore	0.0	0.9	1.0		Ootacamund*	0.0	0.4	0.4
						Nanjanaid*	0.2	0.7	0.7
Central	Vellore	0.0	0.3	0.0					
	Gudiyatham*	0.0	-0.2	0.0					
	Salem	0.0 tr.	0.3	0.0 tr.					
	Coimbatore A. M. O.*	0.1	-0.2 x	0.1					

Weather Review for February 1951.

The month began with a very cold weather particularly in Rajasthan, where temperatures below freezing point were recorded at a number of stations.

A well-marked "low" was noted on 5-2-1951 over west Madhya Pradesh and Madhya Bharat. Under its influence widespread thunder-showers occurred in East Uttar Pradesh and Vindhya Pradesh and local thundershowers in West Madhya Pradesh. This became unimportant the next day.

The western disturbance over Baluchistan continued to be marked till 8-2-1951.

Local showers were received in South Tamilnad on 9-2-1951. Again a few showers were received on 11-2-1951 in Tamilnad, Malabar-South Kanara and the hills of the Punjab and of West Uttar Pradesh.

In the rest of the month a number of disturbances were noted and they became feeble the next day. The weather continued to be dry. Night temperatures were appreciably below normal over the entire country. From 24-2-1951 onwards day temperatures tended to be above normal practically throughout the country.

In Madras State weather was practically dry. There is no worth-mentioning rainfall in the State, except perhaps the rainfall of 1.1" recorded at Pamban on 9-2-1951. Night temperatures were appreciably below normal.

It is to be mentioned that practically all zones in the Madras State received no rains. Very few places like Pamban and Kozikode received very mild showers, the former, to the tune 1.2".

Agricultural Meteorology Section,
Lawley Road Post, Coimbatore.
Dated, 8-3-1951.

M. B. V. N., C. B. M., & M. V. J.

- Note:—**
- * Meteorological stations of the Madras Agricultural Department.
 - Average of ten years' data is taken as normal.
 - @ Average of eight years' data for Tirurkuppam and nine years' data for Pilicode is given as normal.
 - Taluk office normal is (a) 0.28" and rainfall is nil.
 - § Actual departure from normal is 0.01".
 - Tr = Rainfall from 0.01" to 0.04".
 - x = The normal of Agricultural College and Research Institute is given. The collection of rainfall data was commenced in the new observatory area from 1-2-1951. So the normal figure with reference to the present locality will be available only from 1-3-1950.
 - § Actual departure from normal is -0.03".
 - § Farm was started only in 1950.

Departmental Notifications
GAZETTED SERVICE—POSTINGS AND TRANSFERS

Name of officers	From	To
Sri Achutharama Raju,	Supdt. College Farm, Bapatla,	Secretary E. Godavari Coconut and Tobacco Market Committee.
„ Bagirathipadi, P.	D. A. O., Anakapalli,	D. A. O., Srikakulam.
„ Hanumantha Rao, C.	Addl. D. A. O., Elluru,	Supdt. Agricultural College Farm, Bapatla.
„ Kalyanasundaram, N.V.	On leave,	D. A. O. Mathurai.
„ Krishna Rao, D.V.,	Asst. Agrl. Chemist, Coimbatore,	Deputation to U.K. & Palestine for one year.
„ Muhammad Ali, A.M.,	Asst. Marketing Officer, Trichy,	Regional Dy. D. A., Mathurai.
„ Rama Rao, V.	D.A.O., Anantapur,	D.A.O., Anakapalle.
„ Rathnam, G.V.	Addl. D.A.O., Kakinada,	Sugarcane Inspector Vuyyuru
„ Sirinivasa Rao, N.	Teaching Asst. in Agrl. Coimbatore,	Asst. Marketing Officer, Trichy.

Subordinate Service

Name of Officers	From	To
Sri Antony, J.S.C.,	A.D. Kallakurichi,	Seed Development Asst. (Paddy) Sattur.
„ Achuthan Nair, E.,	A.D. Kozhikode,	A. D. Badagara.
„ Asirvatham, N.K.S.,	Cotton Asst., A.R.S., Nandyal,	F.M., A.R.S., Nandyal.
„ Anjanayulu, G. V.,	P.P.A. (Mycology) Guddapah,	P.P.A. (Mycology) Vijayavada.
„ Achanna Sastri M.,	On leave,	A.D. Yellamanchilli.
„ Ananthachari, P.S.,	A.D. Trichy,	Seed Development Asst. Millets, Koilpatti.
„ Abraham, E.V.,	P.P.A. (Entomology) Tanjore,	Asst., in Entomology Tanjore.
„ Balasubramaniam, P.,	A.D. Dhone,	A.D. Kurnool.
„ Butcheswara Rao, A.,	Asst. in Meteorology, A.R.S. Hagari,	Addl. A.D., Hospet.
„ Dinakar Rao, K.,	Paddy Asst. Seed Development Scheme, Mangalore,	Addl. A.D., Kasaragode.
„ Gopalakrishnan,	P. A. to D.A.O. Tinnevely,	A.D., Tenkasi.
„ Ibrahim Ali, P.,	Asst., A.R.S., Bellary,	A.D. Proddathur.
„ Kameswara Sarma, V.,	Fruit Asst. A.R.S. Anakapalli,	A.A.D., Mannargudi.
„ Jagannatha Rao, V.V.,	P. A. to D.A.O., Anakapalli,	P.A. to D.A.O., Srikakulam.
„ Jayascelan, D.S.,	Seed Development Asst., Paddy, Sathur,	A.D., Kalakurichi.
„ Kannan Nambiar, P.,	Ginger Asst., Pattambi,	A.D., Kozhikode.
„ Krishnamurthi Rao, S.,	P.P.A. (Mycology) Bellary,	P.P.A. (Mycology) Cuddapah
„ Krishnamurthi, P.A.,	A.D., Cuddalore,	A.A.D., Cuddalore.
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„ Muthukrishnan, K.S.,	P.P.A. (Mycology) Guindy,	A.D., Athur.
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„ Narasimha Rao, R.,	Asst. in cotton Narasaraopet,	Tuber crop Scheme, Bapatla.

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„ Narasimha Rao, G.,	on leave,	A.D., Ramachandrapuram.
„ Nambiar, P.K.,	A.D., Cannanore,	A.M., A.R.S., Taliparamba.
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„ Radhakrishna Menon K.,	A.A.D., Pattambi,	A.D., Cannanore.
„ Ramanathan, G.,	A.D., Udampet,	P.P.A. (Entomology) Tanjore
„ Rebello, N.S.P.,	A.A.D., Kasaragode,	Paddy Asst., Seed Development Scheme, Managalore.
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„ Rajagopalan, D.S.,	Special A.D., Cotton Scheme, Koilpatti,	Cotton Asst., A.R.S., Koilpatti.
„ Raghava Panicker, A.,	A. D., Mannantody,	F.M., Wynad Colonization Scheme.
„ Raghava Rao, N.,	on leave	Asst., in Entomology, Coimbatore.
„ Satyanarayana, K.,	A.D., Kandukur,	A.D., Pulivendla.
„ Sankarasubramaniam, T.K.,	P.A. to D.A.O., Ramnad,	Fruit Asst., Metupalayam.
„ Suryanarayanamurthi, C.V.,	A.D., Proddathur,	A.D., Masulipatam.
„ Syed Mahboob Ali,	F.M., A.R.S., Nandyal,	Cotton Asst., Nandyal.
„ Sivagnanam, L.,	Cotton Asst., A.R.S. Koilpatti,	Cotton Scheme, Koilpatti.
„ Subbayya, J.,	Asst. in Entomology,	P.P.A. (Mycology) Bellary.
„ Subramaniam, T.V.,	on leave,	P.P.A. (Mycology) Guindy.
„ Srinivasa Rao,	on leave,	Asst. in chillies, A.R.S, Lam Guntur.
„ Sridhara Sastri, J.,	on leave	A.D., Dhone.
„ Sankaram, A.,	Teaching Asst. in Chemistry Agrl. College, Bapatla.	Asst., in Chemistry, Bapatla.
„ Seshagiri Rao, T.,	Asst. in Chemistry, Coimbatore.	Asst. in Chemistry, Coimbatore.
„ Srinivasan, K.,	A.D., Gingee,	A.D., Cuddalore.
„ Somayajulu, P.,	P.A. to D.A.O. Srikakulam,	P. A. to D.A.O. Anakapalle.
„ Srinivasan, V.,	Seed Development Asst. in Millet, Koilpatti,	A.D., Paramakudi.
„ Subbiah Pillai, R.,	Special A.D., Tirumangalam,	A.D., Devakottai.
„ Venkatakrishnan, C.,	P.A. to D.A.O., Ramnad,	P.A. to D.A.O. Tinnevely.
„ Vasudeva Rao, S.,	Cotton Asst. Narasaraopet,	A.D., Repalli.

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„ Rajarathnam, J.	A. D. Badhrachalem.
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„ Appa Rao, S.	A. D. Yeleswaram.
„ Annaswami Ayyar, A. K.	Teaching Asst. in Agriculture, Coimbatore.
„ George Vasanta Rao, M.	Ginger Asst. A. R. S., Pattambi.
„ Narasimha Rao, G.	A. D. Amalapuram.
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„ Srinivasa Rao, M.	Teaching Asst. in Agri. Bapatla.
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„ Surya Rao, N. V.	A. D. Gudalur.
„ Venkateswara Rao, S.	A. D. Nugur.
„ Venkateswara Rao, M.	A. D. Cannanore.

NEW B.Sc. (Ag.) AGRICULTURAL APPOINTMENTS

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A. A. D., Pattambi. K. Jagannathan, Spl. A. D., Cotton Scheme, Tirupur.
S. V. Pandurangan, Loan of services to the Thirukattupalli High School, Tanjore Dt.
from date of commencement of probation under correspondence with Government.
S. Vasudeva Rao, A. A. D., Repalle. I. Muthuswamy, A. D., Nannilam. K. Raghu
Shetty, A. A. D., Udipi. P. Bharathan, A. A. D., Namakkal. S. Vinayagam, A. D.,
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A. R. Bhaskaran, A. A. D., Tiruvellore. E. L. Narayana, (Age exempted by Govt.)
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Raju, Cotton Asst., Kovilpatti. R. S. Annappan, Cotton Asst., Srivilliputhur.

M. Dharma Rao, Cotton Asst., Siruguppa. S. Iyemperumal, Cotton Asst. Koilpatti.
P. V. Marappan, Cotton Asst., Coimbatore. P.S. Chandramathi, Cotton Asst.,
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Millet Section

G. P. Prasada Rao, Millet Asst., Narasapatam. K. Mahudeswaran, Millet Asst.,
Coimbatore. V. Durai Raj, Millet Asst. Coimbatore. C. Sree Ramulu, Millet Asst.
Nandyal. M. Sivaramakrishniah, Millet Asst. Guntur.

Oil Seeds Section

N. Gopalan, Oil Seeds Asst. Tindivanam. V. Subbiah, Oil Seeds Asst., Tindivanam,
C. Ramakrishnan Nambiar, Oil Seeds Asst., Nileshtar.

Pulses Section

C. K. Rajagopalan, Pulses Asst. Coimbatore.

Botany Section

V. Ramakrishnan, Botany Asst, Coimbatore.

Sugarcane Section

G. Pushpaveni, Sugarcane Asst. Anakapalli. C. Prabakara Rao, Sugarcane Asst.
Sugarcane Development Scheme, Hospet.

Chemistry Section

R. Thyagarajan, Chemistry Asst. Coimbatore. K. Shivaram Shetty, Chemistry Asst.
Coimbatore. M. Damodara Nambiar, Chemistry Asst., Coimbatore. N.M. Thyaga-
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Chemistry Asst., Sugarcane Scheme, Anakapalli. C. Dharma Rao, Chemistry Asst.,
Coimbatore.

Entomology Section

K. Raman, (Declined appointment - Name removed in M. P. S. C. No. 7875.GL/50.
dated 29-1-1951. K. V. Sekharan, Entomology Asst., Coimbatore. K. Lakshmi-
narayana, Entomology appointment, M.P.S.C., addressed for removal of name.)

Mycology Section

B. Gopalraju, Mycology Asst., Coimbatore. K. M. Vijayan, Mycology Asst.
Coimbatore. T. C. Venkata Reddy, Mycology Asst., Coimbatore. P. Appala-
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Asst. P. P. Scheme, Bellary. C. Appavu Naidu, Mycology Asst. Ootacamund.

Physiology

S. Lakshmanan, Physiology Asst., Coimbatore. K.P. Leela Menon, Lady Demons-
trator, Fruit Products Development Scheme, Madras, without prejudice to her
selection as Assistant in Physiology; Concurrence of Commission applied for.

Cytogenetic Section

P. Chandrasekaran, Cytogenetics Assistant, Coimbatore.



CIVILISATION OF LAWLEY ROAD

(As viewed in 5000 A. D.)

By

N. S. RAJARAMAN, Final Year, B.Sc. (Ag.) Class

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The dispute was becoming proverbial. It even threatened to eclipse the famous Pickwickian Controversy.

It was all between Dr. Bluff and Dr. Muff: about the civilisation of Lawley Road: whether it was the civilisation of an educational institution or a lunatic asylum.

Now, it was not that Dr. Bluff had gone wrong or that Dr. Muff had tumbled into the correct. But the fact was that Dr. Bluff, after years of painstaking effort, both inside the laboratory and outside in the field, had come to a conclusion that Lawley Road should once have been the seat of an ancient, renowned, educational institution, ancient in its tradition and renowned for its achievements.

Great men were studying stones, mud, earth and all that: there were the beautiful collection of huge stones, tiny stones of various colors, lustre, streaks, specific gravity and so on. Again, the discovery of a certain inscription, perhaps the remnants of what once was a cemetery, had thrown much light on this angle. "Freeman Buildings"—Ah! What fine words! Buildings and that too belonging to Freeman! Dr. Bluff argued that these should have been the motto for the institution; Freedom for everybody, including Man. Even the buildings enjoyed a certain amount of freedom, in that they stood in a corner, detached from the main bustling town.

But, and a weighty "but" it was, Dr. Muff had stormed the entire world of historians by putting down Lawley Road, as a Lunatic Asylum now by gone. The very stones lying pell-mell, scattered here and strewn there, and exhibiting traces of torn-off skin, proved that stone-throwing had been a pastime with the lunatic members. It should have been the only pastime, perhaps, as other entertainments were definitely put down as harmful (said Dr. Muff).

And what about the collection of herbs with all its curious attractions? People had taken the trouble of squandering wealth on the collection, had given a name Herbarium, just as an eye-wash and had gone to the extent of preserving them. Well, said Dr. Muff, people in their normal senses would not have done that. Definitely, the lunatics were all perverts who had interested themselves in the art of healing with herbs.

Again, one found arrays of bottles, containing liquids, powders and all appliances that obviously, should have been maintained in the hospital. The microscopes were used to examine sections of the brains of the dead members. "What we now use for chopping up our vegetables, said Dr. Muff, "they had used for taking sections with".

Thus, Dr. Muff began aiming his thunder-bolts in unearthing the excavations of Lawley Road that was an asylum. And one fine day, he called for a meeting of learned historians, antiquarians, contemporaries and others and began that oration, with a variety of ingenious and erudite speculations on various evidences.

"We have found out layers and layers of boxes, piled up, containing insects of various sizes, shapes and styles. Perhaps, next to stone-throwing, this was a favourite sport. Please note that to the best member in this sport, prizes were awarded each year by a Great Lunatic. Well, friends, does not the fact that the insects had been crucified with their wings stretched and bodies pierced with sharp-pointed pins, the fact that the insects had been put to deliberate death by the use of some lethal substance, and the abhorrent action in trying to preserve these; do not all these go to show the barbarism and unworldly instincts that breezed through these out-of-the-minds? You see that there was a method behind their madness in that the insects had all been arranged properly, with a sense of decorum.

"Any reasonable being, will suspect insanity on finding some excavations of what once should have been a graveyard, in the midst of trees, trees in flower and trees in fruit. Do you think that any one with common sense will take it into his head to lay out a graveyard amidst those beautiful evergreen spots on the surface of Nature? Cannot they find out some better place to bury one's remains, or to fume them away. And as you know, those who do not come under this classification are grouped under the family *Lunaceae*.

"I have got some interesting information about the life these people led. The people were all lunatic, lean-witted fools. They used to assemble quite frequently in definite places and these assemblages were presided over by elder lunatics. There were quite a good number of such G. F's in the Asylum: and this, Dr. Bluff had mistaken for class rooms, and all that. You see that the younger lunatics diverted themselves with sleeping, chatting, howling and all that, while such assemblies were in function.

"A word about the women of this civilisation. The one thing that strikes all historians is that these women were not in the habit of smoking, Oh! what a ridiculous thing it would have been! If such were in our midst, they would have become our laughing stocks.

"The attitude of the male lunatics towards their comrades of the opposite sex, (who, by the way were not necessarily fair) differed widely. Some adored them, worshipped them in their heart of hearts, dreamt about them and in short, went mad over them. Some others despised them. Some did not care about them: and yet others allowed themselves to be mocked by their contemporaries.

"These divergence and variations, about the same set of material, are easily explained by the character of the worthies, namely madness.

"Let me conclude that Lawley Road did once witness the life the lunatics led. I say it because, of all the colours, they had chosen the red colour, the ugly, dirty and above all dangerous red colour to demacate

their holdings; because instead of cultivating crops to cater to the needs the country, they raised weeds, tended them and harvested them: because, instead of building up for a stable future, they were content with the debris of their broken past: and because, they were madmen by birth, wedded to lunacy and begot in madness.

"But remember, that the most civilised people are as near to barbarism as the most polished steel is to rust; and therefore there is nothing base in being called a set of barbaric, insane, lunatics.

"Let me remind you that it was an asylum maintained by their Government, for the Government, from the coffers of the Government".

With this beautiful ebullition of historical knowledge concerning what once went to form the much-disputed civilisation of Lawley Road, Dr. Muff carved himself a niche in the temple of antiquarians. And what happened to Dr. Bluff after this discovery, little is known about that. Perhaps his name doomed to the oblivion of those who cultivate the mysterious and the sublime.

THE VEGETABLE TRAGEDY

B,

CHARLES RATHNASWAMY

Final B. Sc., (Ag.) Class

Darkness had fallen now. I could hear Velu's whistle somewhere behind the block. I didn't know why, but I was feeling lonely that day. I was thinking of the lecturer's remark "Even when you are asked while you are half asleep you must be able to tell"; Oh! forgotten. Boring subjects. Let me go to sleep. Avooowh!

Then suddenly, like a prearranged signal for the commencement of some festivity - Bang! Not a sharp, exciting bang, but a dull one, as of a door. Very slowly I turned my face to the right and blinked. Nothing further happened. Near at hand my clock ticked disinterestedly on. I had a feeling that someone was walking in. Suddenly it came to my mind. I had forgotten to lock the door when I last came in.

Now, I jumped from my bed and switched on the light. Oh! what shall I say! Seated on the table, surrounded by all my records, books, notes and all that I was associated with, was a young beautiful Oh! where can I get words, with a mass of blonde hair flowing down over her shoulders. Her attitude was nonchalant, but as she met my gaze with a sort of wistful appeal, I was enthralled. From the moment in which my eyes rested on her face other considerations did not count.

She was a symphony of the country-side. She was an idyll of the bower. She was the rose of summer, full and sweet and beautiful, dominating all the dainty flowers of cultivation, all the exuberant blossoms of nature.

But why that appeal! Oh, cold wind, she must be suffering from something. I couldn't think. Before that she got down from the table and got into my bed and slowly placed her head on the pillow, closing her eyes.

I covered her slowly with my blanket. Suddenly it came to my mind, that the door was not closed. When I turned to close it I saw someone trying to peep inside. I hurriedly closed the door and locked it inside. The man outside shouted, banging the door. Oh! perhaps he might call others also. So, I opened the door and switched off the light. I went out. It was Prabhu.

"What is going on, Raju?" he asked.

"Oh! nothing; but what are you doing here?"

"Oh! nothing? I was just coming behind."

"What! have you any idea of the time? Do you generally make a point of calling me up at midnight?"

"Oh! I didn't mean calling in that sense. I was just following!"

"Oh! say so, following her eh! Do you know her?"

"What! know her! I have seen her face to face hundred and one times, all over the estate."

"Oh! I see. Well, I am feeling sleepy, let me go. Goodnight, Prabhu."

"What! before you say goodnight, just think how selfish you are. I have followed her for such a long time and I know her better than you. So she belongs to me more than to you."

"Oh! hell. That won't do. She came to me, so she is mine."

This started a long quarrel and was about to end in a fight when Gopi came and suggested a way out. It seems Gopi had overheard our quarrel. "Well! Raju, she has come to you. You have to take care of her. The best thing is to inform the man in that house where she lives. Till you come back we shall take care of her. What do you say, Prabhu?"

"All right! Not a bad idea. But with whom is she living?"

"Oh! One Mr. Puty."

"Poots?"

"Yea. P-u-t-y. There, that house, with the ideal fence around it with an iron gate painted green."

So after getting a promise from Prabhu that he would not shut the door, I went to the house where she lived. I halted near the door. I heard someone groaning inside. I just tapped at the door; suddenly came the responsive challenge of a long-drawn and rattling growl from inside. Awed by this, I stopped tapping the door, when suddenly a window above me was flung open. Stumbling over a flower-bed I looked up to see what had gone wrong. I could see a man up in the window looking down at me in a peculiar way for some moments without speaking. He then suddenly disappeared; only to return, adjusting his horn spectacles upon his broad, stubby nose. He then barked: "Who are you?"

"I say, are you Mr. Puty?" I began.

"Who?" repeated Puty. "Speak out!"

"I am a man that's got your....."

Before I could finish, he barked, "I do not care for you."

"All the more reason to come and take her back" said I.

"I have driven her out already" said Mr. Puty.

"Driven her out! in this night!"

"Yes, that is my expression."

"Good God!"

"Yeah! Disobedience of my orders; only Nutts split."

"Nutts split!"

"She is my sister. She informed me about her."

"Oh! I see. But may I ask what she did - the disobedient act?"

"She ate worts".

"Did what?"

"She ate waterberries. A fruit I grow in my garden."

"She ate warts and Nutts split. What a vegetable tragedy! But you don't mean to tell me that you can drive her out for eating warts?"

"What is it to you?" again barked M. Puty,

"Look here, you can't do this sort of thing. Turning females out at night it is never done."

"It is done already now."

"But, dash it, I tell you I am alone in my room; and only one bed to sleep. Now she has come. It's impossible to keep her there."

"Well! If she expresses regret she may come back. If she doesn't, all right. Good night."

"It's you who ought to express sorrow. What's she done to be driven out like this? Simply because she ate some worts -"

Mr. Puty's voice became more obstinate.

"It is not only but she ate worts. It is that she disobeyed."

Just because she ate a few worts when you told her you'd rather she didn't, you're prepared to lose her altogether and to hand her over to the first stray man that happens to be about?"

"Absolutely! Order. To obey. If not, split."

"She will split! if you are not careful, I'll help her."

"Get out."

"I've a good mind to send for the police and have you run in" I said.

"And I," he cried, "have a good mind to unchain my dog and have you run out."

"All right, if you want me to keep you"

"Before I could finish he barked "Ge outt!"

"In my house..."

"Get out!"

"In my bed!..."

"I'll let loose my dog. It shall run you out, biting strongly." At this Mr. Puty vanished. Lights shot up within the house. Into the barking of the dog crept the note of high-pitched delight characteristic of wild animals.

Again tripping over a flower bed, I returned to the gate. I could hear the sound of rattling door chains in between the expectant yelps of the dog. I suddenly turned to run with an airy dignity. Faltering footsteps sounded in the rear, like the ghostly march of dead drummers; the dog had ceased to bark; instead, a most delightful and dreadful haunting sound of nasal whistling fell upon the ear. With a sudden bravery which surprised myself, I halted and swung round.

"Look here!" Mr. Puty, a monkish figure in his dressing gown with a cowl, merely jerked the dog by the leader and stopped to release it, muttering, at the same time, some sinister jabber understood only by the dog. "Phorr - putta - putta - phorr - putta - putta - phorr!"

I hesitated no longer. I ran like a fiend till I reached the hostel and fell flat into the ditch, and to my surprise, I didn't see the dog following me. Once more I managed and struggling up, I went to my block.

"Hallo!" called Gopi, "what happened?"

"I think you might have told me about the dog."

"Oh! I am sorry. Did he actually let loose the dog?"

"What! It was following me like hell."

"I am sorry. And what did you do?"

"Well! what do you suppose?"

"I mean about here?"

She? The only thing I've decided about her is that she is not going back to that drone even if she wants to."

Now someone laughed from behind at me. I turned to see. Balu was winking at me. I was feeling uneasy. Understandingly Gopi started.

"Now let's face the facts. Here is Raju, a bachelor in his room all alone. She blows in, a condition which makes it impossible for us to push her out. So let us decide calmly what we're going to do about it."

Then I began "Don't misunderstand me, I am only too willing to help her. Meanwhile if the warden comes to know of this he will send me out of the hostel. But this seems rather like asking for trouble all round.

"Prabhu! directly I get up early morning, I shall go and see the warden and settle the matter.

"Raju, you sound like a perfect darling for her."

"So that is settled. Good night, boys."

With this my friends left my verandah; I opened the door quietly and switched on the light.

Oh! I could hear her soft breathing. I didn't want to disturb her. Too many thoughts passed over my mind. I didn't want to lose her. What else can you do!

I passed that night in the ante-room. I didn't know when I fell a sleep. Next morning I got up and saw the warden coming to my room unwillingly. Gopi seeing me from the bathroom shouted at me "Ou! Raju, where is she!"

"Don't be an idiot. Tell us what happened. Word by word."

We went home. Warden started asking me what happened and all that. But when he looked at her, he said "Oh! marvellous! where did you get her?" I said she was loitering near the verandah early in the morning Sir, and so I brought her here for you, Sir. For that he said "Thanks, Raju, I was looking for a male dog. Even then I wouldn't like to lose this animal."

"Oh!, hell! It is only a dog after all!" shouted all around me.

"DREAM or NOT"

B

K. RAJAGOPALAN

A marriage has been arranged and will shortly take place perhaps it will, but it is not as easy as all that. Even though marriages are sometimes made in Heaven, the details must be filled in by us, poor mortals, on earth. That is why it is important to order the dress, the jewellery, perfumes, flowers, all in good time and of course from the best shops.

In the case of our hero his marriage is celebrated twice in his life with the same girl—once in his dreams and again, if I remember right, in the year 1250, month December, date the 22nd.

Rajan, a young student, a talented actor, an eloquent speaker, the best musician, a gentleman 5 ft. 7½" in height, 140 lbs. in weight, was born in the year 1928 December 22nd, if I remember right, as the heaven-sent son, of Mr. Ramachand, leading advocate of the city.

Mr. Ramchand is a man kind at *heart* and for his *part*, he has his wife Mrs. Chand Bibi, the loveliest of women and affectionate mother among mothers. At the corner of 'Elliot's Road', a beautiful bungalow is situated, surrounded by four walls with creepers of which 'cat-nip' predominates. Inside the compound, the bungalow is situated in a grand manner. The hall is decorated with long colonnades, fretted pillars and scarlet silk hangings. At the centre, in keeping with the fashion of the day, there hangs the tube-light throwing flash and colour. To the right we see the drawing room of Ramchand. The hanging mercury lamp, the never-stopping ceiling fan, three tall bureaux full of law journals and books such as A. I. R., M. W. N., Cr. P. C., etc., a big table covered with serge cloth on which some books, a pencil-pen stand, a book by H. G. Wells, two books on philosophy and a letter pad, rubber stamp etc., are the main features of the room. For Mr. Chand there is one rotating cushion chair such that he can command the whole room and for the guests there are a dozen chairs surrounding the table.

Mr. Chand is deeply engaged in Madras Weekly Notes as he is to argue a case the next day for Miss Ratnamala, a film actress, a good dancer and a budding star, against her mother Mrs. Indra Varmarajan. This Varmarajan is the second husband of Indra, a young man who will resemble—why resemble; looks like as her son.

Mr. Chand is present there, but his mind is in the abode of Mrs. Indra.

At this critical time (in the lover's language) Mrs. Chand enters with a glass of milk, shattering the airy castles of Mr. Chand and says "Which fort are you aiming at? Take some milk first, it will give you some energy". Mr. Chand: "Ho Bibi! I was just thinking about tomorrow's argument. Come and sit here."

Mrs. Chand:— "Baba! What about Rajan? You are not taking care of him nowadays. He is aged enough to be married."

Mr. Chand:— "What? aged! many girls are nowadays still remaining unmarried even at 25. When such is the case what is the hurry for Rajan?"

Mrs. Chand:— "It is not so. My brother won't wait for his daughter's marriage. I intend to celebrate the marriage with Malini, my brother's daughter. What do you say to it?"

Mr. Chand:— "I have no objection, but there is no hurry for the marriage just now."

* * *

If I remember right, in the year 1949 Dec'—Oh! what the hell, why should we be particular about dates and days, on a heavenly Christmas vacation. Let us leave it at that. Of course hereafter only our hero Rajan dominates the story. This was the day, a happy day, the day he meets his love, he meets his sweetheart, the day he comes in contact with his better half, his dream beauty, and the day

prominent in the history of India (of course from Rajan's point of view) since it is Rajan's birthday. Perhaps he may attain prominence, in the annals of Indian History; for when his student days are over, is he not to thrill the audience with his voice and acting; is he not to snatch the platform from the chatterboxes of the present day, and revolutionise the entire face of his dear country. A day previous to his birthday Rajan goes as usual to the Triplicane beach and after spending some time there, he moves towards the Marina canteen to take some light refreshment. He gets in, and goes to a corner from where he can have a view of the beach and its surroundings. He goes and sits in a comfortable chair, but to his great surprise, he sees a vanity bag and a handkerchief on the table. He wants to find out the owner of these two things. He orders plate after plate, drink after drink. An hour passes but no one comes there claiming those two articles.

Rajan now opens the bag and to his great astonishment he sees a card bearing the name—

"Miss Ratnamala,
Dancer & Film Actress,
17, Edward Elliot's Road,
Madras."

and in the backside of it he sees the following details.

Height:— 5' 6".

Weight—137 lbs.

Chest—36"—38".

Hip—26½.

Age—(blank—as usual in the case of a woman, especially an actress.)

Phone No.—84167.

Car No.—MDU 2525.

Immediately he comes to the box office, that is to say, the proprietor's table of the canteen and takes the phone and rings up no. 84167.

Exchange:— Number please.

Rajan:— 84167. please

Exchange:— Engaged.

Once, twice, and thrice, at intervals of ten, fifteen, and twenty minutes the reply is still engaged. Our fellow Rajan thinks "I'm sure I'll be an old man, by the time I get this number." He goes out of the canteen and makes a careful survey of the cars, seeing the numbers, one after another but there is no car with No. MDU 2525. He loses patience and returns home. On his way at the corner of Pudurpet and Elliot's road junction, he sees a car with MDU 2525 with a young and beautiful girl inside it. He walks as fast as he can but as ill-luck would have it the car starts and moves away. When it comes near him, the girl peeps out, smiles, and winks at him. (Here the readers can imagine the personality of Rajan, after coming to know, that a young beautiful girl in her teens, smiles and winks at him.)

Rajan, falls in love with her at first sight and returns home all the way thinking about the girl. He is not quite sure whether she is Ratnamala, or her sister, or friend, or the daughter of Ratnamala (as some actresses take leading roles even at the age of fifty or so), or the neighbour "pesteing" on her car—like some students "pesteing" on other's bikes. He spends the night without peace of mind, or sleep, and with many sighs—in the words of great authors of love stories.

Next day as usual, but an hour earlier, he goes to the beach with tweed suit and evening hat. After sometime he goes to the Marina and to the usual place and orders fruit salad and waits for its arrival. But luck instead of salad, appears in the form of the young girl, who smiled at him the previous day. The girl comes directly to his table, sits in front of him and throws a smile at him. An old woman also follows her and gets seated by her side. She turns towards the old lady and says, "Ayah, ask the server whether he saw my vanity bag and kerchief." Suddenly Rajan replies "Ho! Are you that famous Ratna, and is this your bag? The handkerchief is inside."

Ratna:— "Yes, thank you. May I know your name, please? This lady is my Ayah."

Rajan: "I am a student and the son of an advocate. My name is Rajan."

Ratna:— "Oh! good gracious! If at all I marry, I'll marry only a man like you. I love you (the server comes with the salad and she orders for two more salads, three badam halva, three Delhi Darbar, three Deradun Kitchadi, three Conjeevaram idli, three ice-water, three ovaltines, three beedas and a packet of Gold Flake with match box. (The last item is for Rajan alone).

The bill comes to Rs. 6—14—0. our young Rajan has got only a five rupee note. But as nature would help him, Ratna pays the bill and they go to another place on the beach. The Ayah is sent home in advance to prepare dinner for Rajan. The love begins like this and Ratna promises to marry. Rajan swoons with delight. That night he tells a lie to his mother that he dined with Rajaram in Park town.

Rajan knows that Ratna is his father's client, but he never tells his father's name to her. The love begins on the Marina and it travels from Adyar to Aminjikarai, Pudur to Parry's Corner, Midland to Mylapore, Casino to Connemara, Race Course to Radio station. All this takes place in MDU 2525. Every day they meet and every day they part. But the love moves without friction, obstruction or any impediments.

One day when his mother mentioned Malini, her brother's daughter he said "No hurry, for my marriage, mother, I will marry only after my education is over." But he never tells any one of his love towards Ratna and the proposal for their future marriage. Ratna also does not know that he is her advocate's son.

Rajan's mother also met Ratna many times and had talks with her. She appreciated her talents, beauty, and envied her wealth and every time Ratna come, Rajan's mother used to sigh "Why can't she be my daughter-in-law. She is not like other actresses."

One fine evening, Rajan dresses to go to the Marina. A car comes and stops in front of his house, the same MDU 2525. Our hero runs inside and hides himself. Ratna comes in and garlands his father; both smile at each other. Rajan could hear only some words case success laughter father shakes hands with her. . . . Rajan with a suspicious look, comes in. She runs away, he cries "Ratna! Ratna! Ratna!"

Now the door of Rajan's bedroom opens. Mother says "Hallo! Bapu! Bapu! What is all this! You were dreaming, is it not? Who is Ratna? Rajan gets up from the bed and reveals everything about his dream and his love towards Ratna. Mother also feels glad over it on hearing that Ratna is ready to marry him. Father also feels proud of himself that he is garlanded by Ratna over the success of the case. No doubt the case is a critical one. So any lawyer can be proud of himself.

Next day morning, Mrs. Bibi urges Mr. Chand to go to Ratna's house and fix up the marriage. Father goes to her house but she refuses to marry his son, since she has already consented to marry another. Father returns home and tells his wife everything. On hearing this Rajan cries "Rogue, traitor, let her die. Let her art seek the burial ground."

The same day evening, Ratna dresses herself and goes to the beach but is disappointed to see no trace of Rajan. So she has to return home. On the way, she goes to the lawyer's home. At that time Mr. and Mrs. Lawyer are discussing about sending Rajan to England at the end of the year. Rajan is upstairs.

Mr. & Mrs. Lawyer welcome Ratna much against their will. Ratna takes up the album kept on the table and on seeing a photo of Rajan, cries "Ho! Rajan, you are here," and she turns to the lawyer and him how he managed to get a picture of Rajan, to which the lawyer answers, "He is my son".

Ratna:— What? Rajan, your son! You are then my father-in-law. I did not know, you were his father She runs inside crying "Rajan; Rajan!"

Rajan comes down and enters his father's room. On seeing her he turns back, but Ratna rushes towards him and catches hold of him saying "What Rajan, you never told me that my lawyer is your father. This is the reason for your misunderstanding. Rajan, I will marry you. Please do not leave me."

Now the hero smiles. The marriage date is fixed as December. 22nd, the birthday of Rajan. He goes back to his college at Coimbatore. He is eagerly waiting for December 22nd.

Rajan one day after seeing Ratna's recent picture, returns to the hostel, and sleeps. * * *

"The marriage celebration is going on in Ratna's bungalow on a grand scale with an expenditure of many lakhs, under the immediate presence of Hon'ble Ministers and prominent personalities in all walks of life. Athangudi Srinivasa Iyer's musical performance is going on, to be followed by Malli and Suppi dance. During this, Rajan sees Ratna and says—"Dear Ratna! Ratna!—Ratna! Now ... "Dai Raju! what Ratna! she will come only after December 22nd. Fool! get up, you fellow, you lazy brinjal, the time is 6-30. We have got our class at 7 A.M. Get up you pumpkin" Seenu cries.

(Of course, now it is clear that Ratna's marriage is a dream, even though the marriage between them is sure. Long live the couple, Ratna—Rajan).

Rajan gets up from his bed and says to Seenu, his room mate, "Dear Seenu, it is only a dream.

Let it be true, whether dream or not

Oh! God".

Rajan goes to the bathroom to wash his face and clean his teeth.

"MARY'S NEGLIGENCE"

By

J. CHANDRA MOHAN, B. A.,

I was pedalling back home rather slowly, late in the evening, that day when Gopi stopped me in front of the Ideal Cafe and took me inside, much against my will. We were soon engrossed in chatting over a cup of coffee. It was very late before I could resume biking.

My house stood well back from the main road but quite close to an obscure lane. I always use the back way, entering from the lane, when the wife is at home. But to-night I should have entered the house by the front door because she had gone to one of her social meetings in the Women's Club. I always carry the front door key, with me but tonight suddenly I remembered and turned in my tracks, only to stop again I heard the voice, rather a deep voice it was, and it came from the house!!

The obvious thought struck me in a flash. Thieves!! Burglars!! Nevertheless I crept closer to make sure, pressing my ear to the window I listened. I heard a voice "Not so much noise, Hush! Fool" it said and then it went off into a deep string of muffled curses, when with a faint crush I heard my favourite vase, the one I had brought from Bangalore, end up in small pieces on the carpet. A much lighter voice whispered. Keep your gun and revolver handy, just in case!!!"

Suddenly I felt a bit queer, sort of hot and then cold all over. Of course, I was not scared, not a bit. It took but a matter of seconds for me to recover and retrace my steps as quick as possible and as noiselessly as I could. I hesitated. To tackle them alone will be suicide. Two men with guns and revolvers against me, unarmed!! It was preposterous yet Yet I could not let them get away with it as easy as all that.

If I went off in search of the police they might be gone when we get back. If I waited here in the lane, it might be an hour before any one came along. I sighed deeply and turned into the main road. But suddenly, I was again on the path leading to the front door of the house. I still do not, understand why I did this, for I had not the slightest intention of tackling them alone. This time I pressed my ear to the key hole. A cold breeze buzzed in my ear. This time no voice was heard.

No doubt, they would have Mary's jewels and savings in the big almirah we had. But now I heard approaching footsteps. My heart missed a beat then. But soon I sighed with relief when I realised it was some one coming down the road. Then I literally flew along the road until I recognised the lean figure of Balan coming towards me. I lost no time in narrating the situation. He was for going and righting it out, but I warned him saying that the Burglars carried guns and revolvers. He stopped short.

"We must get the police, and they must be armed too." Balan took my bike which was near the gate and started off to the Police station. I moved on to a corner from where I could see the front and back doors and the road.

The Police were there in a quarter of an hour, I knew it was a Police car the moment I saw it. An Inspector, a Sub-Inspector and two constables jumped out. The Inspector and Sub-Inspector carried revolvers and the constables gripped their 'lathies' firmly in their right hands.

Quickly I rolled off the story. I was feeling much better now. I even smiled when Balan corroborated my statement.

The Inspector was a man of action. He directed the Sub Inspector, one constable and Balan to the rear of the house. The other constable and myself accompanied him to the front.

"We'll break the door in" he said turning to me. I agreed. Immediately we drew back on the path. "I'll count three" whispered the Inspector "at the word, three, all rush together."

"One.....two..... at the stroke of "Three" we rushed forward into the room along with the other constables. For a few minutes there was silence. I heard a click and the room was flooded with light. There was nothing seen out of order. Even my vase still stood on the table in the corner!!

Suddenly the Inspector glared at the radio close by the window. The dial was still lit up. Before he could speak, the voice of the announcer filled the room. He said "This is All-India Radio; you have just been listening to first Act of the Drama, Murder at Midnight". Act two will be broadcast at this same time next week on Monday!!

Silly girl, Mary had gone out to her club, without switching off the radio.

WIT OR TIT BIT

By

S. RANGANATHAN

Wit or humour can be defined as an expression of man or woman, in the simplest form possible which produces the highest state of excitement and a general pleasure. It goes also by the name of TIT BIT. Tit has practically no meaning by itself but when combined with BIT it assumes a unique prominence. Wit without sense is like a razor without a handle. Brevity is the soul of wit. It is generally believed that the human characteristics are governed by certain humours in the body. A man may be soft or angry, jovial or serious, happy or gloomy. These traits of character are attributed to the predominance of the particular kind of humour responsible for it. If the humour responsible for a particular humour is dominant over the other humours in the body, he or she is said to be a wit. Witticisms are of different kinds. Some may produce peals of laughter, some others merely a laugh, still others only a smile and lastly there are certain kinds of humour which provoke anger.

Simple humour is one which, as the name implies, is as simple as itself. Spontaneous humour is the immediate outcome of the human expression without any thought or design. Laboured humour is exactly the opposite of this.

Sarcastic or caustic wit is the most dangerous type. It is attacking a man or woman by taking advantage of either his or her character or other mannerisms. Ironical humour is not so dangerous as the former. Pungent humour is also not desirable under any circumstances. Humour arises also out of sheer ignorance and absent mindedness. Due to ignorance and absent mindedness people say something which produces laughter. Punning on words: two words of different spelling but same pronunciation are employed to bring about a funny situation in the

worst of circumstances. This is common among literary people as it requires a high intelligence. The dramas of Shakespeare provide numerous examples of this type of humour. Exaggeration and under statements sometimes excite laughter.

High class humour: This is the highest type of humour which does not produce laughter instantaneously. A little bit of thought has to be bestowed on it before getting at the meaning. Such humour cannot be enjoyed by all. Unexpected humour:- In following the trend of an event or narration we may expect something at the end. But the ending may have a different turn, quite contrary to our expectations.

Anything that does not fall into any of the categories just talked of so far, comes in the group "KADIR WIT". This is the lowest type of humour that produces not even a smile. It sometimes produces anger.

Examples of these types of humour are given below. Will the readers please put these tit bits in the proper group? Never mind if you are a bit wrong, for bittism is always pardonable.

1. She :- If you tell a man anything, it will go in by one ear and out of the other.
He :- If you tell a woman anything, it will go in by both the ears and out of her mouth.
2. (A weak man is bowling in a cricket match).
Spectator :- Who is he, that bowler?
Student :- He is the champion of the college team!
3. Naturalist:- What is the length of rope required to reach the moon?
Philosopher: As long as it is necessary.
4. One - Who is better, physician or surgeon?
The other - The former, because in his case death is immediate.
5. Lecturer:- Can you tell me the symptoms of Ranikhet disease?
Student :- The most characteristic symptom is that the combs and wattles disappear.
6. Tit :- The girl who joined this college last week left for the medical college abruptly.
Bit :- Probably she has seen you first in this college.
7. Gopu is the last boy in the class. He enters the class late. The teacher abruptly remarked, "Here comes the gem (germ) of the class."
8. Judge - Holding a staff said, "The man at the end of the rod is a rogue."
Accused :- Which end, my Lord?

9. A young lad rushed to the train which was about to start and said, "Is the Noah's Ark full?"
A voice :- We are all here except the ass. Please come in.
10. Professor :- What is pasteurisation?
Pupil :- It is the process of converting waste lands into pastures for the grazing of dairy animals.
11. Mathematician :- An express train is running at the rate 40 miles per hour on a level bridge 320 yards long. What is the name of the driver's wife?
Student :- Mrs. Jones.
Math :- How do you know?
Student :- I know the driver?
12. The house-owner saw the milkman adding water to the milk, called him and said, "Why do you add this water? If you had asked me, I would have given you hot water. It is more healthy".
13. Teacher :- Is rinderpest a virus or bacterial disease?
Student :- It is a bacterio-virus disease.
14. Manager :- What is the matter? You are always coming to the office one hour late.
Clerk :- Sir, my coming to the office late by one hour is compensated by going an hour earlier.
15. Gopu :- Where is the caterpillar which I had placed here just now?
Mohan :- I don't know, probably it has flown away.
16. A learned lecturer entered the biological laboratory, assembled the students near the dais and, "Today, you have to dissect out the microscope and examine it under the seed."
17. X :- Will you please open the door, my dear?
Y :- I am sleeping.
18. Once a Scotchman, an Irishman and an Englishman had to pass through a desert. They had a bottle of water with them. According to the arrangement, the Englishman has to take the first third, the Irishman the middle third, and the Scotch the last third. After sometime the Scotchman became thirsty and drank up the whole water. The others got angry and asked him, "Why have you drunk the whole lot?".
He coolly remarked, "I am entitled to the last third. In order to get at it, I swallowed the first two-thirds."

19. Fun :- Of all the games in cards, Bridge is the most intelligent game.
Frolic :- Then, I am sure, you can't play that.
20. Kumar :- I told Ramu that "Great Expectations" is a very fine picture, but he does not seem to entertain a good opinion.
Chinu :- What does the ass know about the camphor smell?
21. Sukumar :- Gopal! I am in love with Susil.
Gopal :- Your dhall won't boil there, she is already married.
22. Student :- Sir, what is the name of this caterpillar?
Lecturer :- Is it a caterpillar or a centipede?
23. Bob :- Mr.....the weather is cold, I can't stir out.
Oob :- You strike a Kadhir wit, it will become dry.
24. X :- What are you munching, man?
Y :- Betels.
X :- Beetles or Bugs?
25. A gentleman in tweeds driving a car having lost his way, enquires a seargent at the cross roads.
Seargeant :- You go this way Sir - You will cut a road running at right angles to this. Take the road leading to the west. You meet a constable near handpost.....
Gentleman :- Thanks.
26. Mr. Librarian! Have you got "Life"?
It is out, Sir.

MY MAIDEN FLIGHT

By

G. THULASIDAS, Final, B. Sc., (Ag.) Class

I was sitting up into the night; I saw the old day expire and the new one being born. There was no one else awake in the whole hostel - not one light burning in a hundred and thirty-nine other rooms.

Sleep - elusive, fickle sleep - would not come. I lay in bed, restlessly tossing to and fro. At last, realising that sleep like a fickle maiden comes only when unsought, I rose from my bed and stood on the verandah.

All the myriads of stars were shining in the sky as brightly as they did in the beginning of the world, and they shall continue to twinkle to the end of time. So beautiful and so majestic in their splendour!

A soft, cold breeze sprung up. It gently caressed my cheeks; how delicious it was, and fragrant with the scent of jasminea in front of the verandah.

A few lights began to shine in the hostel; some students were already up and at work. I glanced at my watch. It was four; just a few hours ahead to fulfil the long-cherished idea of travelling by a plane.

At half-past eight my three friends and myself left the hostel, by a Studebaker Champion. We reached the Air-India Office in just ten minutes, to see that the Air-India Car was waiting for us. When the formal ceremony of taking our weight, as well as that of our suitcases, was over, we stepped into the car.

We reached the Aerodrome at 10 O'clock. The plane landed at 10-20. From the hostel friends had come to see us off. We shook hands with them and amidst shouts of "Cheerio" we entered the plane. The plane hissed, took a round on the concrete road and soon we were up above the world.

We saw cattle grazing near the road, buffaloes that refused to move and walked as slowly as if all the road and time itself was theirs, great tanks full of lilies and lotuses - and every scene with a charm of its own.

The Railway Station, the hundred and one mills which are scattered over the Manchester of South India, were very soon out of sight.

The young charming Air-Hostess offered me a toffee and a cup of coffee. How different the latter was, from our hostel coffee which is a decoction of dubious ingredients, of fluctuating colour and odour, and a remote, perhaps illusory suggestion of milk.

We were flying at a speed of 120 miles per hour. Far below us were blue-black mountains and evergreen forests, streams and rivers trellising the land, placid lagoons, backwaters lined with coconut palms and dotted with verdant islands, paddy fields stretching to the horizon, - and a wonderful variety of scenery.

The plane slowly came down. We flew over squalid villages of small mud huts, with children playing in dirt, over towns where beggars crowded round at every halt. The dirty dwellings, the naked people, the starved cattle, - the land is smiling but her children suffer. We saw the mighty waves rushing to the sandy coast and the ships anchored in the calm harbour.

In another minute the Dakota landed at the Willingdon Island Aerodrome and thus ended our maiden flight.

A TRAGEDY OF ERRORS

By
SADHU

The news that Raju had fallen in love came as a bolt from the blue even to his intimate friends. No one had expected such a thing would happen. Some how Raju did not appear to be of that sort to go and fall in love. At least he did not look like it. But the inevitable had happened and Raju was really in love.

He himself could not say how all began. One fine evening as soon as the dull and monotonous lecture in Agriculture, was over, he went to the Nirmala College to see his sister who was studying there. He was

asked to wait in the visitors room. Raju had a hell of a time waiting there - flocks of girls passed by that room staring at him as if he was an unusual specimen. While he was sitting there and fidgeting nervously, a girl entered and asked him in a sweet, soft voice, "Whom do you want to see, please?" Raju looked up and suddenly he felt a strange sensation. He forgot even good manners and involuntarily stared at the girl. How beautiful she was. Raju was sure he had never seen before such a girl. Soon he woke up from his reverie and realising the awkward situation, blurted out, "Oh! I want to see my sister, - I mean, I want to see Miss Leela." Quite involuntarily his left hand plunged deep into his trouser pocket and his right hand began to twitch at the funny knot of his necktie. The girl, ignorant of his nervousness, knit her charming eye-brows in perplexity and asked, "Thangam, which one do you mean?" Raju summoned up all his courage and replied. "I mean K. Leela of junior inter."

"Oh!" exclaimed the girl as if wisdom had suddenly dawned upon her. "Please wait a minute. I will go and call her."

After a few minutes Raju's sister arrived along with that girl "Hallo, Raju", his Sister began, "Sorry I kept you waiting.....By the way, this is my friend and classmate, Miss Sunatha." And Ramu brought together his palms before his face and murmured "Vanakkam." That was how Raju came to be introduced to Sunatha.

Needless to say, Raju returned to his room and spent a sleepless night. The figure of Sunatha, her charming eyes, her rosy dimpled cheeks, her red lips, and her slim and slender form began to haunt him. He realised that he had fallen in love with her. He realised that without her his life would be a barren desert, devoid of all earthly pleasures. Alas! He did not know how many barren deserts she had created so far!

A few days later, he received a letter from his sister asking him if he would like to go with her to pictures. By then Raju had come to know that his sister and Sunatha were inseparable friends and his 'sixth sense' told him that Sunatha also would be coming along with his sister. So, on the appointed day he hurried to the theatre and there, sure enough, were his sister and Sunatha waiting for him. He bought tickets and they all entered the theatre. It was by pure chance or luck if you please, that Sunatha happened to sit by the side of Raju. He seemed to be deeply engrossed in the picture. But Raju was not a bit interested in it.

If you had asked him what the title of the picture was, he could not have told you. Suddenly Sunatha dropped her kerchief, and Raju gallantly picked up and handed it over to her. While doing so his hand touched hers and he felt she distinctly pressed her fingers against his palm. A peculiar thrill ran through his veins. "Can it be true" he thought, "Does she love me" Why not? He began to imagine himself in the role of Romeo. Suddenly the lights were on and Raju realised with a shock that the picture was over. He returned to his room.

Raju lay awake thinking deeply. Something must be done and pretty quickly too. He could not tolerate this suspense. But what to do? "Why not write a letter to her?" he thought. But supposing she had not really pressed his palm, and the whole incident was only a

figment of his imagination? Supposing she hands over the letter to his sister! Sunatha would surely write to his father and then.....! He shuddered to think of it.

Raju was essentially a man of action. He got up the next morning and taking an attractive hostel letter pad; wrote as follows:—
“Dear Miss Sunatha,

You may be surprised to received this letter.....well, I don't want to beat about the bush. To put in plainly, I love you. Without you I simply cannot pull on. You are the light of my heart.....” It went on in this strain for about 6½ pages and finally concluded. “..... For Heaven's sake don't show this letter to my sister. If she comes to know of it, I will be doomed.....I will call you on the phone tomorrow morning at 10 o'clock to know your answer. I fervently hope it will be in the affirmative.....” He wrote another letter to his sister. placed the two letters in blue envelopes, addressed them, one to Sunatha and the other to his sister and posted them.

The next day dawned. Raju felt as if he had to face his Waterloo that day. He began to pace up and down in his room nervously. He finished breakfast hurriedly, stepped in the phone room after due salams to the bearded Sarma, to get the phone key and rang up.

‘Hallo’! He called,

‘Hallo, whom do you want, please?’ asked the voice from the other end

“I want.....er.....Miss Sunatha of junior inter class.

The receiver was visible shaking in his hand. His whole body itself seemed to be shivering.

“Hallo” came the voice from the other end. “Who is that”

It did not take long for Raju to understand who was talking.

“Hallo, Miss Sunatha”, he replied, “it is Raju, it is about the letter that I

“I have given it to your sister”

“Given it to my sister?”, Raju echoed incredulously.

A chill ran down his spine.

“Yes” replied Sunatha, “This morning I got a letter to me of course – but on opening it I found your letter to your sister. I handed it over at once to your sister. I think

Raju did not hear the rest of it. His head began to swirl. The truth dawned upon him slowly.....He had wrongly addressed the envelopes.....And at that very moment his letter to Sunatha was in the hands of his sister.....

“My God” He whispered hoarsely and replaced the receiver with a bang.

The Madras Agricultural Students' Union.

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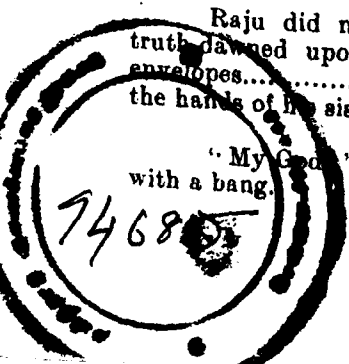
THIRTY-FOURTH COLLEGE DAY & CONFERENCE, 1951

The subject for discussion at the ensuing thirty-fourth College Day and Conference of the Madras Agricultural Students' Union, will be “Manuring of crops in relation to (i) crops, (ii) irrigation, (iii) extension service, (iv) pests and diseases and (v) organic and inorganic manures”.

The date of the Conference will be announced in due course, later.

Persons desirous of contributing papers for the Conference are requested to communicate with the Secretary.

T. S. Lakshmanan,
Secretary, M. A. S. Union.



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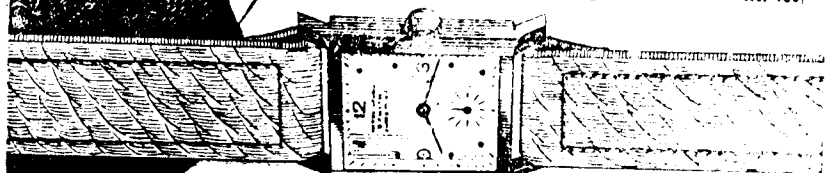
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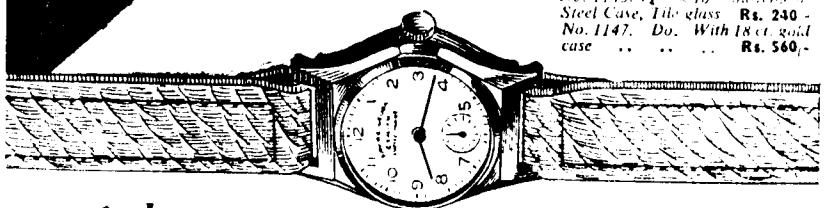
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