Madras Agricultural Journal

(ORGAN OF THE M. A. S. UNION)

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CONTENTS

THE TWENTY-SECOND COLLEGE DAY AND CONFERENCE, 1933.

There was more than passing interest in the Twenty-Second College Day and Conference which came off this year between the 21st and 24th of October. With an interval of nearly two years since the last College Day, with the celebrations having had to be postponed to a period when the North-East Monsoon gets to be in full swing at Coimbatore, and with the functions closely following the coming of age of the Union, there had been considerable excitement, expectation and enthusiasm on the part of the members, resident and mofussil. We were fortunate in the midst of rainy weather to have a spell of bright sunshine, which enabled us to get through the programme in its entirety, to a very successful finish indeed. The celebrations were also marked by the intense enthusiasm shown by the student and officer members to make the celebrations worthy of the past traditions of the Union.

Extra interest centred round this year's celebration on account of its coinciding with the retirement of our very popular President, Rao Bahadur C. Tadulinga Mudaliar. He laid down his office on the afternoon of 23rd, the day on which the conference opened. On the 24th, for the later sessions of the conference, Mr. S. Sundararaman, Govt. Mycologist, who had taken charge from Rao Bahadur C. Tadulingam

was the President of the Union. This year's Conference will therefore go down into history with the unique record, that the welcome speech to the guests was given by one Principal-President and the farewell by another.

Athletic Sports: The College Sports came off on Saturday the 21st October 1933. It had been raining incessantly on the Thursday previous and the state of the weather was such as to cause considerable anxiety to the several Committees responsible for the arrangements. The Rain God however called off his clouds from Friday onwards, with the result that we are able to hold the Sports on one of the brightest afternoons, that the sports have ever been witnessed here. There was a very large gathering of visitors and residents, and events were very hotly contested. Following the procedure set up in previous years, yet another item figuring in the Olympic contests was introduced in the programme; this was the Javelin Throw which attracted quite a large number of entries this year.

Student A. Maria Kulandai of Class II, won the Championship Cup with 45 marks to his credit, followed by P. M. Bennet of Class III with 28 marks. At the end of the sports, Mrs. Davis of the Forest College very kindly gave away the prizes. The following is a full list of prize winners of the various items :—

Cross Country Race:	1. S. V. Parthasarathy; 2. G. Venkatarathnam; 3. J. Gopala Rao.
100 Yards dash	1. A Maria Kulandai; 2. P. M. Bennet; 3. James Colaco.
Long jump	1. A. Maria Kulandai; 2. P. M. Bennet; 3. T. Arunachalam.
16-lb. shot put	1. P. M. Bennet; 2. U. Ananda; 3. B. Suryanarayanamurthi.
High jump	1. A. Maria Kulandai; 2. P. M. Bennet; 3. Jame Colaco.
Quarter mile race.	1. A. Maria Kulandai; 2. James Colaco; 3. P. M. Bennet.
Cricket ball throw	1. P. C. Sahadevan; 2. K. Lakshmanan; 3. P. M. Bennet.
Half mile race.	1. S. David Kanakaraj; 2. D. Satyanarayana; 3. K. Jayaraman.
Half mile (Invitation race)	1. Cleur T. (Stanes European High School) 2. Syed Jamal (London Mission High School); 3. Munuswamy (London Mission High School.)
Sack melee	1. A. Maria Kulandai; 2. T. Ramanjulu; 3. K. Jayaraman.
Javelin throw	1. Narayana Pillai; 2. B. Suryanarayanamurti; 3. Sam Joshua.
120 Yards hurdle.	1. K. Lakshmanan; 2. A. Maria Kulandai 3. James Colaco.
Old Boys' race	1. P. G. Kurup; 2. K. Hanumantha Rao.

One mile race	1. D. Satyanarayana; 2. S. David Kanakaraj; 3. M. R. Devarajan.
Obstacles Race	1. M. Balakrishnan Nair; 2. T. Ramanujulu; 3. K. Jayaraman.
Inter-tutorial Relay Race	Mr. K. Ramiah's Wards
Inter-tutorial Tug of War	Mr. P V. Ramiah's Wards.
Champion of the year	A. Maria Kulandai.

It is very gratifying to note that four records were broken this year. A. M. Kulandai, the champion of the year beat the previous records in Hundred Yards Dash and Quartermile of $10\frac{4}{5}$ seconds and $59\frac{1}{5}$ seconds respectively, by his performances in $10\frac{1}{5}$ seconds and $57\frac{4}{5}$ seconds. Kanakaraj David the College Half Mile winner, took away $5\frac{5}{5}$ seconds from the previous record of 2 minutes $26\frac{5}{5}$ seconds. In the Invitation Half-Mile, T. Cleur of the Stanes High School did it in 2 minutes $13\frac{1}{5}$ seconds, the previous record being 2 minutes $18\frac{4}{5}$ seconds.

Entertainments: There were two entertainments this year on the nights of 22nd. and 23rd. October. On the first night the entertainment started with an English Orchestra, which was followed by "Pandathe Pachan" a comedy in Malayalam and 'Yayathi'-a drama in Tamil. On the second night an English piece "Doctor in spite of himself" was followed by "Ranapratap" a tragedy in Telugu. A unique feature this year was, that all the actors for the several dramas were only students of the College, and it has to be mentioned that they acquitted themselves very creditably with their very high standard of amateur acting; where one and all contributed whole-heartedly to the all-round success of the entertainments, it is difficult to pick out names, but mention might be made of M Balakrishnan Nair and M. Krishnan Unni Nair (Malayalam), C. K. Gopalakrishnan (Tamil), Sam Joshua (English) G. Satyanarayana and G. Satyanarayana Rao (Telugu); D. Satyanarayana in the Telugu Drama also impressed the audience with his delightful music.

The General Body Meeting: The General Body Meeting of the Union was held on Sunday 22nd. at 8 a. m. under the chairmanship of the President, Rao Bahadur C. Tadulinga Mudaliar. The minutes of the previous meeting were read and confirmed, after which the Annual Report including statement of accounts for 1931—33 and the Budget for 1933—34 were read and adopted. After this, the following amendment of which notice had been given was moved by Mr. V. Muthuswami Ayyar and seconded by Mr. S. Sundararaman.

Rule 5 b: Managing Committee, para 2:

1. Delete words 'the President (The Principal of the Agricultural College, ex-officio)' in the second line.

2. For the word 'two' in the fourth line, read 'three'.

The amendment to the rule was passed, *nem con.* The election of office bearers was then proceeded with. The following is a full list of office bearers for the ensuing year :—

COUNCIL (15).

1. Rao Bahadur C. Tadulinga Mudaliar. (President).
2. Dr. T. V. Ramakrishna Ayyar (Reside ,t Vice President).
3. Rao Bahadur D. Ananda Rao (Moffussil Vice President).
4. Rao Bahadur M. R. Ramaswami Sivan (Moffusil Vice President).
5. K. Gopalakrishna Raju (Mofussil Vice President).
6. M. R. Balakrishnan (Secretary).
7. G. N. Rangaswami Iyengar, Editor.
8. Rao Sahib T. V. Rajagopalachariar.
9. G. Jogi Raju.
10. M. S. Madhava Rao.
11. K. Krishnamurti Rao.
12. Rao Bahadur T. S. Venkataraman.
13. Rao Bahadur B. Viswanath.
14. V. Muthuswami Ayyar.
15. G. Satyanarayana (Student).

MANAGING COMMITTEE (9)

1. Resident Vice President.
2. Secretary.
3. Editor.
4. M. A. Sankara Ayyar (Manager)
5. M. Rajagopala Ayyar (Treasurer).
6. C. S. Krishnaswami.
7. S. M. Kalyanaraman.
8. K. Ramaswami.
9. K. R. Sundaresan (Student).

EDITORIAL BOARD (7)

1. Editor.
2. Secretary.
3. Manager.
4. S. Narayanayya.
5. K. M. Thomas.
6. S. R. Srinivasa Ayyangar.
7. U. Narasinga Rao (Student).

At the end of the meeting Rao Bahadur T. S. Venkataraman congratulating the retiring Commitee on the new life that they have succeeded in initiating into the Union, proposed that the thanks of the General Body to them be recorded. He was seconded by Mr. K. Krishnamurti Rao and the resolution was passed unanimously.

The Secretary on behalf of himself and the Committee thanked the General Body for co-operation and appealed to all members present, resident and mofussil, to further the cause of the Union in every way.

Conference: On Monday the 23rd, the Conference assembled at 12 noon under the distinguished presidentship of Dewan Bahadur Sir T. Vijiaraghavachariar, K. B. E., Vice-Chairman of the Imperial

Council of Agricultural Research. After the President declared the Conference open, Rao Bahadur C. Tadulingam, President of the Union welcomed the visitors to the Conference. After this many messages of good wishes were read, prominent among which were from Mr. Allan Carruth, Mr. Hilson, Rao Bahadur M. R. Ramaswami Sivan, Mr. R. D. Anstead, Mr. P. H. Rama Reddi and Rao Sahib Y. Ramachandra Rao, Mr. M. R Balakrishnan, Secretary, then read the Annual Report for the period December 1931 to October 1933. After this, the following medals and prizes were distributed to the various prize winners by the President.

The Robertson Prize.	...	M. Bavani Shankar Rao.
The Clougaton Prize.	...	Y. V. Narayanayya.
The Kees Prize.	...	M. Bhavani Shankar Rao.
Dewan Bahadur A. Raghunatha Rao Prize.	...	T. Venkatramana Reddi.
The D'Silva Memorial Prize.	...	V. Jayaraman.
The Anstead Medal.	...	K. Meenakshi Sundaram.
The Goschan Prize.	...	T. Ramanujulu.
Vhe Certificate Course Cup.	...	S. V. Parthasarathy.
Rao BahadurK. S. Venkatarama Ayyar's Medal.	...	V. Sadasivan.
The Cuddapah Disfrict Agricultural Association Prize.		Y. Narasimhamurth. for class I. P. Rama Ra. for class II. T. Venkataramana Reddi. for class III.
The Ramasastrulu Munagala Medal		T. Gopalarathnam.

Mr. S. V. Ramamurthi, I, C. S., Director of Agriculture, then unveiled the portraits of Mr. G. R. Hilson, Retired Director of Agriculture, Madras, and of Rao Sahib T. V. Rajagopalachariar, Retired Vice-Principal of the Agricultural College. In doing so, Mr. Ramamurthi made a speech, in the course of which, he said that Mr, Hilson joined the Agricultural Dept. in 1910 and for ten years was the Deputy Director in charge of the Ceded Districts and did excellent work not only on ragi and cholam but also on cotton in which his life work in this department had been mainly concerned. Mr. Ramamurthi also referred to Mr. Hilson's work for the evolution of Cambodia strains. He, the speaker, had the pleasure of knowing Mr. Hilson as Director, when he himself was Development Secretary and he had always found him as a man lovable and as an administrator, a man of sound judgment.

Rao Saheb T. V. Rajagopalachariar joined the department in 1902 and gained wide experience not only in the southern districts but also in the Northern Circars and the Ceded Districts and also had opportunities of special investigation of the conditions in Bombay Presidency and the U. P. Besides his wide experience, he had got a versatile knowledge and a forceful personality which had impresssed itself alike on his colleagues and his students. And as they would have expected, a man of his energy had not lost his interest in improved

agriculture even after his retirement from official service. In unveiling the two portraits therefore, he, the speaker, would be unveiling the portraits of two distinguished members of the Madras Agricultural Service which had produced many able men.

He would like to make one suggestion. Mr. Hilson represented the research side of the work of the Department. Mr. Rajagopalachariar represented the teaching side of it. But there was a third side. He felt in unveiling the portraits that he missed a third. If he might say so, there was in agriculture as in universal life a '*Tirumurthi*'. Creation was represented by the researcher. Preservation was represented by the teacher. But where was the destroyer? They might ask 'destroyer of what?'; the destroyer of ignorance, of inertia, of wrong practices, of cruelty to plants, animals and man that starved in the midst of Nature that could give plenty, if only rightly asked. These destroyers were to be found in the districts. They were but few. But he hoped they would grow in numbers and when next they had an opportunity of honouring men who had left their impress in the Agricultural Department, he hoped they would remember not only the creator, the preserver but also the destroyer. He had great pleasure in unveiling the portraits which were got up by the Organisers.

The President then delivered extempore, his address which was listened to with rapt attention. The following papers (abstracts of which are published elsewhere in this issue) were then presented before the Conference.

1. "Agricultural Education— the Rural India needs" by Rao Sahib S. V. Kangasabai Pillai, B. E., Retired Assistant Engineer, Mannargudi.

2. "Perundurai Rural Vistas" by Mr. N. Lakshmanan, Perundurai Rural Centre.

3. "The Rapid Spread of Agricultural Improvements" by Mr. G. Jogi Raju, Assistant Director of Agriculture, Vizagapatam.

4. "The Yield Problem in Rice" by Messrs. N. Parthasarathy, S. Ramanujam and M. Narasimham, Assistants, Paddy Section.

5. "Investigations in the Second Crop Problem of the Godavari Delta" by Mr. C. R. Srinivasa Ayyangar, Superintendent, Agricultural Research Station, Maruteru, and Assistants.

The Conference adjourned for a group photograph at about 5 P.M.

On Tuesday the 24th, the second and third sessions of the Conference were held in the forenoon and afternoon respectively, when the following further 10 papers were presented:

1. "South Indian Bananas" by Mr. K. Cherian Jacob, Assistant in Systematic Botany, Coimbatore.

2. "Recent Cotton Improvement work for the 'Northerns' Tract" By C. Jagannatha Rao, Cotton Assistant, Nandyal.

3. "The present position of the Pempheres Problem" by Messrs. K. Dharma Rajulu, M. Suryanarayana, E. R. Gopala Menon and V. Marghabandhu, Assistants, Indian Cotton Committee, Coimbatore.

4. "Some Useful Experiences regarding Cane Cultivation and Manufacture of Sugar" by Mr. C. S. Krishnaswami, Farm Manager, Palur.

5. "A Note on the Breeding of the Thick Type of Canes for India" by Messrs. N. L Dutt, Second Cane Breeding Officer, Coimbatore, and M. K. Krishnaswami, Assistant.

6. "Low Prices and the Plight of the Lowly Ryots" (with special reference to Coimbatore) by Mr. S. V. Duraiswami, Research Student in Economics and Marketing.

7. "The Place of Economics in Agriculture" by Mr. T. Narayana Rao, Assistant, Millets Section, Guntur.

8. "Scope for Entomological work in the Districts" by Mr. P. S. Krishnamurthy, Assistant in Entomology, Guntur.

9. "The Present Position of the Red Hairy Caterpillar, the Major Insect Pest of South India" by Dr. T. V. Ramakrishna Ayyar, Government Entomologist, and Mr. K. Brahmachari, Assistant.

10. "Some Important Aspects of Dry Farming" by Dr. T. R. Seshadri, Chief of the Department of Chemistry, Andhra University, Waltair.

Several of the papers were followed by a discussion.

After the papers were read, the President referred to the passing away of Mr. V. J. Patel and paid a tribute to Mr. Patel's services to the country. He said that he first came into contact with Mr. Patel in the Assembly, when the latter was its President. There could be no two opinions about Mr. Patel's intense patriotism and his amazing courage. His name had become past history but he, the speaker, was sure that they would all agree with him that Mr. Patel's was a name which the twentieth century had contributed to the history of India. Reference to the death of Dr. Barber, former Sugarcane Expert, was also made. The President spoke on the scientific achievement of Dr. Barber chiefly on breeding work done on sugar-cane.

Another personage who passed away during the year was Rao Bahadur J. Chelvaranga Raju, who was a retired Deputy Director of Agriculture in this Dept. and the first Indian to hold that post. Mr. Raju gave his whole life time to Agriculture and was one of the few exceptions who took to agriculture and to the spread of agricultural knowledge among the people. The audience then stood in silence.

The President in his concluding remarks congratulated the Agricultural Union upon the excellent work it had accomplished in the last two days. He was particularly pleased to notice that there had been people outside the department who had contributed to their papers and discussions. That was a good sign. What was most needed in the department itself was a spirit of enthusiasm. Their department in Madras was particularly lucky in having an enthusiastic Director in the person of Mr. Ramamurthi (cheers). He was glad the same spirit prevailed at this colony in Coimbatore. He was looking forward to the time, when, from this centre would go forth workers whose motto would be to improve the agriculture of this presidency, to spread light where ignorance existed. He felt that there was a very hopeful sign that this place was going to be a nucleus of scientific institutions which in future years with more generous support of the State and with a more generous recognition on the part of the people, would develop into a scientific centre which would be of credit not only to Southern India but a centre to which visits would be made from distinguished countries in search of knowledge.

Mr. S. V. Ramamurthi, Director of Agriculture, in proposing a vote of thanks referred to Sir T. Vijayaraghavachariar's qualities and said that owing to his efforts for the last five years at the Imperial Council, they might regard India already to be federated so far as agriculture was concerned. To mark their pleasure and sense of importance at the visit of Sir. Vijayaraghavachariar, he had requested the Principal of the College to give a holiday to the students.

Exhibitions and Demonstrations: Advantage was taken of the large gathering present for the celebrations, by the Government Agricultural Chemist and the Research Engineer, to give demonstrations, the former on the methods of manufacturing cream jaggery, the latter on the working of Cooper Persian wheel water lift. Mr. K. Cherian Jacob who read a paper before the Conference on bananas, arranged as well, a very instructive banana exhibition featuring different varieties and interesting notes about bananas in South India and elsewhere. These exhibitions and demonstrations added very greatly indeed to the value of the Conference this year and the Union is very thankful to these gentlemen for taking the pains to provide interesting items for our guests.

Principal's Welcome Speech.

Dewan Bahadur Sir T. Vijayaraghavacharya, Mr. Ramamurti, Ladies and Gentlemen,

The very pleasant duty of welcoming you all to this, the 22nd College Day and Conference has once again devolved upon me as the President of the Madras Agricultural Students' Union, and that for the last time in my official career of over 32 years in the Agricultural Department.

Since I had the privilege of last discharging that duty in December 1931 in welcoming the Honourable Mr. P. T. Rajan, our Minister for Agriculture, a change has occured in the personnel of the Head of the Agricultural Department and we have today in our midst Mr. S. V. Ramamurti, our zealous, sympathetic and popular Director to whose hands the destinies of this department are committed during this period of economic depression, paralysing the unfettered development of this nation building industry. This depression notwithstanding, the members of the Union, students past and present have continued their efforts towards the advancement of this noble calling of Agriculture.

I avail of this occasion to offer our hearty congratulations to Messrs. T. V. Rajagopalacharya and N. S. Kulandaiswami Pillai on the title of "Rao Sahib" conferred upon them, and to express my greetings to Rao Bahadur D. Ananda Rao, my worthy successor in office.

In you, Sir, Mr. President whom we hail as one of the most distinguished sons of this city of Coimbatore, we have a strong support, as the Executive Head of the Imperial Council of Agricultural Research. You have already given a large impetus to the development of Agricultural Science to this vast continent of India and we in Madras are deeply grateful to you for helping to launch several schemes designed to further agricultural research and incidentally solve the chronic question of unemployment among young men and more especially among agricultural graduates. I take this occasion to appeal to you, Sir, to considerably improve the status of the field investigators under the crop costing scheme, so that the investigators' place might be sufficiently attractive to our agricultural graduates, who, I consider, are the best fitted men for enquiries of this kind.

A word in connection with agricultural education with which I have been in close touch for over two decades will not be out of place here. The huge number of applications for the B.Sc., Ag., course in the earlier years bears ample testimony to the attraction this education had; a gradual fall in recent years does not augur well. The causes of this decline need earnest scrutiny. Thanks to the munificence of the District Board of Coimbatore a new Short Course in Farm Management was recently started and we wish that that course every success.

On behalf of the Union and personally on my own behalf I extend a hearty welcome to you, Sir, for having graced this occasion and given me an opportunity to welcome you once again before I lay down my office as the Principal of this Institution. I consider it particularly fortunate that the deliberations of this session are presided over by you. You have without any reserve and with considerable wholeheartedness and at great personal sacrifice in the midst of your heavy duties, found time to come all the way from Simla to be in our midst and evidence your active sympathies with our Union, and I feel sure that under your helpful guidance the Conference will have a successful session.

Ladies and Gentlemen, I thank you for kindly responding to our invitation to be present here, and I extend to you all once again my most sincere welcome.

Secretary's Annual Report.

The Managing Committee of the Madras Agricultural Students' Union beg to submit a restrospect of their tenure of office for a period of 22 months from December 1931 to October 1933. For more reasons than one the period under report has been one of the most unique in the life of the Madras Agricultural Students' Union and the Journal associated with it. The last College Day was held in December 1931 and due to the fact that the annual celebrations could not be arranged during 1932, we have had an interval of nearly 22 months, the

longest on record between two successive celebrations. The financial and economic depression which started some 3 or 4 years ago all over the world reached a crisis during this period and had their concomittant effects on our activities as well. We were on the thresbold of an economic crisis when we started the year 1932 and this developed into acute symptoms, all round, necessitating retrenchment, cut in pay and various other financial adjustments that Government, business and professions had to make. Political and social convulsions that shook our country and the outside world apart, agriculture received a set back not on account of the need to produce more but by the difficulty caused by over-production, slumps in the market, and the difficulties experienced in balancing an economic budget. Rubber, tea, and coffee to mention a few among the Planter's products, wheat and paddy amongst the grains, coconut, cotton and sugarcane amongst the industrial crops, all had their share in this adverse condition of things. And each country was set with the task of solving its own problem according to its own peculiar conditions. Almost incredible as the stories of the Arabian Nights, will seem to posterity, the unique uses that food and other crops were put to. Quite a long while since perhaps, in the history of the world, came the custom of the yield of agricultural crops being reckoned as barter in place of hard cash. College and tuition fees in America were paid not by dollars and cents, but by grain. Soviet Russia found a new use for her excess wheat by using it as fuel instead of for human consumption. Sugar Syndicates and Coffee Planting Organisations came to conclusions to restrict area under cultivation and even to annihilate plantations on which labour and energy had been lavishly spent. To add to the difficulty of the farmer and the landholder who were faced with the disposal of their excess, floods, and earthquakes had their toll in several parts of the globe. Banks crashed, countries which had been powers in the financial world were obliged to go off their gold standard; currency had its value changed; and the universal paradox existed with every one possessing enough to keep the wolf from the door, and yet financially and economically uncertain and unhappy.

To a certain extent this over-production was a blessing in disguise. It stimulated human thought; talent and dormant genius was awakened; research brains were bestirred to activity. New and peculiar uses were invented and discovered for articles which had come down to us with an ancient association about them of their particular utility. While agriculture suffered, industry showed signs of developing. The whole world began to realise that success awaits those who only are able to adapt their production and manufacture to changed conditions and thus, conservatism slowly began to disappear. The necessity for international talks, understandings and conference became apparent and all progressive nations have come to realise that beautiful concept of world organisation where every country is a happy unit with friendly exchanges and where agriculture should be the basic and the supporting industry for the ultimate happiness of all mankind.

That indeed was the crux of the whole problem. For with all this overproduction and slump, the cries of back to the land have been foremost in the air during the past two years. It is perhaps a happy sign that humanity has realised that a great deal of happiness, material and spiritual, can be attained by honest toil on the soil, by the appreciation of the dignity of manual labour and by the promotion of the factors of self-reliance, self-content and self-knowledge,

The Union and the Journal were also affected in this whirlpool of financial maladjustments. Coming on the wake of cut in pay and depending mainly on the co-operation and sympathy of departmental officers, the Union would certainly have sunk into insignificance but that departmental officers and public

spirited men interested in scientific agriculture stood by us staunchly and helped us to keep our heads above water and tide over the crisis.

UNION ACTIVITIES

College Day and Conference: The Twenty-first College Day and Conference came off from 19th to 21st of December under the presidency of the Hon'ble Mr. P. T. Rajan, Bar-at-law, Minister to the Government of Madras. The College Day had purposely been postponed from July to December as it was at that time expected that the Gazetted Officers' Conference would also be held in December, and as such we could have them present for the College Day. Unfortunately, however, on account of financial reasons, the Government could not permit the holding of the Gazetted Officers' Conference and as a result we had to miss for the second time familiar faces at the College Day and Conference. The several items of the function were gone through very successfully thanks to the labours of the various sub-committees.

Athletic Sports: These were held on Saturday the 20th December and the events which were very hotly contested were, following the convention of previous years, run on olympic lines. Records were broken in Quarter Mile and equalled in 100 Yards and High jump. P. M. Bennett of Class I, who was the Champion of the year having to his credit two of these achievements. At the end of the Sports, Mrs. Wrench of the Forest College, very kindly gave away the prizes.

Entertainments: On the night of the 20th, the students staged "Madhuseva", a social play in Telugu, and "Anandapalan", a drama in Tamil specially written for the occasion featuring current ideas in an ancient setting. All the actors acquitted themselves very creditably. One noteworthy feature was the yeoman service rendered by the Boys Scouts of the Estate who helped in fitting up the state enclosing the main hall and arranging seats, the whole work being a practical application of scout craft

General Body Meeting: The General Body Meeting of the Union was held on Sunday the 20th at 9 a. m. under the chairmanship of Rao Bahadur Mr. C. Tadulingam at which resolutions were moved and discussed and office bearers elected for the ensuing year.

The Ramasastrulu Munagala Competition: As in the past this competition elicited very poor response from members this year also. Only one paper was received, but the judges considered it to be of sufficient merit to be awarded the prize. The Ramasastrulu Munagala medal goes this year to Mr. P. Gopalarathnam, Cotton Assistant, Guntur, for his paper on "Studies in Capsicum". Our thanks are due to the judges, Messrs. G. N. Rangaswami Ayyangar, N L. Dutt and Dr. J. S. Patel.

The Conference: Punctually at 9-30 a. m. on Monday, the 21st December, the Conference assembled in the main hall of the Research Institute under the distinguished presidentship of Hon'ble Mr. P. T. Rajan, Minister for the Public Works. Many messages of good wishes were read after which Rao Bahadur Mr. C. Tadulingam, the President of the Union in a neat little speech welcomed the Minister and the guests to the 21st College Day and Conference. Mr. K. M. Thomas, Secretary of the Union, then read the annual report which recorded all round progress of the Union. The President then delivered his address. It was listened to with rapt attention. The following six papers contributing a symposium on sorghum were then read:—

1. "Sorghum in western taluks of Bellary" by R. Nagan Gowda, Ph. D., Hospet.

2. "Sorghum improvements in the Madras Presidency" by Mr. K. Gopalakrishna Raju, District Agricultural Officer in Charge, III Circle.
3. "Sorghum the Great Millet" by Mr. G. N Rangaswami Ayyangar, Millet Specialist.
4. "Chemistry in the production and utilisation of sorghum" by Rao Bahadur B. Viswanath, Government Agricultural Chemist.
5. "The Entomology of Sorghum Plant" by Dr. T. V. Ramakrishna Ayyar, Government Entomologist.
6. "The Sorghum Diseases" by Mr. S. Sundararaman, Government Mycologist.

The reading of papers was followed by a discussion and after the President's concluding remarks, the Conference closed with a vote of thanks by Rao Bahadur D. Ananda Rao. Three hearty cheers to the Minister proposed by Mr. C. Padulingam, were lustily responded to.

The Journal: This important all the year round activity of the Union, was quite in evidence during this period and the standard and punctuality attained by the previous Committee and the Editorial Board were maintained. The Managing Committee and the Editorial Board co-operated wholeheartedly during the crisis and while a great economy was effected the standard was even sought to be raised. New features like 'Abstracts' and 'Crop and Trade Reports' were added. This coupled with the fact that a number of our officers are now willingly coming forward to publish the results of their work in our Journal we have been able to establish contact with workers in other parts of the world from whom there have been constant demands for particular copies of our Journal, and who in their turn enriched our library, by sending us in exchange some of their valuable publications.

GENERAL ACTIVITIES

M. A. S. U. Parliament: Under the auspices of the Parliament a debate was held at which Mr. V. D. S. Ayyangar of the R. K. Mills, Peelamedu, moved and Mr. D. G. Munro, Deputy Director of Agriculture, Coimbatore, opposed that the Cotton Control Bill is not conducive to the best interests of the country. Mr. C. V. Venkataramana Ayyangar was the speaker for the occasion.

Under the Auspices of the Union, a meeting was held to bid farewell to the final year students who passed out of the college and to wish them all success in their life.

Condolences: Twice during the period, have the Resident Members had to meet, once in November last to exprese our condolences on the passing away of Rao Bahadur J. Chelvaranga Raju one of the Founders of the Union, and for a similar purpose in March again this year when news of Dr C. A. Barber's death was received by us. Resolutions expressing our sympathy to the members of the bereaved families were sent.

Conclusion: The Madras Agricultural Students' Union has attained its majority; the Journal associated with its inception which originally started as an Year Book, has developed into a fullblown monthly which has secured for itself a place of esteem with other journals, a warm corner in the hearts of old boys and officers of the Department, and an attachment to all those who have been associated with it. During the years to follow it is the fervent wish of the Managing Committee that the Union besides conducting the Journal will continue to do useful service for old boys of the College as well In the earlier years when most of these were getting absorbed into the Department conditions were not so acute. At present however the Union serves as the only connecting link between old students and the Agricultural College, and it will be one of the sincere endeavours of this parent body to look to the interests of these members of our Union

and to request august bodies like the Imperial Council of Agricultural Research and the Indian Central Cotton Committee who are in a position to finance a number of short and temporary schemes to relieve unemployment amongst these despondent youths and to encourage them with a decent start in life.

Vote of thanks: The Committee wish to express their grateful thanks to all those ladies and gentlemen who responded to our invitation at the time of the last College Day and Conference, to the various Committees that laboured for the success of the function, to Mr. R. C. Broadfoot and Rao Bahadur C. Tadulingam, Principals of the College during this period, and Rao Bahadur D. Ananda Rao, Headquarrers Dy. Director of Agriculture, for the great interest they have evinced and to Mr. S. V. Ramamurthy, Director of Agriculture, for his sympathetic appreciation of our work and the desire he has more than once evinced to help us financially and otherwise.

The Managing Committee further take this opportunity on behalf of the Madras Agricultural Students' Union, to offer their very hearty congratulations on the titles conferred by the Government on Mr. C. Tadulingam and Mr. T. V. Rajagopalrchariar, Retired Vice Principal of the College, the President and the Resident Vice-President of the Union during the period.

Messages.

Mr. Allan Carruth O. B. E. It always gives me much pleasure to see that College Day has come again, and as a member of the Union I should very much like to be present.

While many things contribute to the success of the various aspects of College Day, none has such an important effect as the Chairman, and I congratulate the Union on being fortunate enough to obtain the services of Dewan Bahadur Sir T. Vijayaraghvachariar Kt., K. B. E., Vice-Chairman of the Imperial Council of Agricultural Research. I sincerely hope that nothing will come in the way of the chair being taken as arranged as his presence confers a great honour on the Union and will encourage us all in our efforts to progress.

The problems of the different countries tend to become more difficult in these recent years, and let us hope, that our members may be able to contribute towards a solution. The opportunities which College Day affords for discussion of topics from every angle must be fruitful in good work.

It is my earnest hope that the celebrations will be a success from all points of view, and that our members will feel encouraged in a work which should bring prosperity and happiness to the people.

Now for a personal note. It is some time since I had the pleasure of giving a subscription to the funds of the Union. The monthly Journals keep me reminded of my connection with the Union, and I relish the high standard of the contents.

I enclose an order for Rupees One Hundred to the general funds of the Union, to be used for any purpose the Committee may decide.

As one member of the Union to another, you would be interested to see my name included in the King's Birthday Honours List on June 3rd. last, under O. B. E. officers of the Order of the British Empire.

In my work when amongst you I appreciated the encouragement from the Union, the inspiration from College Day and the helpful attitude of the people in Madras, and I now ask you to accept the enclosed token of my gratitude to you all.

Trusting that this message finds you all in the best of health and spirits.

With the best wishes for the success of College Day.

Mr. G. R. Hilson. Please convey my kind remembrances to all members of the Union and my heartiest congratulations on your twenty-second Birthday. I hope you will have a lively, interesting and fruitful meeting. My best wishes for the continued progress of the Union.

Hon'ble Mr. P. T. Rajan. Thanks very much for your kind invitation to be present on the occasion of the celebration of your College Day and I regret my inability to accept the same owing to a previous engagement. However, I wish your function every success.

Mr. R. D. Anstead C. I. E. You have been good enough to ask me to send you a message of greeting on the occasion of the 22nd. College Day. In doing so my thoughts pass back to many years of pleasant work at the College and to occasions on which I occupied the Presidential Chair at this annual function. They also stretch forward—what does the future hold for this College ? Great waves of political argument bringing changes in their wake will no doubt sweep over it but I feel sure they will leave it standing as firmly as ever to fulfil its task which is changeless. Whatever political regime prevails and whosoever rules, the people must be fed and the interests of the ryots must be safeguarded, and this is the task of this College and the Agricultural Department.

Science has placed in the hands of man many new powers, the control of energy, rapid transport and easy communication by telegraph and wireless, crops so improved that they yield more, resist diseases and defy climate, control over the soil in which they grow, and above all greatly improved health for the people. But man has not yet learned to take the best advantage of these discoveries. They have come more quickly than his powers of absorbing and utilising them, and the inevitable consequence is summed up in phrases like " unemployment ", and " economic crisis ".

What the whole civilised world needs at the moment more than any thing else is an organised plan, and until that plan is devised world troubles will remain. A plan will undoubtedly be devised—a plan which will co-ordinate all the wonderful gifts of scientific discovery and utilise them for the utmost good of mankind.

What part will this College play in the devising of that plan ? Hitherto agricultural scientists have devoted most of their attention to the improvement of crops, their protection from disease and the creation of produce. In the future they must pay more attention to the orderly distribution of this produce both on the soil and in the market, and research must turn in that direction Markets must be critically examined, great surveys of production made, as soil surveys have been made in the past, with the view to ascertaining the best places in which to grow specified crops. The same patient methods of research must be devoted to such problems as these as has been devoted in the past to the study of production and disease, and rest assured the result of such research will be equally prolific of solutions of the problems studied.

It is not impossible to imagine a system of international control which, while leaving each country to determine production for its own consumption, would regulate the disposal of surpluses in a way which would prevent the forcing of excessive quantities on an unwilling market, and thus secure the maintenance of a relatively stable price.

You students at this College have a great opportunity of playing your part in the reorganisation of the world plan, which, believe, me, is going to take place in the near future. I wish you every success in your labours.

Rao Bahadur M. R. Ramaswami Sivan :— I am writing to thank the President and members of the Madras Agricultural Students' Union, for their very kind

invitatation for the College Day and Conference. Several prior engagements which I cannot easily put off, prevent me from being present and taking part in the Sports on one side and in the discussions at the Conference on the other.

I am particularly sorry that I have to be absent this time for several reasons. First, the Conference is to be presided over by no less a distinguished person than Sir T Vijayaraghavacharya, whom I can take the liberty of considering as one of my oldest friends. Secondly, your sympethetic Director of Agriculture, has, I understand, schemes for the relief of unemployment among agricultural graduates, and I should have liked to have listened to his schemes, in person. Thirdly, this is probably the last time when Rao Bahadur C. Tadulingam will welcome old boys and distinguished visitors in his capaclty as President of the Union.

I shall miss the Sports and the Old Boys' race, and I shall thank you to convey my apologies to your Sports Secretary, Mr. M. C. Cherian.

I trust that the rains will hold off on the Sports Day and I wish the Conference all success. Please convey my greetings to all old boys.

Presidential Address.

In the course of his address, the President said that he really did not know on what to speak. He had first made up his mind to speak on tariffs and quotas and things of that sort, but recent events forbade him from entering that rather dangerous ground. What had happened that day and what the Secretary had said had suggested to him some thoughts. And perhaps they would bear with him if he spoke to them upon his impression of them. He was afraid he could not given them a learned scientific discourse. But he could do the next best. He could express an administrator's strong feelings about the important function which scientists played in the life of the country, the position which they occupied at present and they would occupy in future. When he thought of what was going on around them, of financial retrenchment and the need for economies, he wondered why in all Governments, whether in the East or in the West, scientific departments were first chosen as the proper victims for financial operations. What was the depression due to? They had several theories about the depression, but everybody agreed that the depression was primarily one in agricultural products. One should have supposed that when they had got to deal with agricultural depression, far from retrenchment in the scientific departments dealing with agriculture, they would rather increase the staff, and strengthen the forces which dealt with the depression. The Army Department was not in the habit of retrenching when there was an enemy at the gates and he should have supposed that speaking like a layman, when there was agricultural depression, far from thinking of retrenchment in the agricultural departments, Governments all over the world should rather strengthen them. He could not explain the paradox.

A SUGGESTION.

One suggestion he would venture to offer in all humility. Just as the Government of India provided that certain members of the

Viceroy's Council should be lawyers, and so on, so in the coming constitution, provision should be made that one member of the Viceroy's Council should be a scientist or a man who had scientific training. He thought the trouble arose from the fact that it was just the old medieval notion. In the middle ages, they considered that people who worked in laboratories and discovered things were magicians, wizards that ought to be burnt. They were now more civilised in their methods. Nowadays, they did not burn agriculturists and scientists. They just retrenched them.

They had heard a great deal about depression. They had had a learned investigation. But how far India was connected with the depression, in what way she ought to meet her own special problems was a work which ought to occupy the minds of all administrators at this time. One should have supposed that on an occasion like this, they should have a staff of people, apart from scientists, versed in agricultural economics who would deal with these questions from the special point of view of India. But what did they find? Hardly was there anybody who dealt with agricultural economics. Let them take the Imperial Council of Agricultural Research. One should have supposed that that Council could have had an eminent authority on agricultural economics. But there was none. There were very many problems in which they were interested and the field was very large. They were dealing with possibly the largest agricultural country in the world. And they were dealing with a country which, however much it might be industrialised in the future, would still essentially remain an agricultural country.

A TALE OF FIGURE

What was the amount which the Imperial Government or Provincial Governments spent upon agriculture? The calculation was made some time ago. It was 8 pies per cultivated field in India, 4 annas in Japan and 8 annas in the United States. These figures would tell their own tale. On an occasion like this, he should think, young men of this College, men who had gone out of the college and those who had gone out from similar colleges elsewhere in India, should be men who would take an important and prominent part in dealing with the problems of national rebuilding. They had still got to recognise the value of scientific departments and they had still to allot liberal funds for that purpose. He was almost ashamed to tell a visiting American or a visiting European, when he asked him what was the amount given to the Imperial Council, to say, it was 5 lakhs. He should say fifty lakhs would be a moderate sum for the Council which dealt with the whole of India,

In the next two years they hoped to see a new Government and a new form of constitution. When it did come he hoped there would be

a much more increasing recognition of the value of scientific research. There was an increasing recognition in every province and particularly amongst the non-official communities of the value of scientific research, particularly in agriculture and he earnestly hoped that when the new form of Government came in, the Agricultural Department would play a very much larger part than it had done, that a great deal of work would be done by them and that funds would be increased year after year and that India would have a proper research staff equipped with agricultural knowledge and competent to deal with agricultural problems. He saw no other way out of the economic difficulties.

AGRICULTURE AND FOOD RESOURCES.

Let them take the question of food resources. There were two direct opposite points of view. One point of view was one with which they had been historically familiar, viz, that population was outstripping the means of subsistence But latterly on account of scientific discoveries they had rather altered that point of view. But the problem was still left as to whether they had got adequate food resources. It was only the other day he was talking with a man to whom Indian trade was official business. And, somebody said to him about increase of production. He said, "My God, of course, what was necessary was cutting down of production, I wish people would start a camgaign for burning fields and stocks of grain." What was the proper view to take? Was it the correct view to take that in a country like this with 353 millions of people and where it was said only 70 millions got a single meal a day, that their food resources were much more than necessary and that they should be reduced? Why did it happen that food was so cheap, that the agriculturist did not find it worth while to raise his crops but at the same time there was a population of 70 millions who could not get it? What was the defect in the system which brought it about? That was the kind of question which he would like the agricultural economist to deal with. Let them take other things. Let them take the question of mechanical helps to cultivation. There was a particular committee of the Imperial Council which had been concerned with that particular subject. But only the other day he saw an administrator of an Indian State and was talking to him about that committee. He said he would put down mechanical improvements to cultivation at once. Already they were complaining of unemployment. The more machines they employed in the field the more labourers there would be thrown out. He said the very first thing to be done was to abolish all agricultural machines and to get on with human labour. What was the correct answer to that problem?

Then of course, there was the question of agricultural depression. He had been asked what were the remedies he would suggest. To raise prices? He was afraid nobody there could suggest what were the

means by which they could raise agricultural prices. They could suggest temporary remedies in order to make the agricultural debtor less heavily burdened by his debts. But what the permanent remedies were, one did not know. Two years ago, they consoled themselves with the general belief that this depression was bound to be a temporary thing, that they got alternately periods of boom and periods of depression and that the depression would end and would be followed by boom. People saw signs of improvement two years ago. They were still trying to detect those signs and he for himself could not say he detected any. One thing seemed to be clear that if prices were to be raised—and that was the most urgent question in agricultural commodities,—it must not be by the action of one country but by the countries of the civilised world acting together. Then only they got anything towards solving that problem. He had discussed it with various people who were being concerned with such questions in more than one country in Europe. The thing that impressed him, was, that the whole trouble was due to the economic nationalism which had been fostered as one of the after-effects of the war. Till they got rid of that there was no chance of improvement. Personally it struck him that a better spirit had come over the countries of the world. He had recently been in Europe and he took some pains to converse with people who knew about this. The impression that was left on his mind was that Europe was sick unto death and unless a new sprit passed over the world and commonsense again got hold of the nations, this generation would see the collapse of what they called western civilisation.

THE ECONOMIC CONFERENCE AND AFTER.

Very much faith was attached to the World Economic Conference. He supposed they all knew how the Economic Conference ended. Everybody recognised the fact that tariffs were bad but everybody was anxious that the other nations must take off their tariffs while retaining his own. It reminded him of the old Madras story about the manner in which milk was raised in a particular village for festivals, each villager pouring a cup of water into the cauldron imagining that others would pour milk. Most of the nations of the world were under similar ideas. It was a very difficult problem but he was not really interested in problems outside except to the extent that the solution of the world problem meant the solution of the Indian problem.

Coming nearer home what was to be their attitude towards these questions, towards tariffs, import duties, etc. All those were questions in which the agriculturist was vitally interested and on which they should have a staff of agricultural economists working. But there was no doubt whatever that they would have to tackle the question and the responsibility would come very soon to Indian hands. It was easy now when the other man was in power to criticise him. But

very soon they would be in the seats of the mighty. They would find then the administration not quite easy. How were they going to deal with the problem?

There were many things in which the assistance of economists could be useful. Let them take the question of sugar. They all knew what an enormous development had taken place in the Indian manufacture of sugar in the last four years. The question now was whether this should be ordered, planned and controlled by the State or should be left to the initiative of private firms. That again was a matter on which economists would be able to advise. There were two schools of opinion on that. The supporters of State control quoted the example of Java. But Java was a small country and rights of property were not the same and political conditions were also different. All these were matters on which they would like investigations by skilled economists. He should strongly recommend to the ministers of the future government of India to employ agricultural economists not only in the centre but in every province. The more money they spent upon agricultural research the less they would have to spend upon police, jails, magistrates etc.

A LESSON FROM WORLD DEPRESSION.

To the members of the Madras Agricultural Students' Union, he would say that some of the things he had said might appear rather unfashionable but he was perfectly certain that one of the good results of this agricultural depression would be an increasing recognition by all nations, of the value of scientific and economic research in the field of agriculture. Whatever might appear to be their prospects to-day, he believed that in the future life of this country, people who had been trained in colleges like this had got a very large part to play a very much larger part than gentlemen who went out of the law and other colleges. Let them not be downhearted. Let them consider themselves that they belonged to a profession which was bound to add to the wealth of the country. They had got a fine and noble career before them. There might not be as much recognition on the part of the State to-day as it would be in the future. Far from taking a pessimistic view of the future, they should realise that more and more administrators, statesmen and politicians would begin to recognise the value of their work. (Loud Applause).

Abstracts of Papers.

1. "AGRICULTURAL EDUCATION—THE RURAL INDIA NEEDS" by Rao Sahib S. V. Kanagasabai Pillai B. E., Retired Assistant Engineer, Mannargudi.

In the present day cry of back to the land, the several factors, like, awakening the individual rather than providing his needs, the necessity for a determined will, and the ways our resources are frittered away, are overlooked. The paper deals with the failure of the agricultural graduates to lead as agriculturists, the educative value of the Agricultural Department, and the suspicious conservatism

of the villagers and after referring to the example of rural Denmark, focusses attention on the need to train the labourer as well as the landlord, and puts forth a plea for the opening of a number of central elementary schools with an agricultural bias. The paper winds up with a reference to the wealth of agricultural lore buried in vernacular literature of the past, and with an appeal for the intelligent and useful study of this literature.

2. "PERUNDURAI RURAL VISTAS" by N Lakshmanan.

After his tour in India with the Agricultural Commission and from local experience, the author thinks that the hope of the farmers of Perundurai lies in the early fulfilment of the recommendation of the Royal Commission that the Agricultural Department should pay greater attention to the problems of cultivation in dry and precarious tracts. It is comparatively easy to change the outlook of farmers who are the members of the well-conducted co-operative societies. The good co-operative society serves as "the natural basis" for comprehensive rural reconstruction. While alive to the fact that Adult schools are everywhere difficult to maintain the Perundurai Rural Reconstruction Centre is just now experimenting with seven schools for adults of different strata of the village community. The system of. Intellectual Conscription advocated for years by Mr. S. V. Ramamurthi, I. C. S. deserves to be introduced, at first, in the rural reconstruction centres. Co-ordination of the activities of nation building Departments is fruitful at the Perundurai centre. The need of the hour is to enable the local staff to take an active part in this field of work. The Perundurai Rural Reconstruction Centre as elsewhere serves as a living link between the unorganised villagers and the expert officials.

3. THE RAPID SPREAD OF AGRICULTURAL IMPROVEMENTS by G. Jogi Raju.

As a result of the Gazetted Officers' Conference in 1930, propaganda work has been concentrated in 3 or 4 centres in each sub-circle, the greater contact with the ryots of the central villages facilitating the rapid spread of improvements in those villagers at first, and thereafter to the villages around. This system has been found fairly successful in 12 out of 25 centres in the six sub-circles in the Vizagapatnam district where work has been going on for 3 years past. The demonstrator does the preliminary propaganda work in each central or other village and the Demonstration Maistry or Demonstration Cooly pushes on the improvements further, by assisting the ryots in adopting them correctly. Progress depends upon the personality of the staff and their attitude towards their work. A spirit of service to the country is badly needed. A system of awarding marks for the work turned out by each Demonstration Maistry or Demonstration Cooly and cutting down wages for shortage for a fixed minimum has been adopted during the past 6 months with fair success so far. A demonstrator should be able to gradually guide and supervise the work of 8 Demonstration Maistries or Demonstration Coolies one being stationed in each centre from which about 25 villages around with a five miles' radius can be tackled. If a demonstrator is provided for each taluq with (in the course of five years) 8 Demonstration Maistries or Demonstration Coolies, departmental activities can be made to reach almost every village in the district. Taking the Vizagapatam district as an example, 3 additional demonstrators and 87 demonstration coolies will be required, the latter costing Rs. 15,000 per annum ultimately in addition to the present expenditure—a sum certainly not too large considering ultimate effects.

4. THE YIELD PROBLEM IN RICE By N. Parthasarathy, S. Ramanujam and M. Narasimhan.

The final yield of a plant is only an end result, and any attempt to improve the same must depend upon a comprehensive knowledge of the several attributes

to yield, and how each of these attributes is influenced by the environment in which the plant grows. The paper deals with an intensive study of the rice plant, and the different phases of its development in relation to its environment.

Several cultural experiments have been carried out at the Paddy Breeding Station, Coimbatore; spacing and population density, age and condition of the seedling at transplant time, application of fertilisers all at once or at different periods during the growth, manuring the seedbed rather than the transplant field, broadcasting versus transplanting, etc., and the results of these experiments are discussed in relation to the development of the plant and the analyses of final yield. As a result of these studies suitable modifications of the cultural practices are recommended to get the maximum benefit.

5. "INVESTIGATIONS IN THE SECOND CROP PROBLEM OF THE GODAVARY DELTA" By C. R. Srinivasa Iyengar, & Assistants.

The second crop paddy occupies at present an area of nearly two lacs of acres under the Godavary Irrigation. Commencing with a brief description of the history of the second crop cultivation in the delta, the paper discusses the main problems involved. Next, the results of the investigations undertaken at the Agricultural Research Station, Maruteru, to solve the difficulties through breeding and modifications in cultural practices are elaborated. It is found that raising the seedlings initially under semi-wet conditions and thereafter allowing them to dry up, when enough growth for easy pulling is obtained, appear to be satisfactory. The planting time can then be regulated within limits, to the convenience of the cultivator without affecting the yield. The paper then draws attention to the economic aspect of direct manuring for the short second crop in preference to the long duration first crop paddy. In conclusion a brief reference is made to the study of the methods of storing the second crop seed without impairing its vitality and to treatment of seed against the outbreak of 'Foot Rot' disease commonly appearing in the second crop.

6. "SOUTH INDIAN BANANAS" By K. Cherian Jacob.

After dealing with a short history of the banana, one of the oldest and the most popular of fruits, the paper refers to the distinction between banana and plantain, the area under banana and the methods of cultivation. Proceeding, the author refers to the large number of local varieties of which there are 400, and gives particulars in detail of vernacular names, the morphological characters, the chromosome numbers, etc. The paper concludes with a general reference to the existing trade in banana, and the possibilities for the future, by breeding and selection, and the need for intensive study—scientific and economic—of the subject.

7. "RECENT COTTON IMPROVEMENT WORK FOR THE 'NORTHERNS' TRACT" By C. Jagannatha Rao.

The position of the "Northerns" area with reference to Indian and World cotton areas is pointed out. With an introduction as to the object of the existence of the Nandyal Agricultural Research Station, the merits and demerits of N 14, a cotton strain evolved at the station and under distribution to the ryots for the past few years are briefly discussed. This is followed by a succinct review of the history of some of the new selections recently evolved on the station together with a list of their chief characters. Future programme of work on them and their probable prospects are indicated.

8. "THE PRESENT POSITION OF THE PEMPHERES PROBLEM" By K. Dharma Rajulu, M. Suryanarayana, E. R. Gopala Menon and V. Margabandu.

Of the various insects that attack both the exotic and indigenous types of cotton in South India, *Pempheres affinis* is of considerable importance. This paper presents a resume of the work done so far on the study of the bionomics,

habits and life history of the insect and of the control measures that suggested themselves during the course of these investigations. It has been found that this insect has a life cycle of about 3½ months and has very few alternate host plants. No evidence of the existence of definite broods was obtained. As possible means of controlling the pest, the following aspects of the problem are studied in some detail.

1. Biological control by the use of certain parasitic fungi.
2. Utilisation of the defensive mechanisms of the plant.
3. Artificial methods such as (a) the use of repellants (b) suitable manurial and cultural practices.
4. Indirect methods such as;—

   (a) Breeding of early varieties, and

   (b) Vernalization with a view to cut down the growing period of cotton so that a longer close period may be observed.

9. "SOME USEFUL EXPERIENCES REGARDING CANE CULTIVATION AND MANUFACTURE OF SUGAR" by C. S. Krishnaswamy.

The paper details the various improvements tried on the Palur Agricultural Research Station, with a view to reduce the cost of cultivation of sugarcane, under the heads (1) Preparation of the land; (2) Seed preparation and planting; (3) Seed rate; (4) Intercultivation; (5) Banking, Propping and Tashings. The results of experiments conducted on the proper rotation and manuring bring out certain useful lessons. Full economics of the manufacture of jaggery and white sugar are also given.

10. "A NOTE ON THE BREEDING OF THICK TYPE OF CANES FOR INDIA" By N. L. Dutt, and M. K. Krishnaswami.

The thick or tropical type of canes is grown chiefly in the southern and peninsular India, Burma, parts of Bengal, Assam and North-West Frontier Province. In the three main sugarcane growing provinces of India—United Provinces, the Punjab and Bihar-the thick type of canes is grown for chewing purposes—United Provinces alone growing 75,000 acres. Four and a half million tons of cane, i. e., twelve per cent of the total output of cane are consumed annually in India for chewing.

Breeding of new canes is now the accepted method for improving the sugar Industry, in almost all sugar producing countries. Considerable success has resulted from sugarcane breeding in most countries. The variety POJ. 2878 has raised the production of sugar by 18 per cent in Java, and the improved Coimbatore canes like Co. 213 and others are now occupying one-third the total are under cane in India. The increased output from growing Co. canes in North India may be put as fifty per cent.

The systematic breeding of thick or tropical type of canes was started at Coimbatore in 1926. In the breeding of the thick type of canes the aim has been to produce types which would cost less to grow and for this purpose it has been found useful to introduce blood of the hardy, thin and medium types. In the year 1931, the first batch of eight seedlings was distributed to various Provincial Experimental stations. The task and credit of finding out the most suitable seedling variety for a tract after critical trials belong to the officers of the Provincial Departments of Agriculture. Till now 29 seedlings of the thick type from the area devoted to the breeding of such cases have been distributed and certain of these seedlings have given a good account of themselves. Cos. 402 and 408 appear to be the two outstanding seedlings. The former is a good yielder and possesses the advantage of not being prone to flowering. Co. 408 is a heavy yielder, has a good root system and its jaggery is of a high quality.

11. "LOW PRICES AND THE PLIGHT OF THE LOW RYOTS" (WITH SPECIAL REFERENCE TO COIMBATORE DT.) by S. V. Doraiswamy.

Perhaps no problem is discussed so much as and with deeper attention by economists in recent times, than this epidemic of low prices and the cure thereof. It is well known that the agriculturists are one of the worst sufferers. In this paper an attempt is made to place the average cultivator in a clearer prospective with reference to his efforts to balance his budget. Statements of actual income and expenditure of some typical average ryots, both proprietors and tenants of the garden and dry tracts of this district, are given in detail to show the precarious position in which they are placed. The difficulties of the tenants and their future are discussed at length A strong plea is made for the quickening of the pace of the establishment of Land Mortgage Banks besides other suggestions for the improvement of the lot of the lowly ryots.

12. "THE PLACE OF ECONOMICS IN AGRICULTURE" by T. Narayana Rao.

The present depression has brought into prominence the economic aspects of agriculture, which have been neglected for a long time. The economics of agriculture require a special study because agriculture differs in important respects from manufacture. Agricultural production depends largely on factors over which man has very little control and hence the farmer cannot easily control the supply and the price. This dependence on nature has fostered in the Indian peasant an indifference to the economic environment. But agriculture is India's largest industry and its economic aspects deserve a careful study. All agricultural improvements are only means to an end. The progress and prosperity of the rural community has ultimately to be reckoned in economic terms Many agricultural problems, like marketing, rural indebtedness, fractionalisation of holdings etc., are mainly of an economic nature. Any economic readjustment ought to be based on a thorough study of rural economic organisation. The Punjab Economic Enquiry Board and other bodies are collecting valuable information regarding the economic life in the villages. Such enquiries are useful to the State in planning its agricultural policy and schemes of agricultural improvement. But if any policy is to bear fruit the indifference of the ryot has to be overcome and he should be persuaded to co-operate with the rural economist and the agricultural scientist in improving rural agriculture.

13. "SCOPE FOR ENTOMOLOGICAL WORK IN THE DISTRICTS" by P. S. Krishnamurthi.

Insect control is an important problem in every tract. To increase the usefulness of the department in this line of work by making the Enotomologist's services within easy reach of the ryots a system of decentralisation of Entomological work at Coimbatore was adopted by which assistants have been posted in various parts of the presidency at suitable centres. This enables the easy solution of local problems of which there are very many and depend mostly on environments.

By bringing to the ryots control measures against insect pests which have stood the test at the Central Research Institute, the Entomologist in the district connects the problems in the district with those at Coimbatore. These remedial measures can be classified into Mechanical, Insecticidal and Biological methods. It is found that the ryot does not readily take up to these in the beginning. He treats the mechanical methods with indifference and he cannot afford the purchase of a sprayer or insecticides. As regards the biological methods it will take a long time to introduce them.

These control measures in general have to be modified to suit local conditions and hence their trial at the various Agriculture Research Stations are

essential. At present the facilities for such trials are necessarily limited. However, in course of time with increased facilities it may be possible to expand the scope for Entomological work and help the ryots to a greater extent.

14. "THE PRESENT POSITION OF THE RED HAIRY CATERPILLAR, THE MAJOR INSECT PEST OF SOUTH INDIA" by Dr. T. V. Ramakrishna Ayyar & K. Brahmachari.

The Red Hairy caterpillar (*Amsacta albistriga M.*) may be considered as the most serious insect pest in S. India; it has been noted since the early days of the Madras Agricultural Department long before any other pest came into prominence and has attracted considerable attention since then. Few other crop pests have such a remarkable life history as the hairy caterpillar. In its sudden appearance and disappearance and the devastation it deals, it can be compared to none but the invasions of locust plagues. It occurs in all dry tracts of the Presidency and feeds on practically every green vegetation. Though it is specially destructive to groundnuts and some dry cereals like cholam, cumbu, etc., the loss due to this pest may be estimated generally at 25—40% and in serious cases it goes up to 100% of the crop. Recently it has also had the honour of becoming the subject of a Government legislation in the shape of a Pest Act, which has made it possible to secure the co-operation of the ryots in combating this pest. In this paper the authors have attempted to give a brief review of the bionomics of this insect, its present status, the control methods adopted during the past many years and some suggestions for the future.

15. "SOME IMPORTANT ASPECTS OF DRY FARMING" by Dr. T. R. Seshadiri.

The system of agriculture developed with a view to get the maximum benefit out of a low rainfall is called dry farming. There are two aspects of the problem, the soil and the crop. The amount of moisture utilised depends upon the amount and distribution of the rainfall and upon the physical properties of the soil, its depth and situation. The merits of the different methods of cultivation such as deep tillage, surface cultivation, bunding, summer fallow etc., are discussed. As equally important as suitable tillage are crop adaptations which aim at evolving new varieties capable of either withstanding or evading drought. There is a limit to success in dry farming and this is set by the climate. Intensive studies of the rate of the use of water have indicated methods of predicting the possibilities of crop production under particular conditions of soil and climate.

Notes and Comments.

The Agricultural College Day and Conference: Readers will find published in this issue a summary account of the various proceedings connected with the College Day and Conference which were held in Coimbatore during the latter part of October. Though this annual function was unusually delayed for unavoidable causes it was unique in two respects; firstly due to the fact that the Union was fortunate enough in getting such a distinguished personage as Dewan Bahadur Sir T. Vijiaraghavachariar, K. B. E., the Vice-Chairman of the Imperial Council of Agricultural Research to preside over the deliberations of the Conference, and secondly because it happened to be the last annual conference under the auspices of the Union with Rao Bahadur C. Tadulinga Mudaliar as its President. Though there was no special

subject treated as a symposium during the Conference as in the last few years, we had interesting papers on diverse agricultural topics such as agricultural education, rural economics, propaganda work, sugarcane, paddy, insect pests, etc. It was however felt that there was not sufficient discussion as expected on some of the important papers, though unlike as in previous years abstracts, of all the papers on the agenda were printed and distributed before hand. There is no doubt that such periodical gatherings will not only go a great way in affording opportunities for the old boys of the College, departmental members of the Union and non-officials interested in agriculture to meet together, exchange thoughts and get some ideas of research work done at the Central Research Institute, but will also stimulate young men and create in them enthusiasm for further and better scientific work and production of valuable papers for presentation at future gatherings. There was a good sprinkling of departmental officers from the various circles, and we are obliged to the Director of Agriculture for deputing them to attend the College Day Week on duty.

2. **The Banana in South India**: Visitors to the College Day and Conference must have seen the interesting exhibition of South Indian bananas arranged by the Systematic Botany Section of the Institute. There are evidently several kinds of banana grown in different parts of the Presidency as was explained in a paper on the subject read by Mr. Cherian Jacob and that these include some excellent varieties fit for the table as well as for use as cooked vegetable. The *Nendran* of Malabar the *Sirumalai* variety of Madura, the *Chakarakeli* of Northern Circars and the *Pacha Vazani* of the Coromondel area appear to be some of the finest species of Musa in South India, and, each is found to grow very well and in profusion not only in their native tracts but also in other areas, with some care. Under these circumstances, what is wanted in connection with this subject is, in addition to any special botanical work of survey, selection, breeding or evolving of new varieties, the finding of ways and means of considerably improving the marketing facilities for this commodity. Before we think of competing with the West Indies in the markets of Europe, it is up to us to find markets for South Indian bananas in North Indian cities like Benares, Delhi, Lahore, etc. where we hardly ever get any bananas. A good deal can be done by railway companies in this direction, by running fast vegetable and fruit expresses and reducing the carrying charges for bulk consignments. Incidentally, the departmental officers can also try experiments in keeping qualities of different kinds of bananas and encourage the 'plantain fig' industry, especially in tracts where the crop is grown in a large scale, and where there is not sufficient market for all the produce.

3. **The College Principal**: After several years of very useful service as the President of our Union and the Principal of the Agricultural

College, Rao Bahadur C. Tadulinga Mudaliar, retired from active service on the 23rd. of last month. The Madras Agricultural Students' Union cannot sufficiently express its gratitude for and appreciation of the very valuable and substantial help it has been getting in various ways at the hands of Mr. Mudaliar, and there is no doubt that the Union owes its present position a good deal to the constant sympathy and the special regard it always had from him. Though Mr. Mudaliar was recipient of several farewell parties from all of us in different capacities, we take this opportunity of expressing the very best regards of the Union and of offering him our sincere good wishes on the eve of his retirement for well-earned rest, good health and a long lease of life. We have pleasure in publishing in this issue a short biography and a photograph of Mr. Mudaliar.

Birth Day Honours for an old member of the Union : Readers of our Journal and departmental friends will be very happy to learn that Mr. Allan Carruth, Retired Deputy Director of Agriculture, Live-stock, Madras, has been honoured with an O. B. E. in the Birth Day Honour's list. Mr. Carruth after retirement from Madras has been taking enormous interest in agriculture and has been a member of the Milk Board in Scotland under the Scottish Ministry of Agriculture. That he has been very active even after retirement and that his services to the cuase of agriculture have been recognised is a source of intense gratification and pride to one and all of us. Mr. Carruth has been one of the few members who have been continuing their touch with the Union even after retirement and evincing sympathetic interest in its growth and progress through the advance of the years. Elsewhere in the issue is published a message received from him on the occasion of the College Day and Conference. How great his love for the Union and his appreciation of the work done by our Journal are, can be gauged by his magnanimous contribution of Rs. 100 towards the funds of the Union. At a time when the finances of the Union are giving us considerable anxiety and our appeals are but meeting with indifferent response in these hard times, this voluntary donation from one of our old members, is a very great source of encouragement to us in our endeavours. We have great pleasure in announcing that the Managing Committee has unanimously resolved to make Mr. Carruth, a Patron of our Union.

ABSTRACTS

The Vitamin Content of the Mango Fruit by M. E. F. Crawford and E. O. V. Perey—(*Biochemical Jour.* Vol. XXVII. No. 4—pp. 1290). The paper describes details of experiments, by which the observations of Perry and Zilva, in a previous communication on the vitam in contents of these varieties of mango, *Alphonoso*, *Cowasji Patel* and *Shendrya* have been further studied. The analytical data showed that the range of acidity (as H_2SO_4) was from 0·11 to 0·37% and of sugar content (as glucose) from (13·84 to 20·26%). It had been noticed that in an earlier batch

received in 1931, the mangoes which were less ripe than these used in the present experiment, that the acid was higher 1·06 to 3·74 % and the sugar less trace to 8·05.

The results of the biological tests showed that as regards vitamins A. & C., Alphonoso showed greater activity that the other varieties, almost complete protection being obtained in the tests for vitamin C, by a dose of 0·5 gm. of the fruit. M. R. B.

Investigations on the Nutritive Values of Indian Food-Stuffs—Part I by A. R. Ghosh and B. C. Guha (*Ind. Jour. Med. Res.* Vol. XXI. No. 2. October 1933). The paper is the first of a series, that promise to be a very important contribution to the existing knowledge on the nutritive value of Indian food-stuffs. The several investigations will be on lines to elucidate the protein contents, the vitamin B1 & B2 values, as well as the contents of calcium, phosphorus and iron—the most nutritionally significant among the inorganic elements. The foodstuffs tested are those in common use in Bengal, but are not unknown to people in other parts of the country. The authors find that *Amaranthus sp., Erythroea roxburghii, Ipomea reptans* and *Spinach oleracea*, in the order named, are the richest sources of iron, and cabbage the richest in lime. A common impression that the *Hibiscus esculentus* is rich in phosphorus, is borne out, other foodstuffs rich in this constituent being *Amaranthus sps.*, and *Bassela cordifolia*, the latter being even richer than *Hibiscus*. As regards protein content, *Spinach, Erythroea* and *Tricosanthes dioica*, easily score followed closely by *Hibiscus*. Vitamin B1 is richest in *Bassela, Spinach, Hibiscus*, and Cabbage, and B2 in Spinach. *Musa* among the foodstuffs examined, seems to be the poorest in every way. A highly nutritional diet, can, we can infer, be attained by the inclusion in the diet of cabbage, *Hibiscus, Amaranthus* and *Spinach*, vegetables which are fairly within reach of the majority of the population. M. R. B.

Experimental work in Relation to Pine apples. By G. D. P. Olds and J. H. Dennett. (Malayan. Agri. Journal Vol. XXI, No. 10 October 1933, Page 492)..... The article is a short report of the experimental work carried out for the past three years on Pine apple at Lim Chu Kang Experimental Station, Malaya. The experiments were three fold; manurial, cultural, and a combined planting distance and manurial treatment. The manurial experiments consisted of six repetitions with twelve treatments, in which figured a no-manure plot and plots manured with the following, singly, in combination and in varying doses:—Lime Sulphate of Ammonia, Sulphate of Potash, Superphosphate, Magnesium Sulphate. Rotted Pine apple refuse and Cattle Manure. The conclusions from the manurial experiment show that (1) the highest yield is obtained from a dressing of 100 lbs. of Sulphate of Ammonia, 300 lbs. of Superphosphate and 200 lbs. of Sulphate of Potash. (2) that there is a definite response to phosphates (3) that liming alone has no beneficial effect on the number of fruits, although it may increase the weight of each fruit, and (4) that fertilisers containing phosphates give early maturity.

The results of the cultural experiments which consisted of the following treatments: (1) Mulched with PABCO Thermogen paper, (2) forked once annually, (3) clean weeded. (4) mulched with pine apple refuse and (5) unweeded, show that the PABCO treatment yielded best, although the yield even here, was by no means comparable to yields obtained by the most suitable manurial treatment. The indications of the experiment so far appear to be, that it is more profitable to increase yield of this crop by suitable manure-mixtures than by cultural treatment alone although a judicious combination of both will certainly result in a more economic return.

A green manure experiment, in which the effect is tried of the following green manures is also in progress, but the results are not yet ready for interpretation; (1) *Crotolaria amaryroides* (2) *Tephrosia condida*, (3) *Mimosa invisa* (4) Groundnuts.

In view of the increasing recognition of the importance of fruits in diet, fruit culture is becoming more popular with our farmers; but only in a few localities like the Simhachalam Hills of Vizagapatam, and parts of the west coast and the Palni Hills, is the pine apple being cultivated at present in our Presidency, and as such, we are not yet in a position to lay out any extensive experiments on the crop. We therefore await eagerly, further information from the results in future years of these very interesting experiments on Pine apple in Malaya.

M. R. B.

The Hoffer Method of Detecting Potash Deficiency in Soils. E. I. Alexeeva, in Naukovi Zapiski, Vol. 19 (1933), Book 29/30, pp. 65—71. The Hoffer method for recognising potash deficiency in soils is based on the assumption that where there is a deficiency of potash there will be an accumulation of iron in the nodes of corn stalks. In such cases, if the stalk is split and the region of the node is moistened with a solution of potassium sulphocyanate, a reddish color will be observed. The author has made an extensive series of tests with this method and finds that it is of diagnostic value only in cases of soils extremely poor in potash. (*Facts about Sugar*, Vol. 28 No. 10).

Comparative Growth-Promoting Value of Various Protein Foods. In spite of the amount of research that has been carried out on this subject it is not yet possible to assign a definite characteristic co-efficient to each of the protein feeds. F. Ferrini and Simone Valla have taken up the question with a view to obtaining accurate information regarding the quality of the proteins contained in each foodstuff Young pigs weighing about 15 kg were used for the experiments and 18 different feeds. The test covered 5 periods of about a week, during which the rations contained always the same amount of nitrogen and were rich in glucides (150 calories approximately) salts and vitamins. The periods differed only in the nature of the nitrogen-containing elements: skim milk in the first and third periods and one of the substances under study in the second. Calculations were made of :— (1) the coefficient of digestibility (N absorbed/N ingested X 100)—(2) co-efficient of retention (N retained/N absorbed X 100)—(3) coefficient of practical utilisation (N retained/N ingested X 100). The results obtained, expressed in tabular form, make it possible to draw a number of conclusions, the chief of which are as follows :— (1) The purchase and use of a protein feed for livestock must be based on the proportion of proteins that the organism is capable of utilising for the renewal of its tissues. The utilisation of nitrogen may vary in the ration of 1 to 3. (2) A mixture of skim milk and starch (e. g. cassava) supplemented by the necessary mineral substances and vitamins constitutes the optimum growing ration. (3) Among protein feeds, the total albumins of milk and casein give the best results. Among the cereals, barley shows a marked superiority; wheat is mediocre. The proteins of wholemeal wheat flour (Graham meal) were found greatly superior to those of more refined flours. The lower digestibility of Graham flour in comparison with refined flour, which is due to its higher content in inert substances, is far from counterbalancing the advantages conferred by the better utilisation of its proteins in the metabolism of the animal. The luxury flours have the lowest nutritive value. (4) The proteins of the Leguminoseae, as those of the cereals, show marked variations in the co-efficients of utilisation and retention of the nitrogen. Those that are worthy of consideration are soya bean and groundnut meals, the proteins of which have an equal growth-promoting value to those of wholemeal flour. (Abstracted by G. S in the *International Review of Agriculture*, Vol. XXIV, No. 9, pp. 395 T).

Gleanings.

A note on cotton of which the Farmer Dacca muslins were made, by *S. R. Deshpande, (T. U. of Bombay* 1—4—33 P. 401) Documentary evidence regarding the famous Dacca cotton is mostly contained in the East India Company's Papers. The first Dacca cotton was grown in a small area of about 40 miles in length by less than 3 miles in breadth along the banks of the Megna, about 20 miles from the sea. It was used mainly for the manufacture of the muslin and was never exported. The cotton finaly disappeared, mainly because of deterioration caused by bad handling, picking, and misusing. Reported as a note in *Empire Cotton growing Review*, October 1933 Vol. X. No. 4. P 302.

White Hide. The Alum Tanning Process. (1) Soak the hide in clean water for four hours, then run off the dirty water and cover with clean water; leave for twenty-four hours. This should be sufficient for fresh or salted hides. Dry hides should be soaked for a further twenty-four hours, or until they are soft. (2) Remove the hair by soaking hides in milk of lime—30 lb. lime per 100 gallons water. Handle each day, and leave until the hair can be removed—about six to seven days in summer. (3) Remove all flesh and fat by scraping with a knife. Wash well with several lots of water during the twenty-four hours after removing the hair and pieces of flesh, fat, etc. (4) Tan in a solution of alum (5 lb.), salt (1½ lb.), Glauber salt (1½ lb.), and water (10 gallons). Use enough of the solution to cover the hides. Handle twice daily and allow six days for tanning. (5) Drain well from the alum and salt solution, but do not wash; then cover both sides with fish oil or neatsfoot oil, and hang up and allow to dry slowly. Tanners have a machine for forcing the oil fats, etc., into the hide. (6) When dry, stretch until soft. If dry skins are difficult to stretch, sprinkle with water and cover for two days; again stretch and dry.

Alum-tanned leather is sometimes covered with a paste instead of oil before drying. The paste is made up as follows:— 5 lb. flour, 2½ lb. alum, 1 lb. salt, 1 lb. neatsfoot oil, 1 to 1½ gallons water. Mix the alum and salt with water and then the flour and oil in a separate basin. Add to the flour and oil sufficient of the alum and salt solution to make a paste. Put the hide and paste into a tub, and handle the hide vigorously so as to force the paste into the leather. Hang the leather up and allow it to dry slowly without removing the paste. If the leather is too firm, rub on more fat, such as soft dripping, etc. If possible, stretch the leather just before it is quite dry. After stretching, it can be nailed on a wall or similar surface. (*Agricultural Gazette of N. S. W, October 1, 1933).*

Oil from Seeds of Indian Figs. The fruit of *Opuntia Ficus-indica* contains about 36% of rind, 61% of pulp and 3 to 4% of seeds; the seeds contain 8 to 10% of a semi-siccative oil with a specific weight of 0·929, saponification index of 189 and iodine index of 116. The oil may be extracted as in the case of other seed oils such as tomato, for example, by submitting the pulp to a continuous pressure (Egrot and Etrange, Olier, etc presses) or by using various solvents (trieline etc). Where the collection of a considerable quantity of seeds, as a waste product of the industrial treatment of the fruit, is possible, refined Opuntia oil may be successfully used, after boiling in the presence of catalysts (resinate of lead, cobalt, etc.), for the preparation of good quality varnish. Further, the possibility of destearinating the oil and removing the linoleate by freezing would make the oil suitable for a number of other uses, including food. Voltolysed and hydrogenated Opuntia oil will form a good lubricant when mixed with other mineral and vegetable oils (palm oil, olive oil, castor oil etc.). (*International Review of Agriculture, September 1933).*

A Few Hints on Sharpening a Steel Ploughshare. Build a fire on the forge suitable for this particular work. This is done by banking the fire, allowing only a small opening in the side for the blaze and heat to escape. Commence with the point of the share. Insert this into the fire just far enough to heat the part you wish to draw, never permitting the heat to extend farther back on the share than is absolutely necessary. Draw this down to the proper shape and thickness, which should be as near the original level as possible. After the point has been finished, work back toward the heel or wing of the share, never heating more than 1½ inches from the edge and 2½ inches wide. It is important to keep hammering after the steel has changed from a red to a black heat, as this makes the edge tough and hard, giving a wearing surface that will last much longer. If once down the share is not sufficient, reheat; but confine the heated part to the foregoing measurements. In working along the cutting edge, keep it straight. In so doing you will avoid having to go back and reset the edge. After a *solid steel share* has been set as instructed, it should be reheated to a cherry-red and left to cool in the air; *it should never be submerged in water or oil.* (*Agricultural Gazette of N. S. W. October 1, 1933*).

Rao Bahadur C. Tadulingam Mudaliar, F. L. S.,

Retired Principal, Agricultural College.

Mr. Chinnakavanam Tadulingam, Principal, Agricultural College, Coimbatore, was born in October 1878. He comes of an ancient, respectable and influential Mudaliar family of Madras. Born in the Vellala community which is pre-eminently an agricultural community and bred up in an agricultural atmosphere he rightly entered and has been serving in the Agricultural Department for over 32 years. He had his education in the Hindu High School, Triplicane, and in the Presidency College, Madras. He is a student of the eminent Biologist Dr. (now) Sir Alfred Bourne, F. R. S. and in the B. A. Degree Examination held in December 1900 took the first place in Botany.

He was selected by the late Mr. C. A. Barber, C. I. E., the then Government Botanist and put in charge of the Madras Herbarium of which Dr. Barber was the Head. Mr. Tadulingam joined his appointment in Ootacamund in April 1901. The Herbarium was shifted to Madras in June 1902 and from there again to Coimbatore in June 1909 and Mr. Tadulingam's scene of activities likewise changed, first to Madras and later to Coimbatore. He has therefore been in Coimbatore for about twenty four years. From 1910 he was also teaching Botany at the Agricultural College.

During the earlier years of his service, when the Herbarium was attached to the Botanical Survey of India, he explored the various floristic regions of the Madras Presidency from Ganjam to Cape Comorin. In this connection he ransacked the forests of Travancore and very largely added to the botanical collections which have formed the basis of the Classical Kew Publication, Gamble's Madras Flora. In the course of his study of weeds and fodder grasses of Southern India he discovered several species new to science and has described them

in well known Botanical Journals. Being one of the earlier workers in the investigation of spike disease in Sandal-wood, he made special studies of its root parasitism in the sandal zones of Mysore and in doing so made some interesting finds in the family Olacaceae which showed similar characteristics.

He gave a paper on "Madras Flora" to the Indian Science Congress for its Madras Session in 1915. "A new Species of Senecio" was the subject of another contribution of his to the Science Congress which met again in Madras in 1926. He has also been responsible for several publications of botanical interest and is the joint author of "A Hand book of Some South Indian Grasses" (1921) and of "A Hand Book of Some South Indian Weeds" (1932) which have been very well received by botanists of world reputation in England.

Mr. Tadulingam was made a Gazetted Officer in 1918 with the designation of the Assistant Lecturing and Systematic Botanist and in his capacity of Assistant Principal—which additional duties also he was discharging at frequent intervals during the years 1920, 1921 and 1922, —he gained experience as an administrative officer. He was promoted to and confirmed in the Indian Agricultural Service in 1923 as Lecturing and Systematic Botanist.

He is the first wholetime Principal of the Agricultural College, having been appointed to that post in May 1927 when the new Reorganization Scheme was given effect to. Being put in entire charge of teaching and in sole control over the Central Farm, the Botanical Garden and the College Estate and over the Centralized Office he has had to do a lot of spade work with tact and patience and the success which attended his efforts at the end of the very first year of his tenure of office as Principal was so very striking that the Head of the Department wrote in his Administration Report that the "Principal (Mr. Tadulingam) is to be congratulated on the way in which he has carried out all these changes (brought about by the Re-organization Scheme) without a hitch and on the smooth running of the College and the Estate. Though he has a Vice Principal to help him, he has undoubtedly been hard-pressed more especially as he has doubled his duties with those of the Systematic Botanist."

Other lines of activities have also found in him a zealous and willing worker and warm supporter. He was Honorary Warden of the Agricultural College Students' Hostel for three successive years. He was the Secretary of the Madras Agricultural Students' Union for two terms, Vice President for six terms and has been President with one interval since 1927. It was during his Secretaryship the financial foundations of the Union were laid strong and deep and stability secured. He is the elected President of the Officers' Club at the Agricultural College and has held that position on seven occasions since

1920. He is the President of the Lawley Road Public Servants' Co-operative Society. He has been one of the Vice Presidents of the Indian Officers' Association, Madras, for several years. He has been a fellow of the Linnean Society of London since 1915. He is a member of several University authorities of the Madras and Andhra Universities and Chairman of the Board of Studies and of Examiners in Agriculture, Madras University. He is a member of the Annamalai University Committee for selection of students for post-graduate course at the Imperial Agricultural Institute, Pusa. For a second time the Inter-University Board of India has elected him as its representative on the Advisory Board of the Imperial Council of Agricultural Research. The Andhra University appointed him as the Commissioner to inspect the Rajah's College, Parlakimedi and report on its suitability for affiliation to the University in Agriculture in the Intermediate Examination. He was one of the members of the Committee which in 1929 examined the conditions necessary for securing an Agricultural bias in boys in rural schools. He has just finished his labours as one of the two members of the Bombay University Inspection Committee of the Agricultural College, Poona. Having been a keen Cricketeer in his earlier age, he has maintained his love and enthusiasm for sports and games and has been a prominent figure in all the sports activities in this town, and has donated a cup to be competed for in an Inter Tutorial—Cricket Tournament at the College. He has been taking an abiding interest in the Scout Movement since its inception. He is a Freemason. He was worshipful Master of Lodge Ampthill of Coimbatore in 1922. By temperament and training a pious man Mr. Tadulingam has been the Trustee of a very ancient Ganesa Temple in Triplicane since 1914.

By dint of merit, honest and industrious work, intense loyalty and uprightness both in Government Service and in his unofficial capacity extending over 32 years, Mr. Tadulingam has risen to the high position which he occupies to-day. Government recognised his services with the award of a ' Rao Bahadur ' in the New Year Honours List, in 1933.

What exactly is the secret of the success which so markedly characterised every one of Mr. Mudaliar's innumerable activities—official and unofficial—during his long period of service in the Department ? Geniality of temperament, easy accessibility to high and low, extreme tact in handling delicate situations, and a cheerful encouraging smile to all and sundry—these have been the traits of Mr. Tadulingam. If the " art of gentle persuasion " could be imagined to be personified, then that person is certainly Mr. Tadulingam. His is, indeed a remarkable personality ; not the personality that awes and subdues, but a magnetic one that cheers and wins. The feelings that he engendered in the hearts of his colleagues, subordinates and

students on his inevitable retirement, may well be gauged, from the following incident on the platform, when on the eve of his departure to Madras, an unprecedentedly large crowd had gathered at the Railway Station to bid him farewell. The Blue Mountain Express was a few minutes late that day, and some students were overheard to remark, how they wished the train could be delayed till March 1934, so that they could still have their beloved Principal with them, at least till then!

He has retired from active service in the Department, but we who have moved with him know only too well that his active, helpful temperament will not allow him to sit idle. The scene of his labours will get changed, the sphere of his activities, will become wider still, and in this new life, more successes will crown his efforts, and greater honours will be showered on him while he with his dignified yet simple and cheerful smile, will shed love and happiness far and around. May God bless him with many more years of health and cheerful service!

College News & Notes.

Games. *A return visit.* The Salem United Club paid a return visit to us and were here as our guests for two days on the 4th and 5th November. The club played a series of matches in tennis, cricket and football with us on the 5th. In tennis our College played a number of matches but sustained defeat due to the superior talent and calm game of our opponents, though Moncey Joseph our local champion put up a good fight in his singles match with Varadarajan and lost narrowly. In cricket we took the field without two of our regulars, Albuquerque and Thomas who were unavoidably absent. Batting first we scored 74 of which Ramanatha Rao made 31 and Ananda 23. The club in their turn passed our total losing only 5 wickets. Continuing they had made 98 runs for the loss of 7 wickets when stumps were drawn for the day. Narasinga Rao took 4 wickets and Ramanath Rao 2. The last game with the visitors was in Football and happily we managed to win here at least with a margin of 3 goals to nil. C. Parthasarathy played a brilliant game and scored all the three goals.

Hockey. *The Parnell Cup.* The inter-class hockey Tournament for the Parnell cup provided more than passing interest. In their first match in the first round class iii beat class i by one goal and repeated their success in their encounter with class ii. The match between class ii and class i ended in a pointless draw. In the second round class iii again defeated class i this time by 3 goals. Class i sustained another defeat at the hands of class iii by 3 goals to 1 in their second match with class ii. The match between classes ii and iii was not played because the latter who secured the maximum number of 6 points annexed the cup.

The Coimbatore Hockey Tournament. In this tournament which is on the knock-out system our first match was against the Forest College which came off on the 27th of October. Our college won comfortably by scoring 2 goals against nil and qualified for the finals. In the finals we met Stanes European High School on the 30th of October, and though leading by one goal in the early stages of the game we sustained a heavy defeat scoring only 2 goals as against their 6. Though defeated we have to our credit a well fought game.

Health week Football Tournament Due to some misunderstanding in the arrangement of our first match with the London Mission High School and the unsuitability of other dates fixed we did not find it convenient to participate in the tournament and consequently withdrew.

Tennis. The American handicap Knock-out Doubles tournament has commenced and is now in full swing. The number of entries this year is poor due to the running of the tournament on the Knock-out system which results in the entire elimination of poorer players from the tournament in the early rounds.

Address to Rao Bahadur M. R. Ramaswami Sivan. The students entertained Rao Bahadur M. R. Ramaswami Sivan at a grand dinner and presented an address to him expressing their gratefulness to him for the great help he has rendered and is rendering for the betterment of the students of this College.

The retirement of Rao Bahadur C. Tadulingam. Mr. Tadulingam who retired from active service on 23rd October 1933, was the recipient of several tea parties and dinners got up in his honour, on the estate and in Coimbatore Town. The Officers club the Principal's section, the Indian Officers Association (Agricultural Branch), the Fieldmen's Association, the Students club, the Botanical Garden Staff, the Systematic Botany staff, and the District Agricultural Association, Coimbatore, all did honour to him, and it was very kind of him to have stayed on for three days after his retirement and given these several bodies an opportunity to bid him farewell which for several reasons they could not do the previous week. On Friday the 27th, the day he and Mrs. Tadulingam left for Madras, unprecedented scenes were witnessed at the railway station. The student population and many friends of Mr. Mudaliar in the estate and the town were present, and Mr. and Mrs. Mudaliar took leave of every one individually. The students particularly had mustered strong and lining up in two rows, enabled Mr. and Mrs. Mudaliar to pass with garlands on, along the rows, affording every one to pay his respects and give his good wishes to them. Even as the train was steaming out of the station, cheers were being proposed and responded to enthusiastically and several officers even accompanied Mr. and Mrs. Mudaliar as far as Podanur.

Sugar Committee. By becoming the venu of the Sugar Committee of the Imperial Council of Agricultural Reseach, which met at the Imperial Sugar-cane Breeding Station, Coimbatore, from the 14th to 17th November 1933, the station and the estate were quite active during the three days, with meetings, parties and lectures. Sir T. Vijayaraghavachariar attended, as President, the Committee meeting. Rao Bahadur T. S. Venkataraman, Sugarcane Expert, Mr. S. Sundraraman, Principal in-charge, and the Indian Officers Association (Agricultural section) were 'At Home', to the Sugar Committee on the evenings of the 14th and 15th and 16th respectively.

During the Sugar Committee's visit, films taken by the department, featuring departmental activities, like students at practical work, the working of implements, like the disc plough, the College Dairy, the sugarcane crop at Anakapalle, and cream jaggery manufacture. were shown to the visitors in cinema show. Some of the pictures, especially those relating to cream jaggery were good and appreciated by the Director of Agriculture and others.

Change in Principalship. Pending the arrival of Rao Bahadur D Ananda Rao, Principal designate at the end of the month Mr. S. Sundararaman, the Government Mycologist is holding charge of the office in addition to his own duties.

The Upper Subordinates Association. The Annual tea and General body meeting of the Association was held on Sunday the 22 October 1933, with Mr. S. N. Chandrasekharan, M. A. in the chair. After reading and adoption of the Annual report, the following office bearers for 1933—34 were elected. Mr. K. M. Thomas, *President*;

Mr. C. Srikhnaswami, *Secretary*. Messrs S. Narayanaiah, T. Rajagopal Iyangar and A. Chidambaram Pillai, *Committee Members*. A number of important resolutions were discussed and passed.

The Fieldmen Association. At a meeting of the above Association held during October. Mr. S. Sundararaman was elected President of the Association in place of Rao Bahadur C. Tadulingam, who has left the estate, consequent on retirement.

The Association of Economic Biologists. There was another meeting on the 24th November, when Mr. V. Ramanatha Ayyar, and Mr. R. Sankaran presented papers on "The Problem of Selection in Hybrid Progenies" and on "Some Aspects of Drought Resistance with special Reference to cotton". Brief reports of these meetings will be published in a later issue of the journal.

Advantage was taken of the large number of distinguished visitors attending the Sugar Committee meeting, by the Above Association to arrange for two meetings on 14th and 15th respectively, at the first of which Mr. B. C. Burt, B. Sc. C. I. E., Agricultural Expert to the Imperial Council of Agricultural Research, spoke on *The position of Pulses in Indian Agriculture*" and at the second Mr. D. B. Sethi B. Sc. Director of Agriculture, Bihar, spoke on "Research and Agriculture"

Review.

Soviet Economics. A Symposium edited by Dr. Gerhard Dobbert and translated from the German by Malcolm Campbell, John Lane, The Bodley Head Ltd., London. Price 4 s.

As stated above this book is a Symposium of 14 articles on practically all aspects of Soviet Economics, contributed by various authors including professors and journalists who have lived in Soviet Russia for several years. Being foreigners these authors have given very clear and impartial observations on the different aspects of the economic life of the people under the new regime of the Union of Socialist Soviet Republic. Soviet Russia has indeed attained a very great post-war prominence. The world is now taking the keenest interest, in the working of the Soviet republic. in that it has revolutionised society and launched upon schemes of unparallelled magnitude and far reaching effect. The essays given in this book include those on planned economy, organisation of economic life, captains of Soviet industry, agriculture, finance, transportation, trade, social problems and foreign assistance. The editor of the publication promises more books of this sort and they are certainly welcome.

A perusal of this book gives us a clear idea of the conditions prevailing in the country before the war and the unsettled conditions that prevailed after the war and how Lenin and his compatriots brought about order out of chaos making it possible the inauguration of the communistic domination and the planned economic revival about which we have been hearing so much of late. The second Five-year Plan dating from January 1st, 1933. looks forward to "The final liquidation of capitalist elements and of classes in general, the complete destruction of the causes which gave birth to class differences and exploitation and the overcoming of the survivals of capitalism in economics and in the consciousness of the people the transformation of the whole toiling population of the country into conscious and active builders of socialism. '

The defects and the negative effects of the Five-Year Plan have also been effectively brought out, in this. book. The cost of production has become very high and owing to defective and undeveloped transportation system and due to

over-anxiety for large export, there has not been enough food for the people in the country for several years. "The State apparatus is still too cumbersome and too expensive; year in year out the printing presses turn out mountains of verbose decrees, instructions etc." "Moscow strikes the foreign visitor as being a city composed entirely of office buildings." The achievements have however been great with unexpectedly favourable results. The collectivisation of farms for agriculture has progressed and there are more than 3000 machine tractor stations each having more than 100 tractors. In July 1931 there were 121 research institutes employing 27000 research workers. In the words of a Russian we can sum up the progress of Soviet economic organisation as follows:—We are going ahead fast enough, but we are racing along a dark road with blinded head-lights." The book affords interesting as well as instructive reading. S. V. D.

Crop & Trade Reports.

Statistics—Paddy Crop 1933-'34. *First Report.* The average of the areas under paddy in the Madras Presidency during the five years ending 1931—32, has represented 13·3 per cent. of the total area under paddy in India. 2. The area sown with paddy up to the 25th. September 1933 is estimated at 7,479,000 acres. When compared with the area of 7,618,000 acres estimated for the corresponding period of last year, it reveals a decrease of 1·8 per cent. 3. The decrease occurs mostly in the Circars (Ganjam and Vizagapatam excepted), Chingleput (—110,000 acres) Chittoor. North Arcot and Ramnad. The reduction in Chingleput may be attributed to insufficient rains at sowing time. 4. First crop paddy is being harvested in parts of Coimbatore, Trichinopoly and the South and on the West Coast. The yield is expected to be normal except in parts of Tinnevelly where the crop was adversely affected by rains. The condition of the standing crop is satisfactory except in parts of the Carnatic where the crop was affected by drought to some extent. 5. The wholesale price of paddy per imperial maund of 82 2/7 lb. as reported from important markets towards the close of September was Rs. 2—10—0 in Kurnool, Rs. 2—5—0 in North Arcot, Rs. 2—3—0 in Cuddapah, Nellore and South Kanara, Rs. 2—2—0 in Salem and Madura and ranged from Rs. 1—8—0 to Rs. 2 in the other districts.

Intermediate monthly report. The harvest of first crop paddy has either concluded or is concluding in Trichinopoly, the South and the West coast. The yield has been reported to be normal in Tanjore and in the other districts slightly below normal due to heavy rains at harvest time.

The condition of the standing crop is satisfactory in most of the districts. In parts of the districts of East Godavari, West Godavari and Kistna, the crop is reported to have been affected to some extent by floods. In parts of the Carnatic, Chittoor and North Arcot the early sown crops were affected by drought to some extent.

2. The wholesale price of paddy per imperial maund of 82 2/7 lb. as reported from important markets towards the close of October was Rs 2—10—0 in Kurnool, Rs. 2—3—0 in Cuddapah Rs. 2—2—0 in Nellore and ranged from Re. 1—6—0 to Rs. 2 in the other districts. When compared with the prices reported for September 1933, these prices are stationary in Kistna, Guntur, the Deccan, Trichinopoly, Tinnevelly and Malabar. They are lower by 19 per cent. in Madura, 13 per cent. in North Arcot, 9 per cent. in South Kanara and 3 to 6 per cent. in most of the other districts.

Sugarcane Crop. *Second Report.* The average of the areas under sug rcane in the Madras Presidency during the five years ending 1931—'32, has represented 3·6 per cent. of the total area under sugarcane in India. 2. The area planted with sugarcane up to the 25th. September 1933 is estimated at 113,500 acres. When compared with the area of 117,100 acres estimated for the corresponding period of last year, it reveals a decrease of 3 per cent. 3. The decrease occurs in all districts outside the Circars, Bellary, Chingleput, Tanjore and the West Coast and may be attributed to low prices for jaggery. The decrease has been marked in South Arcot, North Arcot and Trichinopoly. In the Circars the area rose by about 10 per cent. from 45,390 acres to 49,800 acres due chiefly to the impetus given by the prospect of the opening of sugar factories. 4. The condition of the crop is satisfactory except in South Arcot where it is reported to have suffered from stem-borer to some extent. If the season continues to be normal in the remaining portion of the growing period, the yield is estimated at 322,260 tons of jaggery against 330,860 tons for the corresponding period of last year. 5. The wholesale price of jaggery per imperial maund of 82 2/7 lb. towards the close of September was Rs. 5—2—0 in Erode (Coimbatore), Rs. 4—6—0 in Bezwada and Rs. 3—6—0 in Vizagapatam. It ranged from Rs. 3—10—0 to Rs. 4 in the other important districts.

Statistics—Groundnut Crop. *Third Report.* The average of the areas under groundnut in the Madras Presidency during the five years ending 1931—'32 has represented 51·5 per cent. of the total area under groundnut in India. The area sown with groundnut up to the 25th. September 1933 is estimated at 3,211,200 acres. When compared with the area of 2,986,500 acres estimated for the corresponding period of last year, it reveals an increase of 7·5 per cent. 3. The increase is general outside Ganjam, Kurnool, Cuddapah, North Arcot and Tanjore and may be attributed to the receipt of timely rains at sowing time. The individual areas in Kistna, Guntur, Bellary and Coimbatore are in excess of the final areas in those districts in any of the previous years. 4. The summer crop throughout and early crops in parts of Coimbatore have been harvested. The yields were normal. 5. The condition of the crop is generally satisfactory. The crop was affected by drought to some extent in Nellore and Salem and suffered from an attack of hairy caterpillar in parts of Ganjam, South Arcot and North Arcot. 6. The wholesale price of groundnut shelled, per imperial maund of 82 2/7 lb. as reported from important markets towards the close of September was Rs. 4—2—0 in South Arcot (Cuddalore), Rs. 3—11—0 in Vizagapatam and Rs. 3 to Rs. 3—5—0 in the other districts. When compared with the prices reported in August 1933, prices have fallen from 6 to 12 per cent.

Statistics—Gingelly Crop. *Second Report* The average of the areas under gingelly in the Madras Presidency during the five years ending 1931—'32, has represented 12·3 per cent. of the total area under gingelly in India. 2. The area sown with gingelly up to the 25th. September 1933 is estimated at 532,200 acres. When compared with the area of 549,500 acres estimated for the corresponding period of last year, it reveals a decrease of 3 per cent. 3. The decrease is general except in the Circars, South Arcot, Coimbatore, Ramnad and Tinnevelly. It is marked in Anantapur, Chingleput and North Arcot. 4. The early crop of gingelly has been harvested in parts. The yield was about normal. The condition of the standing crop is satisfactory except in Anantapur, Chingleput, South Arcot, Salem and South Kanara. Attacks by insects are reported from Anantapur.

Weather Review (OCTOBER—1933)

RAINFALL DATA

Division	Station	Actual for month	Departure from normal	Total since January 1st	Division	Station	Actual for month	Departure from normal	Total since January 1st
Circars	Gopalpore	15·3	+7·5	51·8	South	Negapatam	7·9	−2·5	23·3
	Berhampore *	12·2	+2·2	58·1		Aduthurai *	6·6	−2·4	20·2
	Calingapatam	8·6	+1·9	42·7		Madura	5·9	−0·8	28·8
	Vizagapatam	10·3	+3·3	26 9		Pamban	6·3	−2·7	13·2
	Anakapalli *	9·5	+0·6	44·8		Koilpatti *	8·9	+1·3	19·6
	Samalkota *	6·9	+1·9	31·7		Palamkottah	7·4	+0·7	22·5
	Cocanada	8·3	+0·6	31·1					
	Maruteru *	8·7	−2·7	39·1					
	Masulipatam	9·1	+1·1	37·0	West	Trivandrum	15·1	+4·7	112·9
	Guntur *	3·8	−1·8	24·9	Coast	Cochin	10·6	−2·2	148·2
						Pattambi *	14·2	+2·9	136·2
Ceded Dists.	Kurnool	5·4	+2·0	24·0		Calicut	14·9	+5·0	165·1
	Nandyal *	4·4	+0·8	30·0		Taliparamba *	15·3	+4·1	187·0
	Hagari *	2·7	+0·3	24·4		Kasargode *	8·9	0·0	159·4
	Bellary	5·8	+2·2	35·1		Nileshwar *	13·4	+4·3	167·0
	Cuddapah	3·3	−1·6	20·3		Mangalore	13·8	+6·6	158·9
	Anantapur	4·5	...	26·1					
Carnatic	Nellore	20·6	+12·3	33·1	Mysore and Coorg	Chitaldrug	8·1	+3·9	36·0
	Madras	9·8	−1·7	18·9		Bangalore	8·1	+2·4	38·9
	Palakuppam *	6·5	−3·3	25·3		Mysore	7·4	+1·2	37·7
	Palur *	4·6	+1·5	31·2		Mercara	9·9	+1·4	158·5
	Cuddalore	3·7	−7·0	26·0					
Central	Vellore	4·5	−1·6	19·1	Hills.	Kodaikanal	10·7	+1·3	62·5
	Salem	11·0	+4·0	43·1		Coonoor *			
	Coimbatore	7·0	+0·7	24·0		Kallar *			
	Coimbatore Res. Inst. *	9·0	+3·0	26·2		Ootacamund *	10·5	−1·4	58·6
						Nanjanad *	7·2	−0·5	52·3
	Trichinopoly	8·5	+1·8	30·6	Central	Hosur cattle farm *	6·1	+5·7	26·6

* Stations of the Agricultural Dept.

Summary of General Weather Conditions. The favourable indications for the onset of the north-east monsoon which were prevailing during the end of September did not persist long. Till the 13th. the south of Madras experienced very heavy local thundershowers but without the least sign of the approaching monsoon.

In the absence of the monsoon, under the influence of four depressions which developed from time to time after the 12th. both in the Bay of Bengal and the Arabian Sea, the whole of India experienced a fairly well-distributed rainfall with marked excess in places. This unsettled weather conditions prevailed well over a fortnight, this in a more intensified form along the North Madras and the Coromandel Coasts, with local heavy precipitation of rain causing considerable damage to crops and dislocation of railway traffic on account of breaches.

The western disturbance which caused clouds along the North-west Frontier and Kashmir on the 12th. resulted in widespread thunderstorms and recurved eastwards on 15th. after causing dust-storms and showers in Kashmir and the United Provinces. The second one was a shallow depression of sufficient importance which formed in the Bay of Bengal to the South of the Andamans on the 13th. This moved north west-wards and developed into a storm on the 15th.

being centred within 100 miles off Cocanada. The storm crossed the coast on the morning of 18th. between Masulipatam and Cocanada into the interior and was concentrated as a deep depression near Chanda on the 19th. and moved northwards over East Central India and weakened itself into a diffuse low pressure area on the 22nd. over North Bengal and Assam.

This Bay storm has caused widespread rains of great intensity in its course mostly along the Coastal regions of Bengal, Orissa and Northern Circars. When this depression was active along the East Coast a third one of mild intensity developed in the East Arabian Sea on the 16th. with its centre near Lat. 13° N. Long. 69° E. and disappeared as a feeble and unimportant disturbance. E × A bull in the weather conditions prevailed from 23rd. to 27th. with the exception of a few local thunderstorms in parts of Madras, Mysore and Deccan ×. The last one for the month was another Western disturbance which passed away through Kashmir on the 26th. affecting the weather in the extreme north with a few falls in its course. The last days of the month were marked by unusually heavy rainfall in places along the Coromandel Coast.

The total rainfall for the month was in large excess in Malabar and North Madras Coasts and in slight excess in Mysore and in defect in parts of South-east Madras.

During the month, the humidity was in excess all over the Presidency with a slight deficiency in places for a few days when dry weather conditions prevailed. The maximum and minimum temperatures were below normal.

The heavy falls reported were :— Trivandrum 3·9″ (3rd.), Pechipara (Travancore) 8·6″ (4th.), Cocanada 4·3″ (17th), Gopalpore 4·1″ (19th.), Nellore 8·1″ (29th.), Madras 5·4″ (29th.) and Palamcottah 4·6″ (30th.)

Weather Report for the Research Institute Observatory :

Report No. 10/'33.

Absolute maximum in shade	88·5°
Absolute minimum in shade	62·5°
Mean maximum in shade	84·7°
Mean minimum in shade	69·7°
Total rainfall	9·03″
Departure from normal	+ 3·06″
No. of rainy days	16
Heaviest fall in 24 hrs.	2·52″
Mean daily wind velocity	2·5 M. P. H.
Mean 8 hrs. wind velocity	3·0 M. P. H.
Mean humidity at 8 hrs.	85·5 %
Total hours of bright sunshine	198 hours
Mean daily hours of bright sunshine	6·4 hours

Summary of Weather Conditions : The prevailing pressure was fluctuating considerably, indicative of the North-east Monsoon type of weather. There were numerous thundershowers, the heaviest fall being 2·52″ on the 4th. The rainfall was above normal and the humidity in excess. The absolute maximum and minimum temperatures were below normal. The minimum temperature of 62·5° recorded must be considered to be quite unusual for this part of the year. Days were moderate and nights chill.

C. V. R. & T. S. L.

Departmental Notifications.

I Circle. N. Ramadoss, A. D. Cocanada, l. a. p. for one month from 5—11—33. **II Circle.** J. Suryanarayana A. D. Vinukonda. l. a. p. for one month from 15—10—33. T. Narayana Rao M. A. Millet Assistant, Guntur l. a. p. for 9 days from 9—10—33. The period of leave availed by T. Paramanandam, F. M. A. R. S. Guntur, from 2—10—33 to 11—10—33 treated as l. a. p. Extension of l. a. p. till the end of the month. **III. Circle.** V. Panduranga Rao Assistant, Hagari, l. a. p. for 17 days from 18—10—33. A. Krishnaswami Iyer, A. D. Koilkuntla, l. a. p. for one month from 18—10—33. K. V. Seshagiri Rao, A. A. D. Allagada, l. a. p. on M. C. for 4 months from date of handing over charge. **IV Circle.** T. K. Mukundan F. M. Palur, transferred to Tiruvannamalai to start work in that Taluk. in groundnut marketing. **V Circle,** A. Yesudasan A D. on Van duty l. a. p. for one month from 21—10—33. **VI Circle.** K. Ramaswami Iyer A. D. extension of l. a. p. till 21—12—33 in continuation of leave already granted. **VII Circle.** E. Achuthan Nair, A. A. D. Tellicherry, l. a. p. for 4 days from 4th to 7th October 1933, **VIII Circle.** T. K. Thangavelu, A. D. Gobichettipalayam, l. a. p. for 18 days from 2—10—33. K. G. S. Bhandari A. D. Ootacamund, l. a. p. for 12 days from 9th to 20th October 1933. K. Sivasankara Menon, A. D. Dharmapuri, extension of l. a. p. for 15 days in continuation of leave already granted. K. H. Subrahmania Iyer A. D. Palladam, l. a. p. for 8 days from 4th to 11th November 1933. **Entomology Section.** K. R. Ramamurthy, Artist, l. a. p. for 1½ months from 16—10—33 and A. Govinda Menon is appointed in his place to act. **Millet Section.** P. Krishna Rao, Assistant, l. a. p. for 4 months, half average pay for 8 months and 13 days, and study leave for one year. **Cotton Section.** T. V. Rangaswami Iyer, Assistant, A. R. S, Koilpatti l. a. p. for 20 days from 16—10—33 S. P. Fernando A. F. M. Koilpatti, l. a. p. for 3 months on M. C. from 8—11—33. **Paddy Section.** S. Dharmalingam Mudaliar, Assistant, l. a p. for three weeks from 23—10—33. **D. A's Office orders.** N. G. Narayanan, B. Sc. Ag. to officiate as Assistant in the cotton section in the scale of 75—7½/2—105 vice K. L. Ramakrishna Rao, on other duty. C. K. Ramachandran B. Sc. to officiate as Assistant in the cotton section in the scale of 75—7½/2—105 vice S N. Venkataramanan on leave. N. L. Balasundaram to officiate as Assistant, in the paddy section at A. R. S. Maruteru in the scale of 74—7½/2—105 Vice C. V. Saravayya Chetty on leave. A. Chinnathambi Pillai, offg. A. D. A. Guntur, extension of l. a. p. for one month from 16—9—'33. S. Madhava Rao Assistant, in the Millet section will continue to officiate from 29th. October 1933 till further orders. C. Vijayaraghavan, Upper subordinate, l. a. p. for 6 weeks from 28—10—'33. L. Krishnan whose offg. appointment terminates on 6th. November 1933 will continue to officiate from 7th. November 1933 till further orders in one of the temporary posts. **Gazette Notifications.** Dr. J. S. Patel M. Sc., Ph. D., Oil Seeds Specialist, Coimbatore has been appointed temporary cocoanut enquiry officer, I. C. A. R. into effect from the forenoon of the 22nd August.

ADDITIONS TO THE LIBRARY DURING AUGUST 1933.

A. Books.

1. The Cultivated Plants of Mexico, Guatemala and Colombia. (Russian with English Summary). *S. M. Bukasov* (1930). 2. Adult Education in Agriculture. (Through Evening Schools). *B. H. Fleener* (1932). 3. Tapioca in Malaya. *V. R. Greenstreet* (1933). 4. Flora of the South Indian Hill Stations—Vol. I & II. *P. F. Fyson* (1932). 5. Life and Experiences of a Bengali Chemist—Autobiography. *P. C. Ray* (1932). 6. Indigenous Drugs of India: Their Medical and Economic Aspects. *R. N. Chopra* (1933). 7. The Fauna of British India—Odanata—Vol I. *F. C. Fraser* (1933). 8. The Science of Prices—3rd Edn. *J. A. Todd* (1931). 9.

Indian Economics—2 Vols. *G. B. Jather & S. G. Beri* (1932). 10. History of Services of the Gazetted officers of the Madras Presidency—corrected up to 1st July 1933. (1933). 11. Asylum Press Almanac and Directory for 1933. (1933). 12. The Fundamental Rules and the Subsidiary Rules of the Madras Government —5th Issue—corrected up to 31st May 1933 (Item Nos. 10, 11 & 12 are not available on loan).

B. Reports.

1. Review of Agricultural Operations in India—1929-30 & 1930-31. 2. Report of the Director, Imperial Institute of Agricultural Research, Pusa for 1931-32. 3. Annual Report of the National Institute for Research in Dairying 1932. 4. Annual Report of the Department of Agriculture, Sierra Leone for the year 1932. 5. Annual Report of the Department of Agriculture, Cyprus, for the year 1932. 6. Annual Report on the Agriculture Department, State of North Borneo for 1932 7. Annual Report for the Fiscal year ending June 30, 1932 of the Florida Agricultural Experiment Station. 8 orty-Fourth Annual Report of the Vermont Agricultural Experiment Station for 1930-1931 9. Forty-Fifth Annual Report of the Vermont Agricultural Experiment Station for 1931-32.

C. Bulletins, Memoirs &c.

10. The Preservative Treatment of Estate and Farm Timber. *British Wood Preserving Association Circular 1.* 11. The Farm Debt Problem. *U. S. Agri. Dept. Bur. Agri. Econ. Spl. Publ. 1933.* 12. How to Measure and Use Water for Irrigation. *Pullman Eng. Expt. Stn. Eng. Bull. No. 20.* 13 The Story of Wheat. *Purdue Univ Agri. Extn. Pub. 1930.* 14. Economic Aspects of the Marketing of Honey. *U. S Agri. Dept. Bur. Agri. Econ. Pub. Sept. 1932.* 15. Rice Cultivation; Report on a Visit to Ceylon and South India, with Proposals for Sierra Leone. *Sierra Leone Agri. Dept. Spec. Pub 1933.* 16. Report on the Infestation of Cured Tobacco in London by the Cacao Moth Ephestia Elutella HB. 17. Palestine Orange Shipments. 18 Canned and Dried Fruit Supplies in 1932. 19 The Demand for South African Deciduous Fruits. *Emp. Mark. Boa Nos 67, 68, 69, 70* 20. The Cultivation of Vegetables in Frames. 21. Insect Pests of Crops—1928-31 22. Turkeys. *Eng Mini. Agri. & Fish. Bull. Nos. 65, 66, 67.* 23. Soil Erosion *Imp. Bur. Soil Sci Tech. Comm. 28.* 24. A Brief Summary of the papers published by the staffs of the School of Agriculture and its Associated Research Institutes during the period May 1st, 1932—April 30th, 1933. *Cambridge Univ. School of Agri. Mem. No. 5.* 25 Guide to Experiments and Demonstrations at Askham Bryan Farm, York and in the Country of Yorkshire—1932. 26. Guide to Experiments and Demonstrations at As ham Bryan Farm, York—1933 *Univ of Leeds and the Yorkshire Coun. for Agri. Education Pub. 172, 174.* 27. Nationality of Ownership and Nature of Constitution of Rubber Estates in Malaya. *S. S. & F. M. S. Agri. Dept. Econ. Ser. Pub. No. 2.* 28. Weeds and their Control. *Columbia (British) Agri. Dept. Bull. No. 106.* 29. Mineral Deficiency in the Southern Costal Belt of New South Wales. *New Sout'i Wales Agri. Dept. Sci. Bull No. 42.* 30. The Perennial Cultivation of Cotton with Special Reference to the Cultivation of Ratoons in Egypt. 31. Sand-Sowing in Cotton-Breeding 32. Bee-Keeping in Palestine and i gypt Compared—June 1927. 33. The Branching of Egyptian Cotton Plants. 34. The Natural Crossing of Cotton Flowers in Egypt. *Egypt. Mini. Agri. Tech. & Sci. Ser. Bull. Nos 75, 80, 82, 87, 89.* 35. Agricultural Investigations at the Huntley (Mont.) Field Station, 1927-1930. 36. Curly-Top Resistance in Sugar Beets and Tests of the Resistant Variety U. S. No. 1. 37. The Hessian Fly in the Pacific Northwest. 38. The Parasites of the Sugarcane Borer in Argentina and Peru, and Their introduction into the United States. 39. The Composition and Distribution of Phosphate Rock with Special Reference to the United States *U. S. Agri. Dept. Tech. Bull. Nos. 353, 360, 361, 363, 364.* 40. Preparing Peaches for

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