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Editorial.

The Agricultural Graduate. Six decades ago, the first agricultural college in India, was started in Madras, and we recently celebrated the Diamond Jubilee of the event. Madras can justly feel proud of the progress, during this period, of agricultural education, a clear and interesting account of which as presented by the Director of Agriculture at the Conference, is published elsewhere. Sixty years constitute a considerable span in human affairs and in the process of evolution towards attaining the most satisfactory ideal, there have necessarily been considerable changes in the curricula of subjects taught in the college, in the courses and periods of training given, etc., and it is a matter for gratification that the products of the Madras Institute have played no mean part in the development of agricultural research and education in this province.

During this period changes have also been evidenced in the general outlook of agricultural education and the objects with which instructions were imparted in the College. In the words of the Royal Commission on Agriculture "It is plain that a most important function of the Colleges must be *to train the men required by the agricultural departments as without such men the departments must cease to exist*; but the agricultural student who goes back to his own land after passing

through the college course may be, *individually*, every whit as great an asset to his province as is the student who enters the public service. He has obtained the inestimable benefit of a general scientific training and the result should be to make his own land at once a demonstration centre of approved agricultural practice for the neighbourhood and, if he is of that turn of mind, an experimental centre also."

In the earlier years, with the impetus given to the expansion of the Government Agricultural Departments, both on the research and propaganda sides, by Lord Curzon, practically everyone who passed out of the college was absorbed into the Department, thus proving the Royal Commission's first statement. With the expansion of the department however becoming limited after a certain stage, a large number of graduates are without employment. While we might earnestly wish that these men fulfil in every measure the expectations of the Royal Commission by becoming "assets to their Province," it might not be quite legitimate to measure the success of the agricultural education imparted in the college by the number of men taking to private farming.

In the words of the Royal Commission again, it is the want of the correct mentality rather than the kind of instruction given in the college, that is responsible for graduates fighting shy of private agricultural enterprise. In addition to the mentality there is the inevitable feeling that the enterprise is risky because such complicated problems as availability of suitable land, general financial depression, unsatisfactory marketing conditions etc. induce a mood of hesitancy. We found during the discussions at the conference there were differences of opinion about the reliability of the statistics concerning cultivable waste lands available in the province. The scheme of colonisation with agricultural graduates adopted in Mysore has not proved, we are told, a success in spite of the help and impetus given to the scheme by the State. It is no wonder therefore that the prospect of unemployment is sometimes even more tempting than a risky speculation!

The example of the Punjab however, should merit some attention as the scheme of settling graduates on land has proved a success there within a short period. Here the graduates were each assigned 50 acres of land in a block in the newly opened canal areas with also other facilities such as loan of a small capital on easy terms etc. Here the large areas newly brought under irrigation with the development of irrigation projects, (cultivable waste lands in the real sense) have been made available for colonisation. In our own province new irrigation projects are afoot and we suggest that these will serve as better avenues for settling graduates on land than the so called cultivable waste lands about the suitability of which, for a commercial enterprise very little is known. It has often been mentioned that agricultural graduates not coming forward to take up the cultivation of the

Chintaladevi farm which was closed down in 1932 is an example of the lack of enterprise on their part. It is however, very doubtful whether this could in any way be compared to lands assigned in the Punjab or that might be available when the new irrigation projects are opened in Madras.

Here is an opportunity to test whether it is the mentality of the men or the availability of land with suitable facilities that has not induced graduates to take to private farming. If suitable areas under the new irrigation projects are thrown open for colonisation on moderate terms, we are sure, many of the unemployed graduates will rise equal to the occasion and prove themselves worthy of their *alma mater* and wipe off the stigma of inertia attributed to them.

Granting that the conditions for starting private enterprise are not very propitious at present, may we hope that Government will again examine the question of employing the agricultural graduates in other departments of Government which are directly or indirectly connected with the welfare of rural community such as the revenue, irrigation and co-operative departments. The Royal Commission which examined this question were afraid that if opening in other departments were held out as inducements to enter agricultural colleges, the best men from the college may not be available for the agricultural department. The question of unemployment among the agricultural graduates did not exist then and things have changed considerably since the Royal Commission reported. At the present time when every one, Government included, is actively thinking of schemes of rural reconstruction, this question of utilising the services of agricultural graduates who, by their very training are the most suitable for employment in rural uplift schemes, we feel, requires a more sympathetic consideration on the part of Government.

THE TWENTY-FIFTH COLLEGE DAY AND CONFERENCE

Diamond Jubilee Celebrations.

HIS EXCELLENCY'S VISIT

First Day. At 11-45 A.M. on Wednesday the 29th July, His Excellency the Governor of Madras, Sir K. V. Reddy Naidu accompanied by his personal staff arrived at the institute, and was received by the Minister for Public Works, the Director of Agriculture, the Principal, and the Secretary of the Union. The students of the College, presented a guard of honour. The members of the Managing Committee and the Gazetted officers of the Department were then presented to His Excellency. In the Conference Hall a distinguished gathering of non-officials and officials was present. Among those present were Rao Bahadur A. T. Pannirselvam, Home Member. Rao Bahadur C. J. Paul, Development Secretary, Dewan Bahadur C. S. Ratnasabapathy Mudaliar, Dewan Bahadur T. A. Ramalingam Chettiar, Mr. B. G. Holdsworth, Mr. V. C. Palaniswami Gounder, the Pattayagar of Palayakottai, and the Rajah of Kollengode. On His Excellency assuming his seat on the dais, the Principal moved a resolution congratulating His Majesty the King on his recent escape from danger. Mr. R. W. Littlewood then delivered his welcome address after which the Secretary garlanded His Excellency. Messages from the Viceroy and others were then read by the Secretary. Rao Bahadur D. Ananda Rao, made a speech giving an account of the progress of Agricultural Education in Madras. The Secretary read the report of the Managing Committee. His Excellency then delivered his speech, in the course of which, he reviewed the main activities of the Department, for the last 20 years, and dwelt on the benefits which have accrued to the people of this province thereby. He finished his excellent speech by exhorting his countrymen to put their shoulders to the wheel and do all they can in furthering the splendid aspiration and effort of the noble Viceroy who is determined to help India to the utmost possible extent. His Excellency then distributed the prizes to the various winners. The Director of Agriculture proposed a hearty vote of thanks to His Excellency and the proceedings came to a close.

At 1-30 P. M. Rao Bahadur D. Ananda Rao, gave a luncheon party in honour of His Excellency to which about 40 distinguished guests were invited. At 3-45 His Excellency accorded an interview to the Director of Agriculture, the Principal and the representatives of the estate residents in connection with the supply of Siruwani Water to the College Estate. At 4. P. M. His Excellency went round the exhibition, and was pleased with the effort of the Department. At 4-30 P. M.

His Excellency took tea with the Gazetted Officers of the Department, and left for Ooty at 5-30 P. M.

Second day. The Proceedings began with the unveiling of the potrait of Mr. Wood, by Rao Bahadur D. Ananda Rao. Mr. K. Ramiah in requesting Mr. Ananda Rao to unveil the potrait made a brief speech and gave an account of the Memorial fund. Mr. Ananda Rao in unveiling the potrait referred to the outstanding traits exemplified in Mr. Wood's character, and after a short speech unveiled the potrait amidst cheers.

The Hon. Minister for Public Works, Mr. P. T. Rajan then inaugurated the conference after a few remarks.

The following papers were then read.

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| 1. Our Viceroy and Agriculture. | By Rao Bahadur.
K. S. Venkatarama Iyer. |
| 2. Improvement of Cattle. | „ R. Cecil Wood. |
| 3. Inheritance Studies in <i>Saccharum</i> . | „ Dr. E. K. Janaki Ammal. |
| 4. Agricultural Propaganda. | „ Rao Sahib
N. S. Kulandaiswami Pillai. |
| 5. Studies on the effect of Arrowing
in canes under Coimbatore conditions. | „ K. Krishnamurthi Rao. |
| 6. Sorghum for Popping. | „ Rao Bahadur G. N. Rangaswami
Iyengar and M. A. Sankara Iyer. |
| 7. Research and Propaganda work
in Bee-keeping. | „ M. C. Cherian and
S. Ramachandran. |

The session closed at 11-15 A. M.

Third day. The following papers were presented on Friday the 31st July with the Hon. Mr. P. T. Rajan in the chair.

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| 8 Village guidance in the New Era. | By N. Lakshmanan. |
| 9 Cultural methods of controlling
plant diseases. | „ Rudolph D. Anstead, |
| 10. Soil conditions as affected by
cropping in the black soil area
of the Tinnevely District. | „ Dr. S. Kasinathan and
M. R. Balakrishnan. |
| 11. Some Experiences of the perfor-
mance of Sorghum strains evol-
ved at the Agricultural Research
Station, Nandyal. | „ P. Subrahmaniam. |
| 12. The present position of Nandyal
14 in the northern area. | „ L. Neelakantan. |
| 13. Preliminary studies in Plantain. | „ M. Narasimham. |
| 14. Fruit sucking Moths on Tomato
and their control. | „ M. C. Cherian and
C. V. Sundaram |

The Minister then delivered his address.

The Principal proposed a vote of thanks and the Conference came to a close.

Fourth day. The annual general body meeting was held, at 8-15 A.M. with the Principal in the chair. In the evening the College Day Sports

were held, and the Union was at home to members and visitors. Mrs. R. W. Littlewood kindly gave away the Prizes to the winners.

The celebrations were on the whole a grand success.

Entertainment. On Thursday the students of the college put on boards, four dramas, in Telugu, English, Malayalam and Tamil, which were highly appreciated, by the audience. The Hon. Minister for Public works, graced the occasion by his presence.

On Friday, the Demonstrators of VI Circle staged *Vivasayakandam* a drama written by Mr. C. S. Rajaratna Mudaliar, Mycology Demonstrator. The drama was the prize winning effort of the author, written in connection with the competition instituted by the Department for the best drama dealing with Agricultural Propaganda. The play and songs were very appropriate and the author and the actors, deserve our congratulations.

The Principal's Welcome Speech.

MR. R. W. LITTLEWOOD, *Principal.*

Your Excellency, Ladies & Gentlemen,

In opening my address I must explain that I can only claim a very few weeks' intimate acquaintance with the work in the College and the activities of the Madras Agricultural Students' Union of which I am the ex-officio President. In the ordinary course Mr. R. C. Broadfoot should have enjoyed this privilege and we all miss his presence here to-day.

It is just over a decade and a half since Your Excellency first came into official contact with our Department as its First Minister, appointed from the elected members of the First Provincial Legislative Council. We recall with pleasure your efforts on behalf of Agriculture and Agricultural development in your official capacity then and the older members of this department, I am sure, must still remember with pleasure the various occasions on which they came into contact with you and had the benefit of your sympathetic guidance and help. In 1923 you presided over our deliberations and the encouraging words which you then uttered about the work of the various sections of this department are still remembered. This Union has been following your activities in and out of India with great interest and pride and it is with the greatest pleasure that we now welcome you once again to this College in your present capacity as Governor of this Presidency.

To our present Minister who, although he prefers to be known officially as the Minister for Public Works our welcome is certainly none the less sincere. To the Development Secretary Rao Bahadur C. J. Paul, to our Director of Agriculture Rao Bahadur D. Ananda Rao and to all of you Ladies and Gentlemen who have accepted our invitation I, on behalf of the Union, as well as on my own behalf, extend a cordial welcome. This is a special occasion in that we celebrate this year the Diamond Jubilee of Agricultural Education and the Silver Jubilee of the Students' Union.

By this time next year it is expected that full Provincial Autonomy will have been introduced into this Presidency. How and in what directions it will affect us, it is difficult to say now. But I, as one who has spent all his official career under the transferred half can assure Your Excellency that for the advancement of Agricultural Education and the well-being of the cultivating classes, the members of this Union will extend the same willing and loyal co-operation to the Government of the future as they have done in the past.

Rural reconstruction and village uplift are receiving much greater attention to-day from all quarters both official and non-official and there is no better equipped set of men for this work than the graduates of this College. I hope that Your Excellency may keep this in mind and be pleased to utilise the material available whenever opportunities arise.

I find from the records of the Union that there are still many officers and a large number of them, ex-students of this College who have either not joined the Union or have discontinued their membership. I request you all to remember that during the last 25 years it is mostly due to this organisation that it has been made possible for us to come together annually to take part in these functions. I request all these officers to join the Union at once and to give it their full support.

We are fortunate in having a Viceroy who is a Practical Agriculturist. He has set a very good example for others to follow in purchasing and maintaining three breeding bulls for the use of the ryots to improve their cattle. It is to be hoped that many Zamindars and large land owners in this Presidency will follow his example. Breeding bulls alone will not fulfil this, it is essential that the young stock born to these bulls should be well fed and maintained from birth onwards. The female stock produces all our work cattle and milk and it is imperative to see that they are well fed and maintained. The high position of English Livestock to-day is largely due to the efforts and example of our noblemen and landed gentry in the past. These gentlemen devoted a large amount of their time and money to the development of Agriculture and the improvement of Livestock on their home farms and among the tenants in their estates.

I would like here to congratulate the members of the Coimbatore District Board and especially their President The Hon'ble Mr. V. C. Vellingiri Gounder on their efforts in the improvement of Livestock in this District. There are over 60 premium bulls in the District of which the District Board owns about 40 and proposals to place five Scindi and five Delhi Buffalo Bulls to improve the milking qualities of the cows and buffaloes in towns and villages have also been accepted by the District Board this month.

It is to be hoped that Government will see their way to open more cattle breeding stations in the near future so as to improve the various breeds of cattle and buffaloes in the Presidency, especially the Ongole breed, and to distribute more pedigree stock to the villagers.

The Secretary will shortly place before you a detailed report on the working of the Union for the last twelve months.

My colleagues and I trust that your visit here will be useful as well as pleasurable and that you will carry away with you pleasant memories of our Jubilee Celebrations.

Agricultural Education in Madras.

BY RAO BAHADUR D. ANANDA RAO,

Director of Agriculture.

Your Excellency, Ladies and Gentlemen,

In response to the request of the Working Committee of the Madras Agricultural Students' Union, I have undertaken on this important and unique occasion—the sixtieth year anniversary of the Agricultural Education in this Presidency—to present to you, Sir, a brief account of the past. Ten years ago when the Golden Jubilee was celebrated those who were present on the occasion would have listened to a very succinct account of the history of agriculture in

India traced from a time even prior to the British days. It is therefore, sufficient if I but briefly recall to your minds only the salient points in its history.

Let me for a moment ask you to imagine with me a piece of land entirely sandy in nature infested with prickly pear—free at that time from the molestations of the Cochineal insect—destined to be the site of a Government model farm because it was the only land belonging to Government available in the vicinity of Madras. History tells us that the Superintendent of the farm was a good gardener but with a very superficial knowledge of farming and was assisted by an overseer with no knowledge of farming whatever, one who could neither read nor write but a steady and trustworthy man all the same! Here were laid sixty years ago the foundations for a College of Agriculture—though in the beginning it was only a school located in a granary—for the improvement of agriculture of this Presidency and as in many other things, Madras led the way in being the first in the field in possessing at Saidapet the only College of its kind in all India. The object of that college was chiefly to create a class of men who would go back to the land and carry out the methods of farming on modern lines which was sought to be attained by conducting experiments—varietal, cultural, manurial, and irrigational and by the introduction of new and improved implements and by improving the live stock of the country by conducting experiments in breeding.

The College at Saidapet had a chequered career; it was transferred from the Board of Revenue to the Educational Department, the courses of instructions varied at frequent intervals, candidates were prepared for technical examinations and examined by men who had no knowledge of what was taught at the College or what was required of Agricultural students.

The reorganization of the Agricultural Departments in India in 1904 under the influence of Lord Curzon meant a drastic change in policy. It laid emphasis on the interdependence of research, education and demonstration in the scheme laid out for the amelioration of the condition of the ryot. It at once meant a change in staff, buildings and surroundings as the farm and small laboratories at Saidapet were quite unsuited and inadequate to meet the new requirements of Scientific experts. The curtain was therefore dropped on the scene of activities at Saidapet in 1907 after a course of 31 years and when it was raised again in June 1908 at Coimbatore, we found ourselves established on a broader and more secure foundation.

At Saidapet, it should be mentioned the students were recruited largely from the clerical ranks of the Revenue Department in the hope that these revenue officers after training in the practice and theory of agriculture would diffuse the agricultural knowledge amongst the ryot population. The result was that several students

were too old to profit themselves by the training nor did they go back to land but only as officers of the Revenue department. In spite of the limitations that Saidapet suffered from, there is no denying the fact that it has produced some excellent men who have been the mainstay of the activities of the reorganised department of agriculture. In fact, we have before us men who, faced with new situations rose to the occasion and served the new College loyally, faithfully and efficiently and are enjoying their well-earned physical relaxation. The foundation stone of the new College at Coimbatore was laid by His Excellency Sir Arthur Lawley who declared that the object of the College was the culture of the land and culture of the people who work the land. Since its inception even this college has had its vicissitudes. The single course of 3 years leading to Diploma was dropped in 1914 as it was considered advisable to have two courses—one a thoroughly practical course lasting 2 years known as the Certificate of Proficiency, and another—an extension course of 18 months—called the Diploma course—to a picked few from the successful ones of the short course at the end of which a diploma was awarded. Further changes took place later as a result of the recommendations of a special Committee appointed by Government in 1920 which stated that as the Certificate Course was not popular, the standard of education should be raised in order to attract suitable type of students, and to do so, the College should be affiliated to the University. The Diploma course was, consequently abolished in 1922 and the Certificate Course came to an end in 1925.

The College was affiliated to the University of Madras with effect from the academic year 1920—21 synchronizing with Montford reforms, when you, Sir, were our First Minister for Development. The interest and sympathy you evinced in the welfare of the department during those early years of your connection with us are still green in the memory of those who had the good fortune to come in contact with you.

Intermediate in Science was fixed as the minimum qualification for admission into the College and the first batch of B. Sc. Ags. came out successful in 1923. Several scholarships were awarded in the beginning to attract good students but as the number seeking admission increased, these were restricted to a few.

With the opening of the Freeman Building in 1926 which synchronised with the Golden Jubilee celebrations of Agricultural Education, the number of admissions was raised from 20 to 48 in view of the greater facilities for laboratory and class room accommodation. Free tuition was given till 1932 when the axe of retrenchment rendered it necessary to discover fresh avenues for revenue with the result that students now pay Rs. 120 a year while those belonging to the Native States Rs. 1200 per annum.

The number of graduates that has passed out of the College up-to-date is 344 out of whom 130 are reported to be without employment. As stated already, when the object of the College is to train men to become scientific agriculturists one might well ask why a reference is made to the large number of unemployed graduates. We must, however, face facts. On the one hand, in a poor agricultural country like ours where cultivation is largely in the hands of people who, though experts in their art, have not the wherewithal to spend on permanent and major improvements and who are hard put to it to eke out something by the sweat of their brow, the majority of whom have not yet been influenced by the department to such an extent that it could be said that their general economic condition has been raised and on the other in a country where the educated well-to-do classes have no interest in the land except as a safe investment for their savings and from which class most of our students are drawn, it is perhaps to be expected that the majority of students passing out of the College look forward to appointments in Government or other service.

There is another aspect to this question. The budding lawyer considers it essential to apprentice under a senior before he could stand on his own legs. Similarly, though the agricultural graduate knows the correct methods of farming, he has not when graduating the detailed knowledge of the business side of farming which can be obtained only by experience. He therefore prefers to learn it at the cost of Government. When once he enters service he is caught by its glammers and is loathe to enter the adventurous field of farming. It is therefore in the hands of the agricultural graduates themselves to remedy the defect. How many of the past students of the College who have lands have attempted to undergo training in Government farms or on estates of private gentlemen as honorary workers? I may sound a note of warning. Although there is yet room for the department to expand, there is a limit to it and as years go by and as more graduates become available the country would need more and more experts in modern methods of farming. A time will come when our landed aristocracy and other landowners will take more direct interest in their lands, and would need the assistance of trained men in Agriculture. When there is a demand for such, the department should be in a position to say that not only are there a large number of agricultural graduates available but also men who have gained experience in managing large farms, private or Government. The department will only be too willing to give a helping hand to such as are anxious to supplement their practical training at the College in the way indicated.

Let me now pass on to another aspect of agricultural education. Though it was confined to this one college till 1918 it was felt that there was a need in the districts for schools for sons of labourers

employed in the Agricultural stations in the Presidency. There are only three such schools at Anakapalle, Palur and Coimbatore and one under the control of the District Board at Usilampatti originally intended for Kallar boys. Besides, agricultural middle schools were started in 1922, at Anakapalle and Taliparamba for the sons of landlords but as it was soon found that there was no demand for them they were closed in 1927 and 1932 respectively. Agricultural instruction has also been sought to be imparted in a few schools under the management of missionary bodies but nothing outstanding has been the outcome of these schools so far.

In these days when so much is talked of rural reconstruction it is indeed strange that there are hardly half a dozen schools imparting instruction in agriculture in this Presidency though agriculture has for over 30 years formed a separate subject for examination under the Government Technical Examination scheme and though it has formed an optional subject for the S. S. L. C. examination and has been recognised by the Madras University also as an optional subject for the Intermediate Examination.

However the Government through the suggestion of the Department took another step forward to popularise agricultural education in starting short courses to serve the needs of the sons of well-to-do landowners who are likely to take more than ordinary interest in their lands. They however differ from the old short courses started in 1914 in that the courses are all limited to the cultivation season of the year and that they do not lead to any examination. These were started in 1933 and include courses in Bee-keeping, Dairying, care of animals, malt-making etc., varying in duration from 2 weeks to 9 months. These courses have so far cost Government very little and are reported to be popular judged from the number of applications received but it is too early to pronounce a definite opinion on them. This year the farm management course has been extended to Nandyal and Taliparamba Agricultural Stations as it is felt that Coimbatore cannot cater to the needs of the whole Presidency. It is hoped that if these courses become popular each district possessing an Agricultural station should be able to run similar courses.

So far for the history of agricultural education in this Presidency and the different directions along which attempts are being made to spread it among the masses. Sixty years are but a short period in the history of a nation, and though the achievements are not great, the future is hopeful. This is not the time for despondency. We are in the fortunate position of having a Viceroy who has promised to do all he can to help the lot of the ryot. That he is a gentleman of action is evident from the practical steps he has already taken. There is little doubt that during his tenure of office he would lay the broad foundations for the material prosperity of this Agricultural country

of ours. But in an important matter such as this, to achieve much it cannot rest entirely with one but all those who have the requisite facilities and opportunities should help the cause. I therefore request you, Sir, coming as you do from the farming class, to exert your influence in making the landed aristocracy take a practical interest in the cattle and lands they possess and endeavour their best to improve them.

The Report of the Managing Committee.

Your Excellency, Ladies & Gentlemen,

The Committee beg to express their sense of deep gratitude to His Excellency Sir K. V. Reddy Naidu Garu for graciously consenting to be in their midst to-day, on this most happy occasion when the Union celebrates the Twenty-fifth year of its existence along with the *Diamond Jubilee* of Agricultural Education in India. The Principal and the Director, have in their speeches referred to the great services rendered by His Excellency to the cause of the agriculturist while he was Minister for Development. The Union most heartily endorses their statements and takes this opportunity to tender its respectful congratulations on his appointment as the Governor of the Madras Presidency. For the Union it is a matter of no small amount of gratification, that one who has been closely associated with Agriculture by tradition and office has been exalted to the highest eminence in the Province. It recalls with pleasure the words uttered by him as President of the Conference in 1923 to the effect that whether as a Minister or member, Agriculture would always be dear to his heart, as he believed that its development was one of the best means of bringing about the uplift of the country. True to his word he has given us a proof of his abiding interest in Agriculture by his presence to-day.

The Minister. To the Minister for Public Works the Honourable Mr. P. T. Rajan whom we venture to claim as one of us, the Committee tender their grateful thanks, not only for consenting to preside over this year's Conference but also for the great interest he has been evincing in the affairs of the Union all these years.

The Madras Agricultural Students' Union. It is appropriate on an occasion like this to give an account of the birth and growth of the Union and recall with gratitude the labours of the early founders of this institution whose devoted attention in laying its solid foundations has enabled successive committees to build the superstructure of which we are rightly proud.

The Union, as such, was founded in the year 1911 when the First Conference under its auspices was held under the distinguished Presidentship of Mr. M. A. Couchman, I. C. S., the first Director of Agriculture of this Province; though an association of Agricultural Students was in existence as early as 1885 at Saidapet, the Union was organised as the result of a resolution passed at an informal meeting on 14th July 1910 and was primarily intended as an organisation to bring together in a common bond of interest the past students of the Saidapet Institution and the students of the Coimbatore Agricultural College. The objects of the Union, as set down in the memorandum were as follows:—

1. To create an *esprit de corps* among its members.
2. To exchange opinions and experiences in matters agricultural and to make a record of the same,
3. To act as far as possible as a bureau for procuring employment of the members of the Union and the objects were sought to be attained by the annual

celebration of the College Day and Conference, the conducting of a Journal and the maintenance of a corrected list of addresses of all the past students.

The credit for founding this institution and nurturing it in its infancy is largely due to the labours of Mr. R. C. Wood and his associates, prominent among whom were Mr. (Rao Bahadur) M. R. Ramaswami Sivan, Mr. (Rao Bahadur) C. Tadulingam, Mr. K. Krishnamurti Rao, the late Mr. D'Silva, the late brothers Rao Bahadur Selvaranga Raju and Dharmaranga Raju and our present Director who joined this band a little later.

Since that time, the Union has had to pass through much difficult times but thanks to the sustained efforts of successive committees it has been able to widen its scope of usefulness, and stand to-day in its adolescence, proud of itself as an organisation which serves not merely as an old boys' association, but as a link between the Department and the public. A brief review of the activities of the Union during these 25 years will not be out of place.

The Union Building. To begin with, the Union had no building of its own. Through the kindness of Mr. Wood, the then Principal, two rooms were placed at its disposal in the College Hostel till the year 1924 when with the aid of contributions from members and patrons, and a grant of Rs. 671 from Government, a small building was constructed in which the Union is now housed.

Conferences. The Union has so far organised 24 annual College Day and Conferences. The Union has always been fortunate in the choice of its Presidents of the Conference and many distinguished officials and non-officials have adorned the Presidential Chair. It has had the privilege of inviting His Excellency Lord Pentland, and His Excellency Lord Goschen while they were Governors to preside over the annual conference in the years 1918 and 1928 respectively.

In these annual Conferences, besides the officers of the Department, a few of the leading non-officials of the Presidency, like the Honourable Mr. Vellingiri Gounder and Rao Bahadur K. S. Venkatrama Ayyar, always took a prominent part, and we would take this opportunity to urge all those who are interested in the progress of Agriculture, to come and attend our Conference, and help us with their suggestions and criticisms.

The Journal. Besides the holding of the annual College Day and Conference, the most important activity of the Union has been the conducting of the Journal. The Journal was first published as a Year Book in 1911, and then as a quarterly till the year 1915 when it was converted into a monthly. The publication of a regular monthly was no easy task. The financial resources of the Union, dependent almost entirely on the voluntary contributions of its members, were strictly limited. And added to this was the absence of a good printing press at Coimbatore. But in spite of all these handicaps the Journal sustained by the enthusiasm of those responsible for its production, managed to hold its own, and after a hard period of struggle has been able to reach a stage when it is more or less able to maintain itself, and its regular publication is no longer a cause of anxiety to the Editorial Board.

The Madras Agricultural Journal, the committee are glad to state, is now recognised all over the world, as an important agricultural publication. It has among its subscribers many Zamindars and other enlightened landowners of the Presidency and the Committee have no doubt the Journal has a great future before it.

1935—36. Coming now to the activities of the Union during the year 1935—36, the Committee, have firstly, to record the melancholy event of the passing away of His Majesty King George V. His death cast a gloom over the entire world and the Union shared with millions of His late Majesty's subjects the great

sorrow, and sent a humble message of condolence to the members of the Royal Family. A meeting of the residents of the College Estate was organised by the Union and other associations, and a resolution expressing our heart-felt sorrow at the demise of the late king, and another expressing our loyalty and allegiance to King Edward VIII were passed.

His Excellency Lord Linlithgow. The Union in its last report expressed the hope that the new Constitution would be worked in the interest of the tiller of the soil who forms the backbone of the country. As if in response to its wish, the appointment of Lord Linlithgow came as a welcome surprise to the members of the Union, whose hearts were gladdened that in the New Viceroy at any rate the poor agriculturist would find a sincere friend and well wisher and one who will safeguard his interests. His Excellency, as President of the Royal Commission, has acquired an intimate knowledge of agricultural conditions in India, and what is more important, with deep insight has understood the psychology of the Indian cultivator, as that excellent little brochure of his 'The Indian Peasant' will show. His Excellency has by his munificent acts set an example, which we are sure, will be emulated by all the leading men of this country in putting the welfare of the agriculturist foremost in their thoughts. The subject of cattle improvement on which His Excellency has set his heart, has at his instance received an impetus, and the Union hopes, that before long his cherished desires will become accomplished facts.

Diamond Jubilee of Agricultural Education. The Union was responsible for the celebration of the Golden Jubilee of Agricultural Education in the year 1926 and encouraged by the fact that the Government helped it with a grant of Rs. 1500 at the time, ventured to draw up an ambitious programme for celebrating the Diamond Jubilee this year in the hope that a similar grant will be forthcoming, but owing to the inability of the Government to come to its aid the Committee had to curtail its original programme to a considerable extent and alter it to suit its financial capacity.

Meetings Two meetings were held during the year under the auspices of the Union:—

1. Paddy cultivation in Bengal by Mr. K. Banerji, Rice Research Officer, Bengal.
2. Agriculture in Burma by Mr. K. Ramiab, Paddy Specialist, Madras.

The meetings were well attended.

The Journal. The Committee are glad that the Journal was published regularly during the year maintaining the high standard set up in previous years. The Journal has 800 subscribers of whom nearly 200 are non-officials. If all the members of the agricultural Department subscribe to the Journal the Journal will have on its rolls nearly 1000 subscribers, and it will be possible to effect considerable improvement in its present get up. The Committee takes this opportunity to appeal to all those who have hitherto kept aloof to join the Union and thus augment its resources. The Committee would also respectfully request the Government to render a little financial aid which will help us to increase the usefulness of the Journal.

Last Year's Conference. The Twenty-fourth College Day and Conference was held on Friday the 2nd August 1935 under the distinguished Presidentship of the Revenue Member, the Honourable Mr. (Sir) C. A. Souter. The President in his address laid stress on the need for closer contact between the officers of the Revenue and Agricultural Departments. An account of the last College Day and Conference has already been published in our Journal.

Our friends abroad. Three of our members have gone abroad for further studies. They are Mr. K. M. Thomas, Mr. Kochukrishna Pillai and Mr. S. Ramanujam.

The Union wishes them every success. The Union is glad that Mr. C. Ramaswami, Assistant Director of Agriculture, has been chosen as one of the players in the All India Cricket Team visiting England. We wish him good luck.

M. Sc., Degree. Mr. T. Varahalu was awarded the Degree of M. Sc of the Madras University for his thesis on the Chemistry of Jaggery making.

Retirement. During the year under report, Mr. F. H. Butcher and Mr. T. Lakshmana Rao retired from service. In their retirement the Department loses the services of two experienced and able officers.

Titles. To Rao Bahadur Mr. S. Sundararaman our Vice-President. Rao Bahadur Y. Ramachandra Rao and Rao Sabib C. Narayana Ayyar, Mr. F. H. Butcher, O. B. E the Union tenders its congratulations on the titles conferred on them by the Government in recognition of their services to the Department.

Obituary. The Union sustained a heavy loss during the year in the deaths of Mr. M. Rajagopala Ayyar one of its active members, Sir M. Ramachandra Rao one of its former Presidents and a sincere well wisher of the Agricultural Union, Sir Frederick Nicholson who till his last day was in intimate touch with the Union and Student Dharmarajan, and our heart-felt sympathy go to the bereaved relatives.

Acknowledgments. It is now our pleasant duty to record our thanks to all those who have helped the Union during the year. To Sir Charles Souter the Union owes a debt of gratitude for presiding over the last year's Conference and to Mrs. B. G. Holdsworth our thanks are due for distributing the prizes on the sports day. To Mr. R. C. Broadfoot and Mr. Littlewood who as ex-officio Presidents have identified themselves with the Union, the Managing Committee offers its heart-felt thanks for guiding the affairs of the Union during the year. To Rao Bahadur D. Ananda Rao, the Director, the Committee tenders its grateful thanks for his sympathy and invaluable help rendered in the arranging for the celebrations of the Jubilee. To Mrs. Cherian, Mrs. Charley and Mrs. Raghavan and all those ladies and gentlemen who helped to make the last Conference a success and helped the Committee during the year in many ways, our thanks are herein recorded.

Conclusion. This brings us to the close of our report but before we conclude, the Managing Committee have one more duty to perform and that is to bring to the notice of the public and the Government that a large number of Agricultural Graduates are without employment. The Union has time and again reiterated that the talents of these young men should not be allowed to run to waste. It is a pity, that in a country where almost the entire population is dependent on Agriculture, and at a time when the whole atmosphere, so to speak, is surcharged with enthusiasm for agricultural improvements, the services of these trained men are not harnessed by the State and the people.

His Excellency's Speech.

"Let me thank the organisers for the opportunity they have given me to be here once more in your midst. I say once more, because, as has been told you just now by almost all the speakers that have preceded me, this is not the first time that I come to this place nor am I a stranger to you all. In their generosity, they have been pleased to say very kind things of me for the little assistance that I gave for the humble efforts I made as the first Minister of Agriculture in this province. True, it was my privilege and I may assure you that

I am still proud, legitimately proud, pardonably proud of being the first Agricultural Minister in this province. As you have been told a little while ago in quoting one of my own speeches, I belong to the agricultural community. *Kappu* is my caste. It means an agriculturist. Let me be a Member of Government or occupy some higher place, I shall never be ashamed of being called a farmer or a farmer's son.

Personal Reminiscences. "And now let me turn to the diamond jubilee of agricultural education in this province and the silver jubilee of the Union and congratulate you on attaining this age. You have just now listened to a very excellent account of agricultural education in this province, how from a little school in a granary of a model farm, so called by courtesy, because it was not much more than prickly pear and the sands to which reference has been made, from that state it has developed into this magnificent building in which so many bright and brilliant faces are seen, learning their lessons in agriculture with the object of benefiting what has been called the backbone of the nation. And then the Union's history has been given. But before I refer to the Union, let me refer to one or two personal reminiscences of friends who have come from this very humble school in the midst of prickly pear and sands. Opposite to me sits my old friend, Mr. Sivan, who has come from this very prickly-pear college and yet has risen to occupy the Principal's place in this magnificent building. So did my friend Mr. C. Tadulingam whose absence here we are all very sorry for. As for the Union, you have listened to the excellent work which they have done during all these years. And the journal has been publishing the results of their researches in the College and on the farm of which I should think anybody could be legitimately proud."

"In congratulating you on the progress which you have made. I think it would be of considerable interest, if I were to mention briefly some concrete examples of what the Government has done for the Agricultural Department and of what the Department has done for the agriculturist during the period that has elapsed since the introduction of the Montague-Chelmsford Reforms.

"Figures make uninteresting reading and I will not burden you with them more than I must, but I may point to an increase in the personnel of the Department excluding the Director and his office from 337 in 1921 to 916 this year and in its cost, from under 5 lakhs in 1921 to over 10 lakhs in 1936. Whereas in 1921 we had 164 Farm Managers, Assistant Managers, Agricultural Demonstrators and Assistant Agricultural Demonstrators costing Rs. 1,51,313 we have at present 290 of them, costing Rs. 4,05,796. In 1921 the proportion which the total expenditure on the Agricultural Department bore to the total expenditure of this Province was one rupee in 118. Last year, it rose to one

rupee in 89. Add to this, that since 1921 no fewer than ten new Research Stations have been opened in various parts of the Presidency and I think you will agree that the Government has shown a convincing interest in the progress of the Department.

The Achievements of the Department. "Turning now to what the Department has achieved for the benefit of the agriculturist, I would remark that the aim and object of the Department in general has been to secure increased crop returns, increased fertility of soil and better quality of crop output, both for domestic consumption and for market. To this end, we have our specialists who carry out research into the improvement of specific crops such as paddy, cotton, millet and oil seeds and our other specialists who investigate the cause and cure of crop pests and diseases and delve into the mysteries of the biological, bacteriological and chemical analysis of the plant and the soil and in every branch of its activity, the Department can point with pride to the solid achievements for the benefit of the ryot. Take for example paddy, our most important crop. Here the Department has evolved new strains giving increased yield of from 8 to 25 per cent and has introduced economic methods of planting and improved manurial treatment. In 1921, the total acreage under these various improvements was under seven lakhs. To-day it has risen to nearly twenty-seven lakhs and the gain to ryots resulting directly from these improvements which was in 1921 estimated at some 26 lakhs of rupees is now estimated at nearly a crore and a quarter of rupees. Or again, take sugarcane, the most profitable crop and one that has benefited by research work perhaps more than any other. In 1921 the total area under various improvements recommended by the Department was less than 8,000 acres, to-day it is nearly 90,000 acres which represents almost the whole of normal acreage of land under this crop and the estimated gain to the ryot has risen from something over five lakhs of rupees to as much as 24 lakhs. It is true that the imposition of import duty on foreign sugar is to some extent responsible to this large increase but the influence of the results of research work of the officers of this Department cannot be over-estimated. May I in this connection take the opportunity of congratulating my old friend, Mr. Venkataraman on the splendid work he has been doing.

Gentlemen, I could quote similar figures for our other crops but if I did so, I would weary you. Here in Coimbatore your chief interest is in cotton and you are all familiar with the improved Cambodia strain, which the Department has evolved which gives a clear increase of 15 per cent yield over the bazaar strain. Or, I could mention groundnut whose yield has been increased by as much as 20 per cent or millets, the poor man's food-crops, which are the subject of intensive research into their special peculiarities.

Improvement of Live-stock. "Finally, I would come to the subject of cattle-breeding. For nearly 20 years now, the Madras Government have maintained cattle farms with the object of building up pedigree herds of the best types of cattle with a view to improving cattle throughout the country by means of stock of good stud bulls. Progress has been slow but something has been achieved. Though our experiment with Ayreshire bulls has unfortunately not been a great success, other and local kinds of stud bulls are maintained at the Agricultural Farms, at the Veterinary College, Madras, and at veterinary hospitals in the districts. Grants are given by Government towards the cost of maintenance of good breeding bulls. Bulls are loaned by the Department to local bodies and co-operative societies and here in Coimbatore as I was saying the other day, we have a model scheme, whereby with the help of a grant from the Government, stud bulls are purchased by the District Board and supplied to approved ryots and institutions every year. The number of bulls so purchased annually has risen from one in 1921 to one hundred in 1935. It will be seen from this statement of our progress, that we have been able to do something in the interests of agriculture and the agriculturist.

A Great Opportunity. "But it is equally clear that it is not enough. We have just touched the fringe and there is a vast deal more indeed to be achieved. It is a Himalayan task and Everest has yet to be conquered. Fortunately, however, for us, ready to inspire us, we have an intrepid leader. The destinies of this country are now in the hands of a Viceroy who is not only thoroughly acquainted with the condition of our agriculturists and their industry but has shown so deep and abiding an interest in their material welfare in their crops, in their cattle, in their stud bulls and milch cows and in the health of their children, that it may confidently be asserted that the future of the agriculturist is assured. His Excellency has started a campaign and has given it such momentum that it is bound to have far-reaching results in benefiting the farmer to an extent, never attempted before. It is a great drive that he has undertaken, it is a nation-wide drive. It affects 80 per cent of the population of this great country. It means material prosperity of almost the entire people; it means increased production, more national wealth, more food and more milk, healthy children and so healthy men.

"My Government and I are determined to play our part in this great campaign. We are ready to give it our unstinted support and wholehearted co-operation." In that memorable address, which His Excellency the Viceroy recently delivered before the Imperial Council of Agricultural Research Institute, he gave us the watchword, "the road is clear, full steam ahead." It is for us to seize the advantage and to take our place in the race. And let not the Madras Presidency fall behind other provinces in the running of it.

Appeal to Countrymen. I most urgently impress upon those who are present here and upon all whom my words may reach, that here is an opportunity, which, taken at its ebb, will lead us on to great things, to the increase of material prosperity of our countrymen, to a better standard of living, to a fuller life and to greater happiness and joy in the homes of those that form the backbone of our nation. I appeal to all our countrymen to put their shoulder to the wheel and do all they can in furthering this splendid aspiration and effort of a noble soul who is determined to help India to the utmost possible extent. (*Loud and prolonged applause.*)

Minister's Opening Speech.

The Hon. Mr. P. T. Rajan, in inaugurating the proceedings, thanked the organisers of the function for the honour done to him. He said he was no stranger to this institution because two of his uncles had been the alumni of this institution and he was glad that connection with the College had continued in his presiding over the Department which was intimately connected with their institution. Almost the first thing he did as Minister was to consider the idea of introducing a short course in agriculture so as to prepare the students belonging to families of agriculturists and give them a training which would enable them to make the land yield more. He believed that that short course had become popular. What the results were it was too early perhaps to say. Nevertheless, he hoped that as time went on, students would take advantage of it more and more.

Minister's Concluding Speech.

Ladies & Gentlemen:

Now that we have come to the end of our labours, I wish to congratulate both on your behalf and mine all the learned lecturers on the lucid and interesting manner in which they dealt with the technical and dry subjects and thank them for the same. Let me also congratulate the Secretary and the Members of the Madras Agricultural Students' Union on the successful manner in which they have conducted the proceedings of the Conference and on the happy conclusion of their celebration of the Diamond Jubilee of the introduction of Agricultural Education in India and the Silver Jubilee of their Union. When the Secretary read his report he appealed to the past students to join the Association in greater number and support its journal. I wish to add my appeal to his so that your Union and its Journal may continue to carry on the good work in promoting agricultural education and interests. (*Cheers.*)

As soon as I entered the portals of the College on the 29th morning I saw the Guard of Honour provided by the students, drawn up in front of the portico in honour of His Excellency and their smart turn

out struck me very much. They are the products of this institution which is second to none both in Education and Research in this country. As they were standing in the sun, clad in civilian clothes, my first impulse was that they should be brought under the shade till His Excellency's arrival, but suddenly I realised that they are preparing themselves for their occupation later in life which will expose them to the rigours of the sun and rain. The hard training they get here has made them a sturdy and cheerful lot and it was indeed a pleasing sight to me to see them. I feel that this Institution could naturally feel proud of these young men and I am happy to think that I have been connected with such an Institution for the last five years and more. As sons of the soil and alumni of this college they have to deal mainly with the land and its problems and in doing so their training here will come in very handy.

I am glad to state that the results of the research work conducted here in various directions and under various heads have been many and good and it is up to you, my young friends, to carry them to the very doors of the ryot so that he may derive the maximum benefit from them. The Department has hitherto been dealing with the problem of helping the ryot to get the maximum out of the land with minimum of cost and labour but of recent years the additional and arduous task of finding suitable markets for the ryot to dispose of his produce has been thrown upon it. The problem of marketing the goods now-a-days is not an easy one especially to a Provincial Government which has no control over imports and exports, means of communications and currency. Prices of produce especially of commercial crops even in the most remote corners of this Province are controlled not by the fluctuations in Indian markets but, thanks to science which has so reduced time and space, by the ruling rates in the markets of far off cities like New York, Berlin and London. This problem is not merely provincial and national but also international. Instead of there being international co-operation there is international competition for armaments. Any moment the war clouds might burst, and if it does, I can only say "God help mankind". All this armament is meant merely to obtain special trade concessions for individual nations. What was more horrible was the attempt of various nations to requisition the services of science not to help humanity on its onward progress but to destroy mankind. I hope India's past civilisation, culture and her traditions will help scientists and others in this country to put the results of scientific research to better purposes than the one to which it had been put in the recent Great Wars. However, this problem has been receiving the close attention of both the Government of India and Madras Government and the Marketing Officers appointed by the respective Governments are making a complete survey of the marketing conditions throughout this land. As soon as it is finished the problem will be tackled in all its bearings on an All-India

basis. As far as this Province is concerned the Local Government have got a Marketing Board to advise them on marketing questions and in the case of cotton crops have established a market at Tirupur and the activities of its committee are being closely and carefully watched.

Another item which affects the ryots intimately is the problem of Life-Stock. This is also receiving the attention of the Local Government and the recent example set up by His Excellency the Viceroy in presenting two fine stud bulls and the great interest he has evinced in this matter has given a fillip to it. His appeal to the aristocracy and the leading men of landed classes has not been in vain. Madras has given, I believe, the lead in this matter, in that some gentlemen have announced their intention to purchase and maintain stud bulls at their cost. The Department on their behalf is arranging for the purchase of animals suitable for the respective localities. Some local bodies also are interesting themselves in this direction. I would appeal to Mr. R. M. Palat, President, District Board, Malabar, who is present here to interest himself in this matter. In fact there are two or three big schemes under consideration of this Government and their expert advisers just now for improving the different breeds in this province.

For want of time I have mentioned only two or three items now. As regards the work of the Agricultural Department itself in helping the ryot to better his position if I were to enumerate them to you it will be like sending coal to New Castle.

The one problem that is causing great anxiety to all the Provincial Governments as well as the Central Government is the unemployment amongst the educated young men. Within the last 10 years or so not only arts colleges but also professional institutions have turned out more men than Government and private employers could absorb. It has been suggested that a change in the present system of education might remedy this evil. I am doubtful whether even a radical change will bring about the desired result. Nevertheless, the fact remains that there are a large number of educated young men whose services could be utilized with great advantage to themselves and the nation. Further, the State has a right to the service of all able bodied men and women, educated and otherwise, at all times. If during times of war their services could be requisitioned, as was the case in Europe and other countries during the last Great War, why could they not be utilised in times of peace also. Their employment even on a bare sustenance allowance might cost the nation a considerable sum and the present finance of this Province might not admit of it. This question requires careful handling and it will be almost the first task of the Ministry under the new dispensation. All the same this Government are fully alive to their responsibility and are arranging for the training of 150 educated men in the agricultural farms in the various districts for a period of 4 months. I hope and trust that this offer will be fully

availed of by young men and they in their turn will help agricultural improvement. This is only an earnest of the Government's interest in this problem and the first step in its solution. (cheers).

The Secretary of the Union in the concluding paragraph of his report has stated that a large number of agricultural graduates are still without employment. I am fully aware of this. I may mention that three years back I informed the Director of Agriculture and the Director of Veterinary Services to inform the intending candidates that they should not expect any employment under Government. Be that as it may, I may just inform you that Government are considering the question of giving effect to the programme of having a demonstrator in each taluk. As soon as the Legislative Council accepts the proposal about 40 new demonstrators will be recruited. I believe this will give relief to some extent to the unemployed agricultural graduates (cheers).

I wish to take this opportunity to congratulate our young friend Mr. Mahadevan, an ex-student, who has started a private farm at Kotagiri, on his venture, a venture which deserves our praise and help. Several speakers who took part in the discussions the previous day stated that Government did not give sufficient encouragement to private enterprise. I may at once tell these critics that Government gave help whenever and wherever there was a need for it. I can quote instances, though I cannot give figures off hand now where Government gave help to several institutions both in the shape of monetary grant and services of officers. So long as this help was forthcoming everything went well but the moment this was withdrawn, as it could not be continued indefinitely, the whole fabric of those Institutions crumbled to pieces. Let me take the case of Chintaldevi Cattle Farm. As a measure of retrenchment this farm had to be closed about 1932, distributing the work done there to other farms elsewhere. As Minister in charge of Public Works, I had to dispose of the building. Before so doing I sent for the Director and asked him whether he could not persuade the agricultural graduates and others to settle down there and start an Agricultural Colony. His attempts to do so failed and I am sorry to say failed miserably. Mr. Mahadevan told his friends while persuading them to follow his example that farming requires hard work. I quite agree with him that it is not an easy matter. Self help is the best help and God helps those who help themselves. Government however will be only too glad to help those who come forward to start any venture which will be in the interest of the nation. As regards Mr. Mahadevan I am quite sure the Departments of Agriculture and Co-operation will give him all the help they can.

In the course of the discussions reference was made to the Provincial Economic Council and the District Economic Councils for

rural reconstruction. These bodies are meant to help the villager to improve his lot. In this, the Department of Agriculture can play a great and important part. Now, gentlemen; I wish to acknowledge the help and co-operation readily and willingly given to me by the officers of the Department ever since I assumed ministerial responsibility. Might I also acknowledge the services of Mr. S. V. Ramamurthi as Director of this Department. He gave a new orientation to the work and out-look of the Department; and this he was able to do because he enjoyed the full confidence of the officers of the Department and received their co-operation and help freely. (*Cheers*).

Now, ladies and gentlemen—In the last two decades after the Great War every nation has been looking to its younger generation for reconstructing the society. Though India had not suffered to the same extent as other nations, yet, she too has been putting her faith in the younger generation. We of the past and the present generation are holding India's destiny and future in trust for you and we shall hand it over to you the moment you are ready to take up the responsibility. In this view I appeal to you, my young friends, the students and the graduates of this great Institution to spend your energy and time in creating a new rural India where dirty and filthy hovels called villages and their miserable occupants will disappear and in their place shall arise new villages and a new generation of men who will devote themselves to the service of humanity and to the glory of India. In this arduous but noble task that is ahead of you, you have the blessings of your elders and I for my part wish you every success. (*Cheers*).

The Cecil Wood Memorial.

(*Portrait Unveiled*)

Mr. K. Ramiah, Paddy Specialist, made a statement in connection with the portrait in the course of which he recalled the services of Mr. Wood to the cause of promoting agriculture in the Province. Mr. Wood as Principal of this College, the speaker continued, had been responsible for all the developments associated with this institution for the first twelve years. He was a disciplinarian and an officer of boundless energy. He always laid great stress on practical agriculture and in the maintenance of field observation books. He compelled students to take part in some game or other and himself took part in them. Being a hard worker himself, he always expected a very high standard from his subordinates. Mr. Wood was the first President of the Union and had played a great part in moulding its early activities. Some of his old friends desired to perpetuate his memory in the College to which as Principal he had done so much. A committee was appointed which passed resolutions for instituting a suitable memorial for Mr. Wood, that an oil painting be presented to

the college, that a medal be awarded to the best student in the College, that an endowment be made for scholarship to be granted to a deserving student in the College and that a prize be awarded annually for the best paper on agricultural and economic life of any tract in this Presidency. In response to the appeal, a large number of donations had been collected. Realising the importance of this occasion, it was decided to present the portrait for unveiling to-day. It was very appropriate that the present Director who was closely acquainted with Mr. Wood should unveil the portrait. He appealed to all old students of Mr. Wood and his colleagues to come forward with donations so that the Committee could carry out its objects, set forth above. The amount so far collected was Rs. 255.

Director's Speech.

Mr. Ananda Rao, in unveiling the portrait, said that his acquaintance with Mr. Wood started from the day he started his official life in the Department. Mr. Ramiah had said so much that little remained for him, the speaker, to say further about Mr. Wood. As had been said, Mr. Wood was remarkable for industry and organisation. Many things that Mr. Wood did had stood the test of time. His interests in students and their sports was very great. He was also of a very sociable nature. This function, the speaker thought, was long overdue. He was glad that he had been given the privilege of unveiling the portrait and he had great pleasure in performing it.

He then unveiled the portrait of Mr. Wood amidst cheers.

Vote of Thanks

The Principal Mr. R. W. Littlewood in proposing a vote of thanks, at the close of the session said:—

It now devolves on me as President of the Madras Agricultural Students' Union and as the head of the Agricultural College to offer my heartfelt thanks to you Sir, the President of this Conference, for presiding over and conducting the deliberations and bringing them to a successful close. It is very gratifying that one who is born in the Agricultural community and who is Minister in charge of the portfolio of Agriculture, should have graced us with his presence on this occasion, and evinced a keen interest in all the events.

To you Sir, as Development Secretary, in the midst of your multifarious duties, your presence here on this occasion is very much appreciated.

To you, Sir as Director of Agriculture, we are grateful indeed for all the keen interest you have evinced in the successful running of the College Day and Conference.

To all Ladies and Gentlemen, who have responded to our invitation and helped us in several other ways on behalf of myself and that of the Union, I offer my sincere thanks.

Proceedings.

Proceedings of the General Body Meeting of the Madras Agricultural Students' Union held on Saturday 1st August 1936 with Mr. R. W. Littlewood in the chair. 90 Members were present.

The Secretary read the minutes of the last General Body meeting, which was passed by the General Body.

The Annual Report and the Auditor's Report were then presented by the Secretary. Dr. J. S. Patel moved and Mr. K. Krishnamurthi Rao seconded that the report be adopted.

The Budget for the next year was then taken up. Several people took part in the discussion, Messrs. M. S. Kylasam, M. R. Balakrishnan, T. Varabalu and P. Bagirathi Padi being the prominent, the chief point on which information was elicited being on budget provision of Rs. 400 under establishment. The Secretary and the Treasurer answered the points raised. Mr. M. R. Balakrishnan moved and Mr. Adishesha Reddy seconded that 'Rs. 450 under College Day be increased to 650 to enable the committee to either repair or replace the curtains and other fittings for the stage.' This was passed and the budget as so modified was adopted. Rao Sahib V. Muthuswami Iyer then moved the following resolution; "That this General Body meeting requests the Director of Agriculture to move Government about making statutory provision for the free grant of lands wherever available and the necessary funds to agricultural graduates to form colonies in rural areas, so that these may serve as demonstration centres." He made a lengthy statement, stressing on the necessity of finding employment for graduates, the duty of Government, the availability of cultivable waste land and quoted instances from Denmark where in such schemes Government had taken the initiative.

Several people Messrs. K. Ramiah, K. Krishnamurthi Rao, K. Unnikrishna Menon, Bagirathi Padi, M. U. Vellodi, Rao Sahib T. V. Rajagopalachari and K. Raghavachari took part in the discussion, the general sense being that while the General Body was in sympathy with the spirit of the resolution preliminary work must be done by the Union or a recognised body to marshal facts and figures, before Government and the Director of Agriculture are approached, so that we may equip ourselves to meet arguments. It was also felt that a real desire to go back to the land was not evinced by the Agricultural graduates. Mr. R. W. Littlewood mentioned the instance of Chintaldevi also quoted by the Development Minister, and the Secretary mentioned his experience that not one Agricultural graduate answered an advertisement the previous year to work up a private Mirasdar's lands. Mr. K. Unnikrishna Menon and Mr. Bagirathi Padi brought two amendments the former to add "and for employment in the Co-operative and Registration Departments" and the latter to add "and for employment as Panchayat officers and as District Board Educational officers." These amendments were later withdrawn at the suggestion of the President, as it was generally felt that the spirit of relief sought in the original resolution was not the same as that of the amendments. Mr. G. Jogiraju then brought another amendment as follows "to delete all the portion of the sentence after Agricultural graduates in the resolution, and to add" that a committee consisting of V. Muthuswami Iyer, T. V. Ramakrishna Iyer, K. Krishnamurthi Rao, G. Jogiraju, the Secretary and the Vice President of the Union be formed to prepare an elaborate note as to how the objects could be achieved, for forwarding with the resolutions to the Government."

The amended resolution was passed by a large majority.

The Secretary then brought to the notice of the General Body instances where "old boys" on the unemployed list wished to be given the concession rates of subscription available for students. After some discussion Mr. M. R. Balakrishnan moved and Mr. K. Krishnamurthi Rao seconded "that this General Body

empowers the Managing Committee to extend to such unemployed old boys of the College as require it, the concession rate of subscriptions applicable to students under rule 2." The resolution was passed unanimously. The forthcoming office bearers were then elected for the coming year.

Council.**Editorial Board.**

President.

Mr. V. Ramanatha Iyer—Editor.

Resident Vice President.

Secretary.

Editor.

Manager.

Secretary.

Dr. J. S. Patel—Member.

Mofussil Vice Presidents.

Mr. K. Ramiab.

Mr. K. Gopalakrishna Raju.

,, M. U. Vellodi.

Mr. K. Unnikrishna Menon.

,, T. K. Subrahmaniam (Student).

Mr. G. Jogiraju.

Managing Committee.*Mofussil Members.*

Rao Bahadur G. N. Rangaswami

Mr. K. T. Alwa.

Iyengar—Resident Vice President.

,, C. V. Saravayya.

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,, V. Muthuswami Iyer.

,, T. S. Lakshmanan ,,

,, T. V. Rajagopalachari.

,, S. Ramachandran ,,

Mr. D. V. Krishnaswami Naidu (Student).

,, Pinto (Student) ,,

The President thanked the various committees, who helped in the celebration of the College Day and Conference, including the Hostel Warden, the Superintendent of Central Farm, the Estate Mechanical Engineer and the Principal of the Forest College.

Rao Bahadur S. Sundararaman proposed a hearty vote of thanks for the President Mr. R. W. Littlewood. Rao Sahib V. Muthuswami Iyer proposed that the thanks of the General Body be recorded to the retiring committee.

THE REPORT OF THE MANAGING COMMITTEE

The Managing Committee have great pleasure in presenting their report for the year 1935-36.

Membership. The strength of the Union as it stood on 31st May is 550 (with 120 subscribers.)

Meetings. There were two meetings, one on Agriculture in Burma, by Mr. K. Ramiab, and Rice cultivation in Bengal by Mr. Banerjee.

Another meeting was convened under the auspices of the Union and other associations to move a resolution of condolence on the death of His Majesty.

Working Committee meetings. 10 meetings of the Committee were held.

Jubilee celebrations. The Committee began making preparations for this event immediately after the last College Day, and supported by the Director of Agriculture sought a financial grant of Rs. 3000 from Government. But unfortunately our request was negatived and the Union had perforce to fall back on its own resources, to meet the expenditure in connection with the event. A meeting of the Council, to which were invited representative officers of the department was convened and it was informally agreed that His Excellency the Governor be invited to inaugurate the proceedings and the expenses regarding Lunch and Tea be borne by the well wishers of the Union. (Our Director kindly undertook to provide the Lunch and the Gazetted officers the Tea for His Excellency during his stay). We take this opportunity to thank them for rendering this aid to the Union.

Ramasastrulu Munagala Prize. Four papers were received and Mr. T. Varahalu was awarded the medal for his thesis on 'Studies in sugarcane, effect of environmental conditions on the growth of cane'. The thanks of the Committee are due to Mr. Munro, (President), Rao Sahib T. V. Rajagopalachari and Dr. V. K. Badami for acting as judges in this competitions.

The Journal. The Journal maintained the high standard set up in previous years and the Managing Committee have great pleasure in recording the invaluable services rendered by Mr. K. Ramiah and the members of the Editorial Board who were responsible for the publication of the journal. The Committee have also to record their appreciation of the promptness of our printers, The Scholar Press.

Finance. The auditor's statement is before you. Our finances have shown improvement and we had on 31st May a cash balance of Rs. 1196-4-4 after meeting our liabilities up to date. No doubt a little of this surplus will be utilised to meet the expenses of the Jubilee celebrations, but the financial situation is encouraging and we hope that future Committees will endeavour to stabilise it more firmly. Our Vice President, Mr. S. Sundararaman was conferred the Title of Rao Bahadur and Mr. C. Narayana Iyer the Title of Rao Sahib and Mr. F. H. Butcher, O. B. E. We tender our congratulations to these gentlemen.

Our heart-felt thanks are due to Mr. R. C. Broadfoot and Mr. R. W. Littlewood who as Ex-Officio Presidents, took very great interest in the affairs of the Union, and guided it during the year. To Mr. R. W. Littlewood our thanks are specially due for he had to bear the brunt of the heavy work involved though he assumed charge just a month previous to the Jubilee celebrations.

The Union owes a deep debt of gratitude to Rao Bahadur D. Ananda Rao without whose sympathetic support in our endeavour to celebrate the Golden Jubilee of Agricultural Education and the Silver Jubilee of the Madras Agricultural Students' Union, the function would not have been a success. Our thanks are due to the various Committees who helped us during the College Day last, to Mrs. Cherian, Mrs. Charley and Mrs. Raghavan and to Mr. Davis of the Forest College.

List of Winners of Different Prizes for the year 1935-1936.

1. **The Robertson Prize.** *The premier prize* of the College and is awarded to the student who obtains the highest number of marks in the subject of *Agriculture* in the *Final Examination* for B. Sc. Ag. Degree at the first appearance. Won by A. Raghavan.

2. **The Clogstoun Prize.** This prize is for '*General Proficiency*' and is awarded to the student who obtains the highest number of marks in all the College Terminal Examinations of the B. Sc. Ag. Course. Won by G. Venkataramana.

3. **The Keess Prize.** The prize is awarded to the student who obtains the highest number of marks in *Agricultural Chemistry* of the *final examination* of the B. Sc. Ag. Degree. Won by K. Rajabapanayya.

4. **The Sampson Memorial Prize.** This is awarded to the student who obtains the highest number of marks in the subject of *Botany* in the *final examination* of the B. Sc. Ag. Degree. Won by T. Arunachalam.

5. **The Dewan Bahadur R. Raghunatha Rao Prize.** Awarded to the student who obtains the highest number of marks in *Practical Agriculture* as judged on the highest number of marks obtained in all the College Terminal Examinations and in *Practical Agriculture* of the final examination of the B. Sc. Ag. Degree. Won by A. Raghavan.

6. **The D'Silva Memorial Prize.** Awarded to the student who obtains the highest number of marks in *Animal Hygiene* of the Second Year Examination of the B. Sc. Ag. Degree. Won by S. Mahadeva Ayyar.

7. **The Goschen Prize.** Awarded to the student who obtains the highest number of marks in *Agricultural Zoology* of the Second Examination of the B. Sc. Ag. Degree. Won by T. N. Anantanarayanan.

8. **The Anstead Prize.** Awarded to the student who stands first in B. Sc. Ag. Class II in *Plot Cultivation* (Wet, Dry & Garden), provided he passes the first and second year B. Sc. Ag. classes at the first appearance. Won by P. M. Syed.

9. **The Rao Bahadur K. S. Venkatarama Ayyar Prize.** Awarded to the best student in B. Sc. Ag. Class I as judged from marks obtained in the First Examination of the B. Sc. Ag. Degree. Won by P. Narayanan.

10. **The Certificate Course Cup.** Presented to the student who obtains the highest number of marks in *Agriculture* in the Second Examination of the B. Sc. Ag. Degree. Won by J. Raghottam Reddy.

11. **Old Cuddapah Dt. Agrl. Association Prize.** In the form of books is awarded to the best student coming from the Ceded Districts comprising Bellary, Kurnool, Anantapur and Cuddapah Districts and Taluks of Vayalpad and Madanapalle of the Chittoor District. Won by (i) Shaik Abdul Hafiz, (ii) A. V. Parthasarathi, (iii) R. Ali Hyder.

12. **Sir T. Vijayaraghavachariar Medal.** Awarded to the student who obtains the highest number of marks in *Agricultural Engineering* of the Second Examination of the B. Sc. Ag. Degree. Won by S. Krishnananda Sastri.

13. **M. K. Nambiar Prize.** Awarded in the form of books to a student who obtains the highest number of marks at the Second Examination of the B. Sc. Ag. Degree at the first appearance. Won by T. N. Anantanarayanan.

Exhibition.

In connection with this Years' College Day and Conference a comprehensive exhibition illustrating the various activities of the Department and the results achieved was put up in the Freeman Building. The exhibition was opened by His Excellency the Governor on 29th July and was kept open for the public until 2nd August. Among the notable visitors may be mentioned Hon'ble The Minister for Public Works, The Hon'ble Home Member, The Secretary to Government Development Department, The Collector, Coimbatore, Hon'ble V. C. Vellingiri Gounder and the local members of the Madras Legislative Council. The exhibition was made up of several sections according to crops and departments of research, arranged by the Heads of Sections in the Research Institute. Exhibits of Crops sent by circle officers were grouped along with the exhibits of particular crop specialists but such of them not handled by research officers were grouped into a general section arranged by the Superintendent, Central Farm. An account of the exhibits put up in the different sections is given below :

Chemistry. This section exhibited results of work in a few of the many lines of work, which were of immediate interest by means of posters, diagrams and material exhibits.

The Cream Jaggery stall showed jaggery made by the new process using paddy husk carbon, from cane juice and coconut and palmyrah juices. The jaggery made by the old process were shown side by side to show the attractive colour of the product made by the new process. In the same stall were shown details of the process of making active carbon from paddy husk, and its many and varied uses.

The Nutrition stall had posters of the requirements of animals, and a collection of human and animal foods with details of composition. The "Molascake" Exhibit showed samples of a compact and easily handled brick made out of

molasses oil cake and mineral mixture. This cake was made to contain 125 grams of digestible protein in one pound brick, one brick, fed with straw *ad-lib* being sufficient for the maintenance of a bullock of 1000 lbs. live weight as found by experiment here. This method of making use of molasses, now a step-son of the sugar industry, has great possibilities.

The microbiology stall had a working model of the activated sludge plant, showing the various parts and the mode of aerating the sewage. Other exhibits of the stall consisted of diagrams, photographs of the legume nodule and the effect of inoculation on growth and yields and another exhibit showed the deterrent effect of the Saprophyte-*Aspergillus* on the paddy foot rot fungal parasite *fusarium*.

The Malting stall had exhibits of malt foods made from Cholam, and their comparative value when compared with imported malt foods. An Exhibit of bread made by blending malt Cholam with wheat flour was also shown. Charts and posters of the malting process, showed the simple process pictorially.

Mycology. Among the mycological exhibits put up at the show the following important items are worthy of mention.

Fungus diseases of crops and fruit trees. Mahali disease of Arecanuts, Budrot of palms, Blackshank of tobacco, Footrot of paddy, and Sarut and Redrot of sugarcane—Charts and live specimens showing the symptoms of the disease and posters indicating the remedial measures were put up.

Virus diseases. Charts showing Mosaic of sugarcane, cardamom, plantain, and maize and sterility disease of cotton were exhibited.

Fruit diseases. Charts—Plantain wilt and fruit rot, Citrus folliocellosis and pink disease, scab etc. were shown.

The technique about the use of fungicides and sprayers was explained.

In addition to the above, the various processes in microtome sectioning of materials and the apparatuses used in the determination of H-ion concentration of solutions were also shown. A demonstration of the latter was also conducted.

Entomology. A special feature of the Entomological Exhibition was the display of live insect pests in all their developmental stages with their appropriate food crops. This facilitated a layman to get to know them in their perspective and association and appreciate the remedial measures suggested under each item. These were further supplemented by self explanatory coloured plates and posters.

The exhibits included a wide range of pests and useful insects and the following were a few of them.

The orchard pests like the fruit flies *Dacus cucurbitae*, Coq and *D. ferrugineus incisus*, Bez., the fruit sucking moth *Obhideres materna*, L., and the mango hoppers *Idiocerus* spp which are a menace to successful fruit cultivation, were well represented to show in what phase of their life, they are harmful. There was shown the much dreaded groundnut red hairy caterpillar *Amsacta albistriga*, M which is a menace to groundnut cultivation in most of the districts especially S. Arcot, Salem, etc., the remedial measures were aptly indicated with appropriate coloured plates. There were then the pests of garden crops. The chillies leaf curling thrips *Scirtothrips dorsalis*, Hd, and the brinjal leaf eating lady bird beetle *Epilachna* formed instructive exhibits showing the nature of damage done to each crop.

Pests of sugarcane formed an equally interesting exhibit. The moth borers *Diatraea sticticrasis*, *D. venosata*, W and the top borer *Scirpophaga monostigma* were set up to show how as larvae they bore into the stems and cause dead hearts. The nature of damage done by cane fulgorid *Pyrilla perpusilla* which is a bad pest in S. Arcot was well indicated.

That plants are equally susceptible to virus diseases was well exemplified by the exhibited diseased cholam plants affected with 'freckled yellows and stripes' for which the cholam shoot bug *Dicranotropis maidis* (*Pundaluoya simplicia*) is the insect vector.

The cotton bollworms both the pink and the spotted and the pests of paddy like the paddy grasshopper *Hieroglyphus banian*, Fb. and the rice bug *Leptocorisa acuta* very vividly brought out the nature of the damage to cotton bolls and paddy crop; coloured plates were exhibited to show how to combat these crop pests.

To demonstrate the possibilities of employing natural enemies of the crop pests to subdue them, the classic instance, i.e., the imported Australian lady bird beetle *Vedalia cardinalis* against the devastating fluted scale *Icerya purchasi* and the Bethyloid parasites *Perciserola serinopae* against the familiar coconut leaf eating caterpillar *Nephantis serinopa* were well exemplified by appropriate specimens.

Useful insects which form the basis of some of the cottage industries like Bee-keeping, Lac culture and Sericulture, formed fascinating exhibits. Of these cottage industries, Bee-keeping was particularly instructive. Hives with bees and live specimens of the different varieties of Indian honey bees and their enemies formed an interesting aspect of the exhibition. Along with these, bee-keeping appliances such as honey extractor, etc., and samples of honey from different sources attracted considerable interest.

Coming to sanitation, the control of the ever menacing housefly *Musca nebulo* in both the adult and maggot stages was indicated with instructive models and drawings.

The common insecticides in use together with dusting and spraying appliances formed yet another interesting section of the exhibits.

Paddy. Among the many exhibits put up in the paddy section illustrating the improved methods of paddy growing and the general plant breeding technique, may be mentioned the following:

Specimens of the strains evolved at the Coimbatore Paddy Breeding Station and at the Sub Stations of Maruteru, Pattambi and Aduturai with their rice samples and charts showing the areas in the different parts of the Province where particular strains have been found to do well. A map of the Presidency illustrating the spread of the above strains in the different districts, with posters showing the value of the increased yield estimated by the extent of such spread. Mounted charts, and plant specimens of strains evolved by hybridisation for higher yield with definite economic value as (a) stiff and long straw (Co. 3 Burma variety) and (b) with the capacity to resist (*piricularia*) a fungus disease which is responsible for a great loss in the Tanjore delta. Exhibits of raw, shelled, polished and par-boiled rices together with posters explaining the nutritive value of non-polished rices. Cooking investigations in relation to the quality of the produce stored in different ways attracted the attention of the onlooker. Rice seedlings grown in wooden boxes and mounted specimens of heads as well as photographs drew the attention of the public regarding the changes that could be brought about by X-rays—a recent method to induce germinal changes in plants. Among the several mutants obtained by subjecting the seed to X-rays, there was also one showing greater prolificacy and extended duration. The special mutant where the gene controlling the geotropic movement of wild and interspecific hybrids illustrating the possibilities of introducing vigour and resistance to drought, disease etc. in the cultivated varieties by repeated back crossings. Progenies of an intervarietal cross in chillies for the investigation of size and pungency and the obtaining of big fruits with greater pungency. Green manure plants of *Sesbania Speciosa* (4 month's duration) reaching

a height of over 12 feet. This crop a new introduction from Kenya, the seeds of which were kindly supplied by Mr. H. C. Sampson. is full of promise.

Millets. The Millets Section put up an instructive exhibition illustrating the general features of millets and the work of the section. Millets occupy about 14 million acres in the presidency. They are grown in areas of poor rainfall. In the districts, the area under millets is generally found to be inversely proportional to the area under paddy. Millets are peculiar in flowering, to a great extent, during night time. Suitable charts were displayed to bring out these peculiar features of millets.

Earheads, grain and rice or flour samples were exhibited in all the eight millets—*cholam, cumbu, ragi, tenai, arika, samai, panivaragu* and *kudiraivali*. In the first four major millets a number of varieties both Indian and foreign were on show. Varieties in sorghum which were good for popping, malting, or resistant to striga were also exhibited. The various strains evolved in sorghum both at the Millets Breeding Station and at the Research out-station at Nandyal were displayed. In *ragi* there were three good strains of three different durations. In *cumbu*, the new introductions, the Punjab *cumbu* and the Jamnagar giant attracted much attention. Earheads of the millet strains grown in the fields of ryots in the neighbouring taluks were received from the Deputy Director of Agriculture, VIII Circle, and exhibited.

There was a small section devoted to the poor man's pulses, lablab, horsegram and cowpea. Many varieties in each of them were on show.

Cotton. The importance of the cotton crop to the Indian agriculturist and the efforts that are being made by the Cotton Specialist and his staff to improve the condition and prospects of this crop were well brought home to the public by exhibits of various kinds, like posters, placards, illustrated charts, cartoons, a large number of actual samples and a few live specimens.

The important cotton varieties of the Presidency were exhibited in neatly designed wooden boxes with full details regarding their commercial qualities. The present position of India among the cotton growing countries and of Madras among the several provinces formed the subject of a series of illustrated charts which showed how India, though second in production only to U. S. A., occupies a vulnerable position because of her short staple and what Madras with its wealth of high-stapled varieties can do to restore her balance.

Other aspects of cotton culture—such as rotation, protection against pests, clean and profitable marketing and the several ways by which the section is attempting to increase the profits of the ryot through increased knowledge also received their due share of attention.

The future of Indian cotton was the central theme of an interesting carton of a world cotton parliament, pointing to the great and immediate need for fortifying India's position against the present day dictators and her probable competitors.

Samples of two interesting side lines—Red and Bengal grams—to which also the attention of the section is devoted—were exhibited, showing the multitudes of forms and variety of colours that are present.

Oil-Seeds. Live plants and seeds of groundnut varieties, Local Mauritius, Saloum, Gudiyatham Bunch, *Arachis mozambiquaræ*, *Arachis rosteiro* were exhibited. A chart indicated the performance of A. H. 25, Saloum groundnut in different districts. Live plants and photographs of different forms of habit were exhibited; and among these the most interesting was the trailing type evolved through hybridization. The photographs of the root systems showed that the Saloum variety had better root system than the Local Mauritius and generally the roots

of bunch types penetrated deeper than the roots of the spreading types. Coffee made out of the parched groundnuts and the biscuits made out of the groundnut cake were some of the new products exhibited.

There were live demonstrations of the rotations to be followed and the mixtures to be grown along with the groundnut.

Different types of coconuts, dwarf and tall coconut seedlings and various grades of copra were exhibited. Among the F_2 s of the crosses, the crosses between the dwarfs and tall types were outstanding. Attractive playcards drew attention to the necessity for (a) clean cultivation of the coconut and (b) for manuring with 3 lb of ammonium sulphate and 20 lb. of ashes per palm.

Different varieties of castors, gingelly and cashew nuts were exhibited.

Sugarcane. A feature of this section was the specimens of canes from the districts, the outstanding varieties being Co. 419 and Co. 421 which were exhibited along with the standard canes Poovan, P. O. J, 2878 and Co. 213. The variety Co. 419 is a typical wet land cane which has been reported to have done well at the Padegaon Experiment Station in the Bombay Presidency, at Jorhat in Assam and at Pyinmana in Burma. At Anakapalle and Samalkot it is expected to replace varieties like J. 247 (247 B), B. 208, and Purple Mauritius. Co 421 is a variety which grows vigorously under relatively dry or semi-irrigated conditions and has given a very satisfactory account of itself in more than one experiment station in North India. In South India it is worth a trial in places where Co. 213 is being or proposed to be grown. Specimens of canes grown at Anakapalle were also exhibited.

The rapid increase in sugar production during the last six years from 311,000 to 770,000 tons, the fall in the import of foreign sugar from 940,000 to 223,000 tons the increase in the number of sugar factories from 35 to 155, the increased profit to the cultivator by growing the Co. canes and the spread of Co. canes which now occupy over 61% of the total area under this crop, were vividly brought out by interesting charts to show the present position of the Indian Sugar Industry.

Not the least interesting were the charts showing the methods adopted at the Imperial Sugarcane Station, Coimbatore, for evolving improved sugarcane varieties. It is the increased yields thus obtained that has yielded the needed raw material for the recent renaissance in the Indian Sugar Industry.

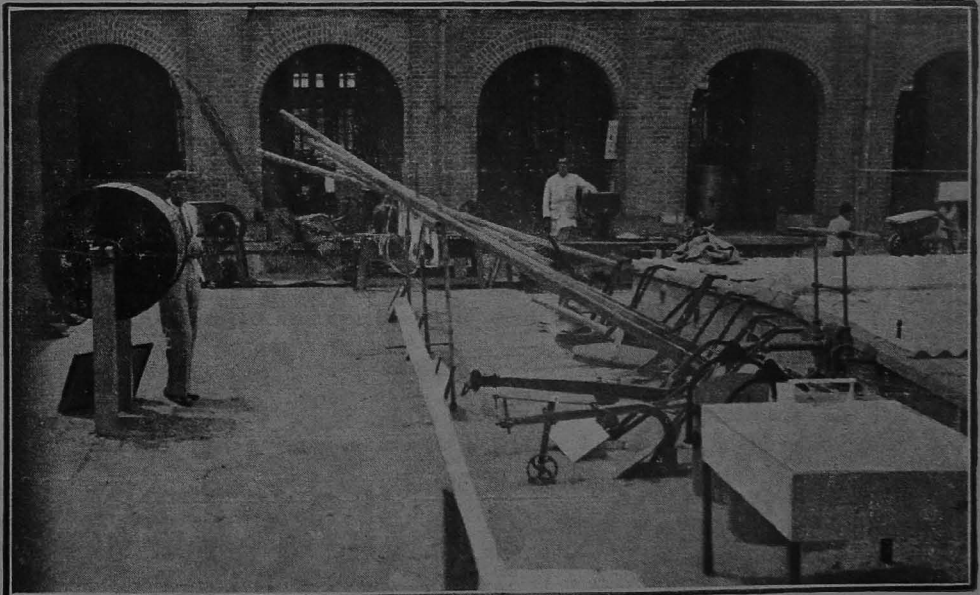
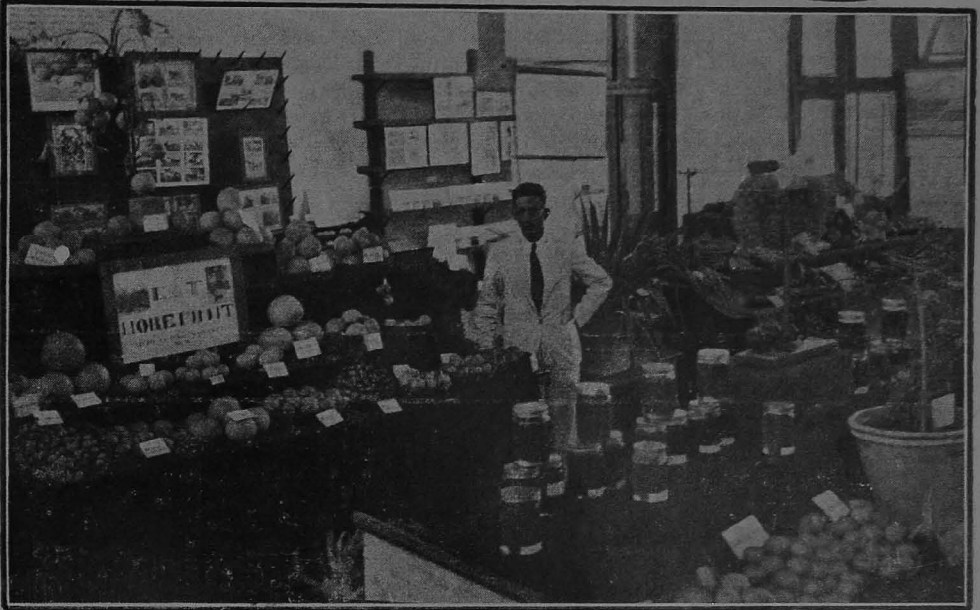
Engineering. The Agricultural Research Engineering Section exhibited a wide range of implements and machines designed or adapted to meet the particular requirements of the ryot. The exhibits included light and medium weight cast chilled and steel ploughs, guntakas, bucksrapers, light steel ridge ploughs, harrow, ball bearing mbote wheel, chaffcutter and fodder chopper, McCormick Deering 5-typed expanding cultivator, a bund forming implement, cast iron fire bars for jaggery furnaces, a Richmond and Chandler groundnut decorticator, a grain polishing and cotton seed delinting machine, a turmeric polishing machine, a hand-operated paddy hulling machine of Japanese manufacture, a Persian wheel bucket wheel and buckets, a model of the improved circular mbote water lift, a mechanical seed drill, a 2 tons capacity rubber-tyred cart, and a Burmese puddling implement.

Systematic Botany. A. *Madras Bananas.* Banana fruits of all the 51 known varieties of the Presidency preserved in their natural colour by a special process with photographs and life-cycle charts for each, along with their standardised names. The fruits of the wild parents of both the rounded and angular bananas collected from the Hills of the West Coast with their viable seeds. A dozen banana bunches with "trees" of the most promising varieties such as, *Kapur*, *Thattilla Kunnan*, *Chakkarakeli*, *Ayiranka Rasthali*, *Batheesa*, *Monthan*, etc., with

COLLEGE DAY EXHIBITION

1936

MADE



(Views of the Agricultural Section & Research Engineer's Section).

short descriptions. Flour of 6 varieties of bananas along with an analytical chart comparing this composition with wheat and rice. The flour of one variety, *Adakka Kunnan*, contains protein double that of the flours of the other varieties. It is this flour that is used as an infant food in the West Coast. Banana products from the ripe fruits, such as, Jam, Jelly, Halva, "Figs" and from the unripe fruits, such as, Crisp, Banana "nut", etc. and painting showing the stage in which the bananas are to be eaten banana "figs" and fruits received from the Agricultural Research Stations of Aduturai and Samalkot.

B. *Forage Plants*. 10 indigenous fodder grasses in pots along with their chemical analysis. Of these, the following are the hill grasses that are thriving in the plains:—*Selima nervosum*, Stapf., *Chionachne semiteres*, Fisch., *Chionachne Koenigii*, R. Br. and *Enteropogon monostachyos*, K. Set.

10 varieties of Lucerne in pots received on exchange relations from Leningrad. Of these, the Armenian type has a spreading habit and therefore it may prove a good mixture in the pastures.

General. This general section consisted of posters and photos of Livestock to show the importance of cattle breeding, the use of good stud bulls, the advantage of having pedigree animals and the progress and help given by the department to improve livestock by giving premium, also posters showing proper rations for milk animals, dry animals, breeding bulls and work animals. Similarly information on Poultry-keeping was also supplied. Eggs of different quality were exhibited. Handling of milk was exhibited and practical demonstration of testing milk for quality was given. The most attractive portion in this section was the display of the various kinds of fruits and fruit preserves and a large collection of vegetables both indigenous and english. The material included both those grown at the Central Farm and those brought by the Curator, Government Gardens, Ootacamund. A good collection of potato varieties from the Nanjanad Station was also exhibited in this section. Coffee plants, tea of various grades, cardomom, arecanuts, etc. from the seventh circle were also on show.

Horticulture. Besides the exhibits of fruits in the General Section the Superintendent, Fruit Research Station had organised a miniature orchard with live material explaining the various aspects of fruit growing from the preparation of the nursery, sowing of seeds, etc., to the picking and packing of fruits.

Some of the local practices observed in the orchards and the comparative proper methods to be followed were demonstrated in the plots prepared for the purpose. The exhibits started with the propagation by seed from the extraction and selection of good seed; defective and proper methods of preparing the nursery to sowing and transplanting of seedlings under various stages. Vegetative propagation by cutting, layering, gotteling, budding and grafting with different operations involved were also demonstrated, but with special reference to budding and grafting. Selection of reliable and good plants for orchards, various methods of planting, irrigation and manuring, clean cultivation and pruning, formed some of the instructive items of demonstration. The local and standard methods of picking, grading and packing of fruits were also exhibited.

Placards with instructive notes on various pomological operations were kept in the stall as a guidance to the visitors and due attention was given to the practical demonstration of all aspects of fruit growing.

College-day Sports.

The athletic sports in connection with the 25th College Day were held under the auspices of the Union on Saturday, the 1st August '36. The ground was gaily decorated and the Union Jack hoisted in the middle of the ground. Further attempts to add to the adornments of the ground by way of flags and streamers

were frustrated by a strong breeze which persisted throughout the day. The entirely new set of athletic equipment contributed its share to the elegant appearance of the course. The weather conditions were very favourable though interrupted by two spells of light showers which however did not seriously interfere with the conduct of the sports.

The sports commenced punctually at 3 P. M. and all the 22 items were gone through by 6-15 P. M. Each one of these was very keenly contested though no new records were created. The astonishing feature of this year's contests is that the champion was undecided till the last individual event was over. Messrs. M. Mukundan and K. Kunhiraman Menon went all out to win the coveted honour but Mr. Mukundan succeeded in retaining the title which he won last year by securing 42 points as against 40 scored by Mr. Menon. It is interesting to mention that Mr. Mukundan secured three first places and four third places to attain the aggregate of 42, whereas Mr. Menon scored four first places to total 40.

After the sports were over Mrs. R. W. Littlewood very kindly distributed the cups, medals and prizes to the respective winners. Rao Bahadur S. Sundara Raman, Vice President of the Union thanked Mrs. Littlewood for readily accepting the invitation to preside at the function, and called for three hearty cheers which were enthusiastically responded.

The sports committee takes this opportunity to convey its thanks to all the gentlemen who rendered invaluable help in conducting the sports by readily accepting the various offices to which they were elected and discharging their duties connected therewith ungrudgingly.

List of Prize Winners.

Cross Country :

- i. S. K. Sastry.
- ii. T. M. Kini.
- iii. Md. Zainulabudeen.

100 Yds. dash :

- i. K. K. Menon.
- ii. P. M. Somanna.
- iii. M. Mukundan.

Long Jump :

- i. M. Mukundan.
- ii. T. M. Kini.
- iii. P. M. Somanna.

Shot Put :

- i. K. K. Menon.
- ii. T. Somasundaram.
- iii. M. Mukundan.

High Jump :

- i. M. Mukundan.
- ii. P. M. Somanna.
- iii. P. K. S. Mani.

Quarter Mile :

- i. K. K. Menon.
- ii. S. K. Sastry.
- iii. M. Mukundan.

Cricket Ball Throw :

- i. M. Mukundan
- ii. P. M. Somanna.
- iii. T. M. Kini.

Half a mile :

- i. T. M. Kini.
- ii. D. V. Rajagopal.
- iii. Zainulabudeen.

Javelin Throw :

- i. M. Mukundan.
- ii. T. M. Kini.
- iii. P. K. S. Mani.

Half Mile (Invitation) :

- i. Anthony Joseph (St. Michaels).
- ii. Dominique (Government College).
- iii. Ramanatha Rao (Union High School).

120 Hurdles :

- i. K. K. Menon.
- ii. T. M. Kini.
- iii. M. Mukundan.

One Mile :

- i. S. K. Sastry.
- ii. T. M. Kini.
- iii. D. V. Rajagopal.

Obstacle Race :

- i. T. P. S. Nainar.
- ii. P. K. S. Mani.
- iii. M. G. Rajaraman.

Intertutorial Tug of War :

Mr. C. Narasimha Iyengar's wards.

Intertutorial Relay Race :

Dr. J. S. Patel's wards.

Messages.

R. D. Anstead. On the occasion of the Diamond Jubilee of Agricultural Education in India, and the Silver Jubilee of the Madras Agricultural Students' Union I note with great pleasure that an old friend of mine will inaugurate the proceedings—Sir K. V. Reddy Garu. I have most pleasant memories of the work with him when he was Minister for Development, and I know how much his heart was in the work of the Agricultural Department, and how earnestly he had at heart the welfare of the ryots. That he is now officiating Governor gives me the greatest pleasure.

The history of Agricultural Education in the Madras Presidency and the part the Union have played in the Education, and of the Madras Agricultural Department is a thing to be proud of, and I feel sure that the future is bright, especially under the aegis of the present Viceroy, who as Chairman of the Agricultural Commission, had a unique opportunity of seeing the work of the Agricultural Departments of India.

As one who played his small part in the work of the Department and who has happy memories of that work and his colleagues I offer my most sincere congratulations and good wishes to you all.

* **Thomas Ramaswami Ramanujam.** *Voice Record.* "This is Great Britain Calling: The conquest of Nature by Science has made it possible for a voice to be heard from beyond the seas and to convey to the Jubilee gathering at Coimbatore, the greetings of fellow members of the Union now in Great Britain. Though exiled several thousand miles away, our hearts are one with you at this great epoch in the history of the Union. Besides wishing the Jubilee Celebrations every success, we send our hearty congratulations to all concerned on the very useful work the Union has done during a quarter of a century, and wish it a career of enhanced usefulness in the future."

Rao Bahadur Y. Ramachandra Rao. I wish to convey on this great and happy occasion my heartiest wishes for the well-being of the Union, and would pray to the Almighty to grant it long, long years of increasing and extensive usefulness to the cultivating public and the students past and present of the Agricultural College, Coimbatore.

Rao Bahadur C. Tadulingam, F. L. S. It gives me, one of the humble organisers of the Union, immense pleasure to note that His Excellency Sir K. V. Reddi Naidu, to whom the Department and the Union owe a deep debt of gratitude, has kindly consented to inaugurate the proceedings.

Wishing the Jubilee Celebrations, Conference and the College Day Sports every success.

K. M. Thomas. On behalf of the members of the Department now in England (Messrs. Ramaswamy, Ramanujam, Sankaran, Pillai and myself) I send our best greetings to our fellow members of the Union and colleagues in the Department. We wish the Jubilee Celebrations, the best of success and trust that what we have achieved in the past will goad us to launch a more ambitious programme for the future.

R. C. Broadfoot. I regret I cannot be present to share in the success of the Diamond Jubilee Conference, which I feel is assured. Anyway you have my very best wishes for the success of the functions during College Week.

Allan Carruth, O. B. E. This year the celebration of College Day has a special significance in that it is the Silver Jubilee of the Union. From small beginnings the Union has grown in strength and usefulness, and I see no reason why developments should not continue.

Greetings to all our members and best wishes for the success of College Day.

* The voice record was played on the gramophone on the opening day.

R. C. Wood. I wish you all success. It seems a long time to my Coimbatore days—after all it is a good many years, and I am getting nearer the time when I am due to retire, but I have very pleasant recollections of the time I spent there.

Telegraphic Messages were received from: Rao Bahadur B. V. Nath, P. H. Rama Reddy, Principal Lyalpur Agricultural College and others.

Messages were received from: Mr. K. Gopalakrishna Raju; The Vice Chancellor, Andhra University; Director of Agriculture Hyderabad State; Director of Agriculture, Bombay; and Mr. Kasiviswanatha Thampuram.

CULTURAL METHODS OF CONTROLLING PLANT DISEASES

BY RUDOLPH D. ANSTEAD, M.A., C. I. E.,

Retired Director of Agriculture, Madras Presidency.

Since the day, sixty years ago, when the Madras Agricultural Department was born, views on many agricultural problems have undergone a profound change. This is especially the case in those branches of the subject which deal with the pests and diseases of crops. During the past fifty years enormous strides have been made in medical knowledge of all kinds, including the health of plants.

An incessant war is carried on between man and insects, fungi, and bacteria, and many are the methods which have been recommended to combat these pests which take an enormous annual toll of our crops and stored products, and also of life of man and beast.

Despite this agricultural practices have been remarkably little influenced. It seems so obviously the right thing to ascertain the nature and life history of a pest and then to attack its weakest and most vulnerable phase. This, however, does not get to the real root of the problem, and in most cases is only a palliative. The hosts of the enemy remain, undiminished at their source, and the remedies have to be constantly applied. It is now being realised that direct attack by assault and battery is nearly always useless, and entomologists and mycologists are being rapidly transformed into plant pathologists, bringing these subjects into line with new developments of medical thought. A more insidious technique has begun to appear, which may be called perhaps the "cultural" method of preserving plants in health. The presence of the pest is ignored in this technique, and no direct attack is made on it.

In his Presidential Address to the Agricultural Section of the British Association at Toronto as long ago as 1924 Sir John Russell said: "these cultural methods of dealing with plant diseases and pests offer great possibilities, and the close study jointly by plant physiologists and pathologists of the response of the plant to its surroundings, and the relationships between the physiological conditions of the plant and the attack of the various parasites would

undoubtedly yield results of great value for the control of plant diseases."

Mycologists and Entomologists are turning their attention more and more to the effects of soil and climate on the incidence of disease, and it is now becoming generally recognised that there are vast possibilities of controlling many plant diseases, not by attacking the disease organisms themselves, but by controlling conditions in such a way that these organisms are unable to develop because they find the conditions imposed deleterious to them. Though the organisms are present they are unable to become effective because the conditions are not favourable to them.

For example, MacRae pointed out that foot rot (*Helminthosporium*) of Wheat in Northern India occurs only on early sown fields, and the remedy is not to spray, but to delay sowing until the cold weather sets in, and the temperature imposes conditions unfavourable to the development of the fungus. This is a purely "cultural" remedy based on a study of conditions which favour the crop and are unfavourable to the disease.

It is well known that a plant, or an animal, in good vigorous health is resistant to disease attack when subjected to infection. It is the plants or animals which are ill nourished and weak which fall easy victims. Hence the plant pathologist has in recent years turned his attention more and more to the study of the factors which maintain a plant or animal in vigour. When these are known it is often possible to provide for resistance when an epidemic of some sort, insect or fungoid, come along.

In 1924—25 the demonstration areas under cotton at Chendathur in the Fourth Circle were perfectly healthy, while all round the cotton on the ryots fields was attacked by "black arm" and looked as if a fire had been through them. All that had been done on our demonstration areas was to employ correct cultural methods. Dr. C. L. Withycombe dealing with the "frog hopper" pest of Sugarcane in the West Indies said that, "canes do not necessarily show serious" blight when frog-hoppers have been abundant, nor is an abundance of "the insect a necessary condition for serious blight", and he maintained that the controlling factor was often the presence of plenty of water physiologically available to the canes, a factor which could be arranged for. Again, cotton leaf-spot (*Altenaria longipediciliata*) is a weak parasite able to infect weak tissue only under the most favourable circumstances, and yet in Trinidad when cotton is water-logged or has poor root growth it becomes a serious pest. (Empire Cotton Growing, Review. V. 1.48.)

Tunstall when reviewing Tea diseases and their remedies (Quar. Jour. Indian Tea Association 1920) puts cultural methods, such as

improved drainage, removal of excessive shade, and clean pruning, before direct methods like spraying, and work in Ceylon has shown that tea bushes which fail to recover after pruning and are attacked by *Diplodia* are really deficient in reserves of food. Wallace again, concludes that all the available evidence points to "leaf scorch", a frequent cause of loss to orchard growers, arises from defective nutrition and unsatisfactory water supply, cultural defects which can be remedied by drainage and manuring. (Jour. Pomology & Hort. Science VII 1 & 2.)

Rotation of crops will sometimes prevent disease attack. A case in point is the Betel Vine in the Madras Presidency which when grown continuously on the same land is apt to become infested with *Phytophthora* wilt disease, absent when rotation is practiced.

Eelworm attack on Sugar Beet and Potatoes is a danger. In Germany in 1876 this pest became so widespread that twenty-four sugar beet factories had to be closed down. The remedy lies in rotation of crop. Beet should only be grown once in four years on the same land.

Another method is that adopted by the plant breeder who, in many cases has been able to evolve new strains highly resistant to particular diseases so that the actual presence of insects or micro-organisms may be ignored. One of the latest examples of this method is the evolution of a "blast" (*Piricularia*) resistant strain of paddy at Coimbatore. Many other examples could be quoted. The strains of wheat resistant to rust produced at Cambridge by Sir R. H. Biffin are world famous, whilst varieties of potatoes resistant to virus diseases, and Poplar hybrids resistant to canker are well known.

An interesting example in this direction is the case of apple scab. At one time it was thought that this fungus pest could only be controlled by constant spraying, but experiments at the East Malling Research Station in Kent (England) have shown that certain rootstocks induce resistance, while others induce susceptibility to the disease. Hence it is possible to select rootstocks on which to graft apples which will help the grower to ward off the scab disease by a cultural method, and spraying is then unnecessary, or at any rate more effective. It is of interest to note that trees which were well manured benefitted from spraying more than trees on starved land. On the latter the disease is apt to be so bad that any control is impossible.

The internal condition of the food plant in relation to insect attack is of importance. The association of particular species of insects with particular food plants has resulted in an adaptation on the part of the insect with regard to the physiology of its digestion in a manner best suited to its requirements. Many insects fail to live on other than their normal food plants. The resistance or immunity of a plant to

insect attack is often due to factors closely associated with the physiology of the plant, probably the presence or absence of particular substances in the tissues of the plant. Thus Andrews showed that the vitality of *Helopeltis*, the "mosquito blight" of Tea is directly controlled by the suitability or otherwise of the food supply, and when a constant supply of soluble potash is applied to the roots of the tea bush it will remain immune from attacks for a long time.

Sugar Beet develops a specific disease in the absence of Boron: Oats suffer from a grey fleck disease in the absence of Manganese, though only one part in a million may be necessary to prevent this: Zinc appears to be essential for fruit trees which are otherwise attacked by rosette disease.

This leads to the question of vitamins which have been found to be so essential to the health of animals and man. Pioneer work carried out by the Madras Agricultural Department by Lt. Col. McCarrison, Viswanath, and others has indicated that there is a relationship between the supply of vitamins and the organic content of the soil, and has emphasised the importance of maintaining the humus content of soil. (Mem. Dept. of Agri. in India. Chem. Series. IX. 27. Indian Jour. Medical Research. IV. 4.)

The plant apparently obtains vitamins from the organic matter, possibly directly, and these vitamins are handed on to the animals which feed on them. The author would suggest that it is within the bounds of possibility that the vitamins are just as important to the health of the plant as they are to the health of the animals, and that it is not likely that the plant is merely acting as a transferring medium for these essentials of health. There is a growing mass of evidence to prove that when the humus content of the soil is allowed to run down below a certain level crops become increasingly subject to diseases of all kinds. Hence the importance of the use of organic fertilisers like Activated Composts.

Sir Albert Howard claims that in another fifty years time all plant diseases will be dealt with along such lines as have been here indicated, and that spraying machines and the like will only be found in museums. Though the author is not prepared to go quite so far as that, he does maintain that in the future more and more attention will be devoted in the campaign against plant pests and diseases to the cultural method of attack rather than to the shock attack of the sprayer, and he trusts that the Madras Agricultural Department, which he had the honour and privilege at one time to serve, will be found at the end of the next fifty years in the forefront of the battle in the same proud position which it has occupied since the day it was founded.

THE IMPROVEMENT OF INDIAN CATTLE

BY R. CECIL WOOD, M. A.,

Professor of Agriculture, Imperial College of Tropical Agriculture.

(Formerly Madras Agricultural Department.)

No excuse is needed for introducing the subject of the improvement of Indian cattle on the occasion of the Jubilee of the M. A. S. U., for not only are cattle of immense economic importance to the country, but in view of the exceptional position held by the cow in India, the subject is one that should be very close to the hearts of all. From the economic point of view, the ox is the foremost prime mover in the world, and is responsible for the tillage of a greater area than any other draft animal, nor does there seem reason to anticipate that this supremacy will be seriously challenged in the near future. The use of cow's milk is being more and more advocated by the medical authorities both for adults and children and as there is no satisfactory substitute, the demand for milk is limited only by the cost at which it can be produced.

With this realisation of the value of the cattle industry in India, it is surprising that so little attempt has been made to improve it. As far as the working ox is concerned, progress is negligible, and though the production of a better class of dairy animal has received rather more attention, it cannot be said, in view of the 150 million horned stock in the country, that this attention is adequate. As for the production of a dual-purpose animal, one in which the males will be good working animals and the females good milkers, no steps have been taken to improve the already existing breeds that display these characteristics.

There are two directions in which control in breeding, with a view to the improvement of stock, may be exercised: they are complementary to each other. Firstly, the prevention of the mating of inferior animals, and secondly, the encouragement of the mating of superior animals. It is not proposed to discuss the first of these here. It is necessary to say only that the way to prevent the spread of inferior germ-plasm is to isolate or to castrate all inferior male stock. Fencing would effect the first, but fencing in the Tropics presents peculiar difficulties. For the second, the practice of castration is by no means widespread, and when it is done, it is often done too late.

There is in India an objection to the early castration of an animal that looks as if it was likely to develop into a good working ox. It is held that the operation causes it to lose the masculine attributes of a heavy fore-part, so that the hump or shoulders which are desirable for exercising its full draught capacity are not fully developed. This

belief may or may not be well-founded, but it is surely time that some concerted effort was made to test this point, for it is one that affects every stock-owner in the country. If it could be shown that there is no justification for this belief, every effort should be made to educate the peasant to castrate the stock he does not want for breeding. That such a campaign would be effective, can be assumed from the success obtained in some of the African colonies where the number of animals thus treated, is increasing rapidly. Uganda, e. g. reports¹ in 1932, that 96% of the animals sent to the principal markets were castrated, whereas six years before, roughly this number were entire.

Turning to the other direction in which stock improvement must proceed, there is first the selection of the male stock to be used—for it is through the sire that improvement must start—and secondly the organisation of means whereby the services of such improved animals may be fully utilised. The first point, the selection of good male breeding stock is the one which presents the most uncertainty. There are two schools of thought, the one aiming at the improvement of the Indian animal (*Bos indicus*) by the use—to a greater or less extent—of imported bulls of the *Bos taurus* type, the other pinning their faith to the use of good bulls selected from the indigenous cattle.

What tropical experience is there on which we can draw in order to decide which of these two policies is the correct one? First, let us clear the air by pointing out that breeding single-purpose animals, either for work or for milk, implies two widely different objectives, and that a policy successful in producing one may not necessarily be good for the other. Secondly, it must be remembered that the Tropics is a wide term, and embraces not only the broad continents of Africa and India, where the seasons are marked, and where diseases may be rife, but also the islands of the Pacific and the West Indies, where seasonal variation is small and where many of the serious diseases of stock are unknown and unlikely to enter.

It will not take long to consider the improvement of the Indian working ox, for there has not, so far as the writer knows, ever been any question of improving him by crossing with *Bos taurus*. The primary requisites for such an animal are strength, courage and hardiness. "The animal to be produced is one that can live, breed and thrive most successfully under local conditions existing at the time"², and it is no good producing anything in advance of this. The efforts of the Veterinary Departments are improving conditions as far as liability to disease is concerned, in a most wonderful way, but beside the risk of disease, dreadful, but in the background, goes the ever-present fear of under-nourishment, or actual starvation.

If imported blood is not wanted, is there any evidence that success will result from the use of the best indigenous blood? Here we may safely fall back on the experience of other countries, where certain

recognised principles have been found successful in producing the type required, for there is no *a fortiori* reason why the adoption of these principles should not be equally successful in India. Actually, we can point, in S. India, to the carefully-bred herd of Mysore cattle, which are recognised on all hands to be greatly superior to the ordinary Mysore animal, and which have great reputation for work.

On the question of milk production it is less easy to dogmatise, for in both directions considerable success has been obtained. The standard of a dairy animal can broadly be recorded by a single figure, the number of units of milk yielded in a unit of time, and it is easy therefore to fix an "office-chair" standard, below which no animal will be accepted. The estimate of the quality of a working ox can only be made by watching and testing it at work, and must in the nature of things be largely personal. Continuity of policy is thus easy to obtain when breeding for milk, and *continuity of policy is essential*.

India shows us many examples of the success obtained in selecting for milk in indigenous herds. The Pusa herd, of Sanhiwal or Montgomery animals, gave an average yield of milk of 5·8 lbs. in 1913, and of 14·3 lbs. in 1928. Recent improvements in technique by Sayer³, have recently still further improved on these figures. One cow—Chengi—at her second calving gave 6681 lbs. in 304 days in the last year under report. In Madras, the Department started in 1918 to build up a herd of 'Ongole' cattle starting with only 48 cows. The improvement in milk yield is shown below⁴ :—

	Av. daily yield lbs.	Total.	Days dry.	Best Individual.
Foundation stock	9·8	2674	177	14·1
Present stock	11·5	3526	147	25·6

Figures that are more striking, perhaps because a larger number of animals have been under test, come from the Military Department Dairy at Ferozepore, the latest report on which states that "Twenty years' work.....has resulted in a herd of Sanhiwal cows, with an over-all annual yield of 8,000 lbs. of an average composition of 4% butter fat." The 1914 figures were an average of 5·9 lbs. of milk per head for the whole herd.

Such figures are satisfactory; progress has occurred, though to some it may seem slow, too slow indeed when the standard already reached by *B. taurus* in other countries is recalled. In England a cow called Terling Torch 46th, in her second lactation period, gave 30,000 lbs. in 320 days. Surely, urge the 'importing' school, surely the right thing to do is to utilise this dairy 'blood' in building up a dairy animal for the Tropics. And we find that this has been done to a considerable extent, and with no small measure of success.

Time does not permit of a thorough scrutiny of all these experiments, all that can be done is to summarise briefly the conclusions that can be drawn from them. It has been discovered that all breeds of *B. taurus** do not react in the same way, and it is most unfortunate that the breed first tried in India, and the one about which the greatest amount of information is available,—the Ayrshire—is one of the worst for this purpose. The Holstein or Friesian, on the other hand, seems to be remarkably suitable, and is very widely used today. Experience in Trinidad⁵ with half-bred, three-quarter bred and even seven-eighth-bred Holstein-Zebu animals has been quite satisfactory. Experience in Jamaica⁶ with Jerseys, Red Polls and Friesians, and in Fiji and Hawaii⁷ and Puerto Rico⁸ are similar. This seems fairly conclusive but Hammond⁹ shows that *Bos taurus* in the Tropics almost inevitably suffers degeneration, though, in favourable circumstances the process may be a slow one. This degeneration is due to a number of causes, among which are the physical characteristics of unpigmented skins and unsuitable coat-covering, and the environmental conditions leading to poor feeding. This degeneration can be corrected by breeding back to *Bos indicus*¹⁰.

It is not denied therefore that in suitable conditions, with proper feeding, adequate housing, and under competent veterinary supervision, a satisfactory Dairy herd can be produced, composed of varying proportions of *B. indicus* and *B. taurus* blood. Such conditions are more likely to be found in the smaller islands of the Tropics, where quarantine can be effectively exercised, where imported foods can be cheaply landed, and where the climate is conducive to the production of grass all the year round. A brief description of conditions in Fiji may be quoted:—“The climate is equable: there are no epizootic diseases, no anthrax, no rinderpest, no foot-and-mouth, no tsetse and to ticks”. Such conditions do not hold for India, and the writer feels strongly that in Madras the right line to take is the selection and improvement of the three excellent breeds that already exist, the Ongole, the Kangayam and the Mysore. If this is so, the sooner it is done is the better. Mention has been made of the start of the Ongole breeding scheme with less than fifty cows, when five hundred would not have been too many. What is wanted is the best cow in a thousand, and it should not be very expensive to test a thousand cows a year, selling those not up to the standard and buying others. Continuity in policy has been mentioned. It is mentioned again because without it progress is impossible and it has been singularly lacking in the past. Madras is fortunate in having had a single livestock officer for fifteen years; elsewhere constant change in personnel and in policy have proved a very great obstacle to progress.

* There were 20 different breeds listed at the Royal Ag. Soc. Show at Derby in 1933.

It is suggested therefore that the Madras Students' Union with its great opportunities of influencing public opinion might help on this work, the great utility of which it has been the object of this article to show.

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THE AGRICULTURAL DEPARTMENT*

The subject is one which must engage the attention of every one interested in the advancement of Agriculture in India. This advancement should proceed rapidly as long as the reins of Government are in the hands of our present Viceroy who has an intimate knowledge of the conditions of the agriculturists and the problems which confront improved agriculture. The report of the Royal Agricultural Commission which has considered all agricultural questions bears ample testimony to the attention which he has devoted even to details. India is behind several countries in Agriculture and it is hoped it will within the 5th year of His Excellency's Viceroyalty, rank among the foremost countries which can boast of improved and scientific agriculture.

Till 25 years ago, the Department of Agriculture was in the hands of a member of the Board of Revenue who had agriculture among his several portfolios. The agricultural college at Saidapet was more in name and it did not attract the best of the brains; for the graduates turned out from the college could not expect appointments from Government as there were only few under the patronage of Government. A great impetus was given to the Department during the time of His Excellency Sir Arthur Lawley to whom we owe our present Agricultural College. Successive Directors of Agriculture, Mr. Anstead, Mr. Hilson, Mr. Ramamurthi, and successive governors of the Province have been improving the activities of the Department and

* *Speech delivered by*:—Rao Bahadur K. S. Venkatarama Iyer, Advocate and Mirasdar, Negapatam on the occasion of the 25th College Day and Conference.

now the applications for admission into the College are nearly ten times more than what the College could admit. There was a time when inducement had to be given by offering stipends; but now the stipends had been withdrawn and yet the college is increasing in popularity. The short courses in Agriculture, in the college, often suggested by me and introduced by Mr. Ramamurthi have been very popular and many a student from families of landholders have been benefited greatly and they are utilising their knowledge and experience to manage their own lands. This taste for practical agriculture has diverted many a wealthy young man back to his land from the idle, extravagant and expensive town life. There is an old proverb in Tamil “கிராமத்தை வாங்கி காரியஸ்தனிடம் கொடுத்தான்.”

This connotes the fact that the management was bad in the hands of the agents of absentee landholders and the agents had their own way of doing things.

There have been many friends of mine who remarked that Government farms were run on expensive lines and private landholders could not afford to spend so much. I had to convince them that the farms were Research Stations and were not run on commercial lines and that they were intended to give us the benefit of the research which were successful for a series of years. There are members of the Legislative Council who say the Department is a white elephant; but there are others who are practical agriculturists or those who have watched with interest the progress of the Department in its various activities. His Excellency Sir K. V. Reddi, the Development Minister in 1921 used to congratulate me on my resolutions in the Council, most of which pertained to Agriculture. Though I am a small landholder, I gave up my lucrative profession of a lawyer and settled on my estate in the management of which I have burnt my fingers by trying to experiment but not without success in many instances. Let our landholders visit the Government Research Stations all over the Province and the Agricultural College; let them see and learn things first hand; let them adopt such of the strains and methods as would suit their lands and if 5 per cent. of the landholders would do so, real advancement would have been made and the endeavours of the Department could be said to have been crowned with success.

His Excellency the Viceroy has given practical proofs of his interest in Agricultural India by providing and maintaining at his own cost 2 stud bulls for use in Delhi District and the rough behaviour of one of them towards His Excellency's Private Secretary was a recommendation to keep him on longer.

His Excellency also pointed out that the Heads of Districts should be more in touch with rural areas and the Madras Government seriously considered the appointment of personal assistants to relieve Collectors of their routine work. This involves the expenditure on

salary of a high official. I am personally against this additional expenditure. The personal assistants are not more experienced or do not draw higher salary than Sub-Collectors and Divisional officers. The Divisional officers should be given more powers, and finality could be given to them in more matters. The Collectors and Divisional officers have been relieved of their income tax work; much of their magisterial work is looked after by first and second class benches. More retired officials and non official lowers can be appointed Special First and Second class Magistrates and Revenue officers can then find more time for agricultural work in rural areas.

The Collectors and Divisional officers whenever they camp in various places, may invite the landholders in the vicinity and they can find at least one or two educated and practical agriculturists who will help them in their rural work in giving practical advice to agriculturists. There is no necessity to appoint big committees or convene annual or bi-ennial conferences. It will be sufficient if a list of landholders who take a practical interest in agriculture is obtained from the agricultural department and informal conferences held with them in the presence of agricultural officers.

The formation of agricultural associations in which the revenue officers and subordinates should take an active part will go a great way. The endeavours of the Deputy Director of Agriculture, II Circle in this matter are really commendable. The Revenue Inspectors may be Ex-officio Secretaries of such associations instead of being Presidents and they alone can command the convenience and time, to convene meetings and bring up subjects for consideration. Non-official Presidents can be found easily to preside over the meeting. Details may be worked out by Committees of the Association to suit the local needs.

There may be Taluk Associations to which the Divisional Officer may be the President and Tahsildars Secretaries and the members of such associations may be nominated by the Divisional Officers on the recommendation of the Tahsildars or on application for memberships; election fighting need not be introduced in these associations. The members of committees may be nominated by the Divisional Officer. To start with, the members need not be asked to subscribe for memberships.

I have known many an association fail, because membership is saddled with subscription and it has been found difficult to collect even a nominal subscription of one anna a month. Government should allot small sums to the associations for contingent expenses such as printing and postage, till the associations are able to maintain themselves by voluntary subscriptions. Government should not decline small allotments for running the associations as they have done in the case of Irrigation Advisory Boards in the Province. I have been

a member and secretary of the Irrigation Advisory Board for more than 6 years and the sooner the Boards are abolished, the better it will be; for, I believe no useful work can be done by them in spite of specific rules framed for their functioning as advisory bodies on which matters advice could be given. I am referring to their work merely to point out that the agricultural associations should not be merely advisory but should do practical work.

The Hon'ble Sir Charles Souter, who presided over the College day and conference last year rightly pointed out that the officers of the various departments should confer periodically with the revenue officers for help in their work and the District Heads have by our Viceroy now been officially entrusted with the task of agricultural propaganda and work.

The Imperial Council of Agricultural Research has been doing very useful work and thanks to the energy, intelligence and capacity of its Vice Chairman, Sir T. Vijiiraghavachariar, the Council has come to stay as a permanent institution and the Research Institute at Delhi under the very nose of the Viceroy is bound to tackle all problems calculated to give increased yield free from epidemics and diseases of plants.

Allied with Agriculture, is the Veterinary Branch of the Department of Government. The cattle wealth of India is a great asset to the country. The varied climatic conditions of India and the various breeds in different provinces are bound to improve the cattle wealth if only private landholders and private bodies will help Government in producing breeds for milk and for hard work. The Hosur Cattle farm which I had an opportunity to visit is doing useful work and it is hoped Government will allot more funds to enable the authorities to produce more pedigree bulls and cows. Since my visit, I got a bull for a friend, a heifer for another friend, and another heifer for myself. It need not be pointed out that the maintenance of a poor yielding cow is uneconomical and unsound, as the cost of maintenance is almost the same even for a good yielder, though the initial cost may be greater. In spite of departmental publications and bulletins, the ryot has no means of knowing simple remedies to save his cattle from epidemics. Small pamphlets bearing on cattle diseases, their remedies and how to prevent diseases should be published, in vernaculars and distributed widely. The touring veterinary assistant surgeons should stay for more than 2 or 3 days in important villages and disseminate practical veterinary knowledge in rural areas. The cruel mulling should be replaced by the new *Bordizzo* method of castration, which is painless and speedy. Landholders should be persuaded to castrate immature and worthless specimens of bulls in villages which otherwise would cover good cows.

The following are among the problems which must engage the attention of the associations :

1. Improved methods of cultivation.
2. Use of better strains suited to local conditions.
3. Fruit culture.
4. Bee-keeping.
5. Conservation of manure.
6. Raising of suitable crops to the particular areas.
7. Consolidation of holdings.
8. Maintenance of stud bulls.
9. Co-operative Stores.
10. Co-operative Trading Societies.
11. Marketing.
12. Reduction of Railway freights on manures and seeds.
13. Quick and cheap transfer of perishable articles and of fodder to long distances.
14. Issue of concession tickets to those who attend agricultural conferences and meetings of associations.
15. Redemption of agriculturists from their indebtedness, and other items too numerous to mention.

One more suggestion and I shall close my paper.

The Revenue officers and subordinates by virtue of their powers and influence, command respect in villages. The village officers are their subordinates. If those officers have training in agriculture, they will naturally have interest in agricultural work in rural areas. This can be possible only if agricultural graduates are taken in the service of the revenue department. The Agricultural graduates have had sufficient arts course, to enable them to look after clerical and other duties which are at present entrusted to Arts graduates. If at least 50 per cent, of the recruits to the revenue department are recruited from agricultural graduates and gradually absorbed in the revenue department, the rural agricultural work can be easily done by such Revenue Subordinates and without much effort or inducement, practical agricultural work in rural areas will spread. The Agricultural graduates who are recruited to the Revenue Department should also be given practical training in co-operation for a period of 3 months at least, to enable them to supervise the work of rural co-operative societies in their tour. If that is done, some of the large number of Arts graduates turned out will not pester the Revenue officers for appointments, but will be diverted to the Agricultural college as they can be sure of appointments in the Revenue Department.

However much Government might encourage agriculture in rural areas, their endeavours can never be a success, unless the agriculturist in the village is content, free from debts and able to get enough income for the maintenance of himself and his family. The rules of the

Primary Land mortgage banks which are supposed to give relief to indebted agriculturists are not workable in practice and are liable to be misused. Government should step in to redeem the agriculturists by paying their debts and getting the loan back in easy instalments with cheap interest. The landholders are becoming more indebted year after year and the lands are passing into the hands of money lenders who are absentee landholders. Unless the owners of the land in the villages are enabled to hold their lands with the prospect of owning them free of liability in the course of some years, the very useful work turned out by the agricultural department will be undone and the slow and steady improvement in agricultural methods will gradually deteriorate in the hands of absentee landholders who will wait for an opportunity to get rid of the land and the interim lessees who will be interested only to get whatever is possible from the lands, will have no interest in maintaining the fertility of the lands to enable continued better yield. It must be the duty of Government to take early measures for the redemption of agriculturists from their debts and there is no use adopting measures drastically and in a small scale here and there as experimental measures and if Government should delay awaiting the result of their experiments, the remedy will be too late and it will be only shutting the stable after the horse is stolen.

I will also suggest the desirability of publishing suitable agricultural primers for use in Elementary Schools and including the teaching of agricultural subjects for at least 2 or 3 periods in a week. It will create an aptitude and a taste for agriculture in the early days of the boys and it may happen that agriculturally inclined boys may develop a taste in agriculture in their later life. If Government is inclined to agree with my view, a small committee of agricultural experts of the college including retired agricultural professors and one or two non-officials may be entrusted with the work of writing books in easy colloquial style and I shall be glad to serve on that Committee.

If Government do not decide to adopt my suggestions, I shall be willing to write and publish primers for elementary schools provided Government will introduce such books in all Elementary schools if my publication will command the approval of the Agricultural Experts.

I do not wish to take more of your valuable time and I will close after touching on the question of finance which is put forward as the ground for not allotting more funds to the Agricultural Department.

The village officers clamour for more pay and I do not go into question if their clamour is justifiable in the face of the perquisites they enjoy from time immemorial; but to maintain four village menials at a cost of more than Rs. 30 for each village is most unreasonable. There used to be one or two to each village. Each village menial was getting only Rs. 4 formerly. Their number and pay have been unnecessarily increased. There is absolutely no work for four. A careful enquiry will reveal the fact that their time is spent more on private

work rather than on public work. A retrenchment under this head which will be a very proper one, will yield at least Rs. 35,000 for each district and more than 6 lakhs for the whole of the presidency, not a negligible item. There are more items under which retrenchment can be effected; but if committees for retrenchment are appointed all the members cannot be expected to be above being influenced by particular officers and the labour of such committees will be fruitless and no tangible reduction will be possible. One hard financier must be put on special duty and he must invite suggestions from officials and non-officials and report after investigation.

Correspondence.

Note :— A further reply from Mr. P. N. Krishna Iyer has been received regarding the controversy about the host plants of *Pempheres affinis*. A note to the effect that "further correspondence on this subject will cease" had been sent by the Editor for publication in the July issue but unfortunately this had been, by oversight, omitted in the final proof stage. It is not proposed to publish any more correspondence on the subject in the journal.

— Editor.

Review.

The Cultivated Races of Sorghum. J. D. Snowden. Adlard & Son., Ltd., London. 1936. 10 s. 6 d. Sorghum is an important cereal. It is the staple food crop of the poor in many parts of the world. In the British Empire its importance to the indigenous population is obvious. With rich and bulky fodder, we have in it a crop pre-eminently suited to the needs of both man and beast; and its improvement is thus naturally engaging the attention of many Economic Botanists in the British Empire and in the world. In America work on sorghum is much advanced as it is the crop that occupies areas not quite suited to maize. It is, therefore, no wonder that with the appointment of Mr. H. C. Sampson (the late Director of Agriculture, Madras) as Economic Botanist, Kew, his interest in economic botany found its first expression in this desire to increase the knowledge on this important crop. Knowledge is power and the power to handle a crop is the measure of its useful handling. The usual canons of classifying wild plants receive a serious setback when it is a question of dealing with a cultivated one. The difficulties increase, when, as in the case of sorghum, it is a case of reconciliation with much valuable previous work, done at many centres of Europe by nations interested in their colonial dependencies.

The first comprehensive account of the Races of Cultivated Sorghum is thus available in this valuable work by Snowden. As the retired Economic Botanist of the Uganda Protectorate he is familiar with the plant in the field and has come to his task with an intimacy of touch that makes his classification alive and real.

In addition to the very detailed systematic work, Mr. Snowden has contributed a historical study of sorghum from literature. He has also elucidated many obscure points in its botany. This work is thus a landmark in the knowledge concerning sorghum. It is hoped that with this equipment the many sorghum workers in the empire and the world will go ahead with accounts of the sorghums in their respective regions and thus complete our knowledge of the sorghums of the world.

The Trustees of the Bentham Moxon Fund are to be congratulated on their warm response to the request of Kew to finance this very valuable publication and in securing so able and experienced an Economic Botanist as Mr. Snowden to work at it.

G. N. R.

Crop & Trade Reports.

Receipts of raw cotton at presses and spinning mills.

Loose cotton.

	Bales of 400 lbs. against an estimate of 540,700 bales for 1935-36.	Figures for corresponding period in previous year.
1-2-36 to 19-6-36	306,807	271,357
" 26-6-36	330,364	284,966
" 3-7-36	352,099	296,418
" 10-7-36		
" 17-7-36	400,366	322,160
" 24-7-36	422,549	334,131
" 31-7-36	439,111	344,026
" 7-8-36	456,152	352,220
" 14-8-36	467,021	353,687

Pressed Cotton.

	Receipt in mills.	Export by sea	Import by sea.
1-2-36 to 19-6-36	197,424	84,043	73,511
" 26-6-36	217,695	91,147	73,875
" 3-6-36	225,561	95,133	74,428
" 10-7-36			
" 17-7-36	245,924	113,784	74,926
" 24-7-36	257,319	127,772	74,926
" 31-7-36	269,449	141,247	75,110
" 7-8-36	278,168	153,578	75,162
" 14-8-36	284,475	156,756	90,677

Cotton—1936-37 first forecast report. The average of the areas under cotton in the Madras Presidency during the five years ending 1934-35 has represented 9 per cent of the total area under cotton in India.

The area under cotton up to the 25th July 1936 is estimated at 286,300 acres. When compared with the area of 301,400 acres estimated for the corresponding period of last year, it reveals a decrease of five per cent.

Central Districts and South—Mainly Cambodia tract. The area in the Central districts and the South represents generally the last year's crop left on the ground for second pickings before the plants are removed in September in compliance with the provisions of the Pest Act. The area in these districts fell from 186,000 acres to 161,200 acres i.e. by about 13.3 per cent. The decrease is marked in Coimbatore, Madura and Ramnad. The yield is expected to be generally fair.

Westerns Tract. The area under Westerns rose from 75,800 acres to 81,500 acres. The increase is marked in Anantapur owing to the favourable season.

Cocanadas tract. The area under Cocanadas cotton rose from 9,700 acres to 15,100 acres. The increase is marked in Guntur.

The wholesale price of cotton lint per imperial maund of 82-2/7 lbs., as reported from important markets towards the close of July 1936 was about Rs. 19-9-0 for Cocanadas, Rs. 25-11-0 for red northern, Rs. 19-1-0 for westerns, Rs. 25-4-0 for Cambodia, Rs. 24-3-0 for Coimbatore-Karunganni, Rs. 23 for Tinnevely Karunganni, Rs. 23-14-0 for Tinnevelies and Rs. 20-6-0 for Nadam cotton.

Sugarcane 1936-37. The average of the areas under sugarcane in the Madras Presidency during the five years ending 1934-35 has represented 3.6 per cent of the total area under sugarcane in India.

The area under sugarcane up to the 25th July 1936 is estimated at 98,950 acres. When compared with the area of 97,050 acres estimated for the corresponding period of last year, it reveals an increase of about two per cent. There has been an increase in area in West Godavari, Guntur, the Deccan, Nellore, Chingleput, Chittoor, North Arcot, Tanjore, Tinnevely and South Kanara, which has been partly counterbalanced by a decrease in area in Vizagapatam, Kistna, South Arcot, Salem, Coimbatore, Trichinopoly, Madura, Ramnad and Malabar. The large increase in area in Bellary is attributed to the working of the sugar factory at Hospet while the increase in North Arcot is due to the favourable season.

The condition of the crop is generally satisfactory.

The wholesale price of jaggery per imperial maund of 82-2/7 lbs. as reported from important markets towards the close of July 1936 was Rs. 6-9-0 in Adoni, Rs. 6-3-0 in Madura, Rs. 5-9-0 in Nandyal, Rs. 4-15-0 in Bezwada and Kumbakonam, Rs. 4-12-0 in Guntur and Puticorin, Rs. 4-10-0 in Masulipatam, Rs. 4-7-0 in Calicut and Mangalore, Rs. 4-6-0 in Ellore and Mangalore, Rs. 4-6-0 in Ellore, Rs. 4-5-0 in Rajahmundry, Rs. 4-2-0 in Bellary, Cuddapah and Coimbatore, Rs. 3-15-0 in Cocanada, Rs. 3-10-0 in Vellore, Rs. 3-9-0 in Salem, Rs. 3-3-0 in Vizagapatam and Rs. 2-15-0 in Trichinopoly. When compared with the prices in the corresponding period of last year, these prices reveal a fall of 37 per cent. in Bellary, 34 per cent. in Trichinopoly, 31 per cent. in Nandyal and Vellore, 30 per cent. in Vizagapatam and Cocanada, 28 per cent. in Cuddapah, 27 per cent. in Ellore, 22 per cent. in Rajahmundry, 21 per cent. in Bezwada and 20 per cent. in Guntur and Coimbatore.

Gingelly.—1936—37.—First Report. The average of the areas under gingelly in the Madras Presidency during the five years ending 1934—35 has represented 11.6 per cent. of the total area under Gingelly in India.

Area. The area under gingelly up to the 25th July 1936 is estimated at 344,700 acres. When compared with the area of 279,900 acres estimated for the corresponding period of last year, it reveals an increase of 64,800 acres, i.e. about 23 per cent. The increase in area occurs in all districts except Kistna, Nellore, Salem, Trichinopoly, Ramnad, Tinnevely, and South Kanara.

Yield. The yield is expected to be below normal in Vizagapatam, East Godavari, West Godavari, Bellary, Anantapur, Trichinopoly, Tanjore and Madura, and normal in the other districts.

Groundnut—1936—Second report. Summer crop—Area and yield. The area under the summer or irrigated crop of groundnut in parts of the Madras Presidency during the five months—January to May 1935—is estimated at 61,300 acres. When compared with the area of 67,000 acres estimated for the corresponding period of last year, it reveals a decrease of 8.5 per cent. The crop has been harvested in most places. The yield is reported to be normal. The total yield is estimated at 54,900 tons of unshelled nuts as against 57,000 tons during the corresponding period of last year.

Early Crop—Area and yield. The area under the early crop of groundnut (mostly unirrigated) up to the 25th July 1936 in the districts of Salem and Coimbatore, is estimated at 128,000 acres. When compared with the area of 96,000 acres estimated for the corresponding period of last year, it reveals an increase of 33 per cent. The condition of the crop is satisfactory. The total yield is estimated at 64,000 tons of unshelled nuts as against 44,100 tons estimated for the corresponding period of last year.

The wholesale price of groundnut (shelled) per imperial maund of 82-2/7 lb. as reported from important markets towards the close of July 1936 was Rs. 7-1-0

in Cuddalore, Rs. 5-4-0 in Vizagapatam and Negapatam, Rs. 6-1-0 in Vizianagaram, Rs. 6-0-0 in Vellore, Rs. 5-14-0 in Guntur, Rs. 5-13-0 in Cuddapah, Rs. 5-11-0 in Cocanada and Salem, Rs. 5-8-0 in Adoni Rs. 5-7-0 in Nandyal, Rs. 4-6-0 in Madura. Rs. 4-3-0 in Ellore and Rs. 3-6-0 in Tinnevely. When compared with the prices of June 1936, these prices reveal a rise of 16 per cent. in Adoni, 11 per cent. in Negapatam, 6 per cent. in Cuddalore, 5 per cent. in Vellore, 4 per cent. in Cuddapah, 3 per cent. in Cocanada and 2 per cent. in Vizagapatam, Vizianagaram, Ellore and Salem, and a fall of 7 per cent. in Madura. The prices remained stationary in Guntur, Nandyal and Tinnevely.

College News & Notes.

The Students' Club. Mr. Chen of Nanking delivered an interesting lecture on "Boxing in China". On 17-8-'36 the inaugural address of the Students' Club was delivered by Dewan Bahadur T. A. Ramalingam Chettiar, M. L. C. Rao Bahadur G. N. Rangaswamy Ayyangar presided over the function.

Association of Economic Biologists. Under the auspices of the Association Mr. Chen of Nanking delivered an impressive lecture on the "present problems of cotton improvement in China".

Visitors. On the occasion of the Jubilee Celebrations and College Day, the Pudukotta Durbar deputed several of their Agricultural subordinates to attend the functions.

Weather Review (JULY 1936).

Summary of General Weather Conditions. The monsoon was generally active throughout the month on the West Coast and in the Circars, and particularly so in the latter regions.

Two depressions influenced the weather in the Bay of Bengal. The first depression formed off the Orissa—Ganjam Coast on the 2nd and passing inland near Balagore on the next day lay over Chota Nagpore till the 5th as a shallow depression and then filled up. The second depression also formed off the Orissa—Ganjam Coast, on the 21st and after intensifying into a storm crossed the Coast between Gopalpore and Puri on the 24th and passed into East Central Provinces on the 25th and filled up over Bihar by the 26th. Both these depressions occasioned heavy rainfall in South Orissa and Ganjam.

The month's rainfall was markedly above the average in Ganjam and South Canara, in defect in the Ceded Districts and was nearly normal elsewhere.

The chief falls reported were, Icchapur 9.5, Gopalpore 7.9, Nowrangpur 7.5 and Parlakimidy 6.5 and Berhampore 5.6 on the 23rd and Gopalpore 5.1 on the 25th.

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	21.3	+14.4	50.1	South	Negapatam	3.2	+1.3	13.6		
	Berhampore *	15.6	+7.2	36.5		Aduthurai *	4.7	+3.5	12.1		
	Calingapatam	14.3	+9.0	25.4		Madura	3.8	+1.9	13.0		
	Vizagapatam	3.3	-1.2	15.6		Pamban	0.2	-0.4	5.5		
	Anakapalli *	4.0	-1.61	22.5		Koilpatti *	0.1	-0.6	8.9		
	Samalkota *	9.7	+2.2	30.3		Palamkottab	0.2	-0.2	12.2		
	Maruteru *	10.0	+0.6	25.0		West Coast	Trivandrum	8.3	+0.9	41.3	
	Cocanada	7.4	+1.6	25.0			Cochin	20.0	-2.8	73.3	
	Masulipatam	10.4	+4.0	25.4			Calicut	33.9	+3.7	93.7	
	Guntur *	7.1	+1.4	24.9			Pattambi *	29.3	+5.0	70.9	
Ceded Dists.	Kurnool	3.0	-1.8	10.4	Taliparamba *		41.0	-4.6	86.0		
	Nandyal *	5.3	-0.1	13.9	Kasargode *		53.7	+16.4	112.0		
	Hagari *	0.8	-1.2	6.6	Nileshwar *		50.5	+10.8	98.7		
	Bellary	0.2	-1.7	3.2	Mangalore		46.9	+9.8	105.8		
	Anantapur	0.5	-2.9	5.6	Mysore and Coorg		Chitaldrug	—	-3.1	6.3	
	Rentachintala	4.9	—	11.4			Bangalore	5.6	+1.4	15.8	
	Cuddapah	3.0	-0.9	8.2		Mysore	3.8	+1.1	19.3		
	Anantharajupet *	2.3	—	—		Mercara	50.6	+9.7	103.4		
	Carnatic	Nellore	4.1	+1.3		7.6	Hills.	Kodaikanal	6.1	+1.1	24.8
		Madras	4.9	+1.0		11.7		Coonoor *	4.3	—	35.1
Palur *		4.1	+1.8	12.8		Ootacamund *		7.3	+1.7	30.8	
Tindivanam *		3.6	+1.9	10.4		Nanjanad *		5.4	-5.9	31.7	
Cuddalore		1.9	-1.2	9.2		Central		Vellore	1.8	-3.5	8.3
Salem	4.7	+0.9	20.6	Salem			4.7	+0.9	20.6		
Coimbatore	2.2	+0.7	9.7	Coimbatore	2.2		+0.7	9.7			
Coimbatore Res. Inst. *	2.0	+0.7	9.3	Trichinopoly	3.2		+1.6	12.1			
Trichinopoly	3.2	+1.6	12.1								

* Meteorological Stations of the Madras Agricultural Department.

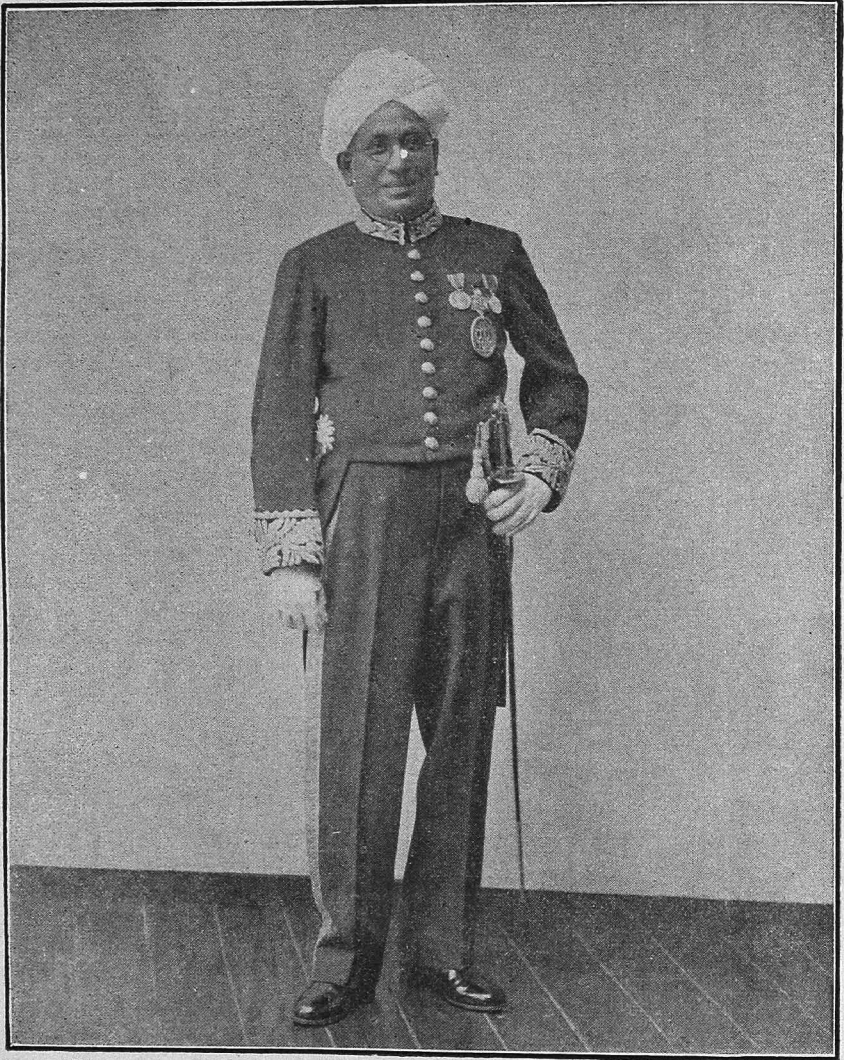
@ From average rainfall for the month calculated upto 1935 (published in Fort St. George Gazette).

Weather Report for the Research Institute Observatory:—

Report No. 7/36.

Absolute maximum in shade	...	90.5°F.
Absolute minimum in shade	...	68.3°F.
Mean maximum in shade	...	86.1°F.
Departure from normal	...	-1.0°F.
Mean minimum in shade	...	71.1°F.
Departure from normal	...	-0.9°F.
Total Rainfall for the month	...	1.95"
Departure from normal	...	+0.68"
Heaviest fall in 24 hours	...	0.66" (Recorded on 1-7-1936).
Total number of Rainy days	...	5 days.
Mean daily wind velocity	...	5.6 M. P. H.
Mean Humidity at 8 hours	...	72.1%
Departure from normal	...	+0.7.

Summary. The monsoon was generally active and the rainfall was above the average, other climatic elements were not far from normal. P. V. R. & D. V. K.



H. E. Sir KURMA VENKATAREDDY NAIDU GARU Kt.,
Officiating Governor of Madras who inaugurated the Jubilee Proceedings.