The Imperial Agricultural Research Conference, 1927.

Report by

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I HAVE the honour to submit, for the information of Government, the following abbreviated report upon the Imperial Agricultural Research Conference which was held in England during October and November, 1927.

2. As the Conference was to be held during my period of vacation leave in England, I was informed by the Director of Agriculture's letter No. P-224 of 21st June, 1927, that Government desired that I should attend the Conference as one of the Ceylon delegates and that I should devote my attention particularly to questions of an entomological nature which might arise during the course of the Conference. The other Ceylon delegates were Mr. R. A. Taylor, representing the Ceylon Rubber Research Scheme, and Mr. M. Crawford representing the Government Veterinary Department.

3. The Conference was opened in the Grand Committee Room in Westminster Hall, Houses of Parliament, by the Rt. Hon. Walter Guinness, Minister for Agriculture and Fisheries, on October 4th, 1927. All subsequent full sessions of the Conference were held in the same hall.

4. The Rt. Hon. Lord Bledisloe, Parliamentary Secretary to the Ministry of Agriculture and Fisheries, was appointed Chairman of the Conference and the Rt. Hon. W. G. Ormsby-Gore, M.P., Lord Lovat, and Major Elliot, M.P., Vice-chairmen.

5. A programme had been prepared allowing for meetings of the whole Conference from October 4th to 7th in London, of Administrative and Specialist Commissions from the 8th to the 13th October, visits of the whole Conference to Cambridge from 14th to 19th October, Edinburgh and Aberdeen from the 20th to 22nd October, (inspecting the synthetic nitrogen works at Billingham *en route*), and Belfast from the 22nd to 23rd October, and meetings of the Administrative and Specialist Commissions in London from 25th to 26th followed by plenary sessions in London

until October 28th. Subsequently an extensive tour of visits to Research Institutes was provided for between October 29th and November 8th. These institutes are referred to in appendix 1 of this report, those visited by the writer being at Cambridge, Rothamsted, East Malling Research Station, the Parasite Laboratory at Farnham Royal, the Long Ashton Fruit Research Station, Bristol, and the South Eastern Agricultural College, Wye.

6. **Agenda.**—The subjects on the agenda were classified into two groups, administrative and technical,—those under the former heading being:—

(1) The Recruitment, Training and Interchange of workers. (Chairman Mr. F. L. Engledow).

(2) The Establishment of a Chain of Research Stations. (Chairman, Major W. Elliot, M.P.).

(3) The Establishment of further Imperial Bureaux; and the Interchange of Information. (Chairman, Sir R. Greig).

(4) Periodical Conferences. (Chairman, Sir R. Greig).

7. The Conference opened with a general discussion on these subjects and it was decided that they should be dealt with in further detail by the Administrative Commission, which itself was subdivided into three committees, subjects (3) and (4) being considered by one committee.

8. A number of questions of a technical nature had been submitted to the Conference and for convenience they were classified under the following headings for the consideration of the Specialist Commissions.

Animals.

(1) Veterinary Science (Chairman: Sir A. Theiler).
(2) Animal Nutrition (Chairman: Professor T. B. Wood).
(3) Animal Genetics (Chairman: Dr. F. A. E. Crew).
(4) Dairying (Chairman: Dr. S. S. Cameron).

Soils and Fertilizers.

(5) Soils and Fertilizers (Chairman: Sir John Russell).

Plants.

(6) Plant Pathology, (including Mycology) (Chairman: Sir D. Brain).
(7) Plant Breeding (Chairman: Professor A. E. V. Richardson).
(8) Fruit (Chairman: Mr. W. T. Macoun).

Entomology.

(9) Entomology (Chairman: Dr. G. A. K. Marshall).

Economics.

(10) Agricultural Economics, (including Marketing) (Chairman: Mr. C. S. Orwin).

(11) Preservation and Transport (Chairman: Mr. H. T. Tizard).

9. According to this arrangement the delegates to the Conference were divided up, according to their particular interests, into a number of committees, the writer joining the entomology committee. After a full consideration of the various subjects referred to, the recommendations of the several committees were submitted to the full Conference at its concluding sessions, and the following is a very brief summary of these recommendations as finally approved.

Administrative Subjects.

The Recruitment, Training and Interchange of Workers.

10. The importance of agriculture demands that the Colonial Agricultural Service should attract men of the highest class and to affect this, emoluments and facilities for work should be adequate. The specialist officer should have received an honours training in the pure sciences, which should include at least one biological subject, and should possess such a knowledge of agriculture as would enable him to apply his scientific knowledge to agricultural problems. The general, or administrative, agricultural officer should possess wide agricultural knowledge and administrative ability with sufficient scientific knowledge to make full use of scientific discoveries in agriculture.

11. The report of this committee contains much information as to the course of training which agricultural officers should undergo before taking up their appointments under the Colonial Office and it is hoped that agricultural and other industries will assist by the foundation of scholarships for agricultural students. The existing scheme of scholarships under the direction of the Colonial Office is expected to meet immediate requirements and it is suggested that it should be extended to cover veterinary science. It would assist those responsible for the training of candidates for the agricultural services if Colonial agricultural departments would anticipate their staff requirements. The importance of study leave was emphasized and the present facilities in this direction were considered to be inadequate. The value of interchange between agricultural departments of certain members of their staffs was pointed out and further financial assistance is required to effect this very desirable aid to Imperial agriculture.

The Establishment of a Chain of Research Stations.

12. The principle of establishing central tropical and sub-tropical research stations was approved and it was made clear that they should be situated only in those parts of the Empire where they could most usefully fulfil the need for research into definite problems requiring solution. The location of the various research stations will be considered by the proposed Colonial Agricultural Research Council in consultation with the Colonial Governments concerned but it has been suggested that Peradeniya might prove to be a suitable centre for a station to serve the Middle Eastern Colonies, although the rival claims of Malaya have also been put forward.

13. The urgent necessity for the early establishment of a central station solely for investigation into the diseases of animals was brought to the notice of the Conference and it was suggested, in order to meet this immediate need, that the expansion of the existing station at Onderstepoort in South Africa should be proceeded with. Similarly the need for a station devoted to irrigation problems was indicated and reference was made to the research work on such problems which is already in progress in the Sudan and the Punjab. The work of the proposed stations should not in any way interfere with that normally performed by Government agricultural departments in their proximity. The work of a central station should proceed in the direction of free research and the controlling body should be such that there should be no possibility of this programme being interfered with. Teaching should not ordinarily be undertaken by the stations but a limited number of post-graduate students might receive instruction. It was suggested that the minimum staff of a central station should be ten well trained men. Apart from the capital expenditure of establishing a central station its upkeep might be expected to amount to about £20,000 per annum and the establishment of a particular station should not be proceeded with until a suitable staff and sufficient funds are forthcoming.

The Establishment of Further Imperial Bureaux, the Interchange of Information and Periodical Conferences.

14. The creation of three additional bureaux, similar to the existing Imperial Bureaux of Entomology and Mycology, was recommended for soil science, animal health, and animal nutrition. With regard to certain other sciences it was considered that their immediate requirements could be met by the establishment of " correspondence centres " and the sciences so

provided for are animal and plant genetics, agricultural parasitology, and fruit production. The suggestion that existing and proposed bureaux and correspondence centres should be incorporated in a single publicity bureau for the whole Empire and that a central clearing station, for subjects not covered by such bureaux and correspondence centres, should be established did not receive the support of the Conference; but it was suggested that the useful work already being performed by the Royal Botanic Gardens, Kew, in reference to economic botany and by the Imperial Institute in connection with the same and other subjects should be continued. It was estimated that a sum of £20,000 per annum, granted for five years in the first place, should be sufficient to meet the expenditure of the proposed bureaux and correspondence centres.

15. The value of periodical conferences of research workers was recognised and it was agreed that the next Conference should be held in Australia in 1932. The desirability of convening periodical specialist and regional conferences was also emphasized but it was considered that this was a matter which might be left to those to whom such conferences would be of special benefit.

Specialist Subjects.

Animals.

16. As the following four subjects will probably be dealt with in detail by the veterinary delegate from Ceylon, they are only very briefly referred to here.

17. **Veterinary Science.**—The difficulties under which Colonial veterinarians have worked in the past, owing to the lack of a central organization, were brought to the notice of the Conference and to remedy this defect a case was put forward for the formation of an Imperial Bureau of Animal Health. This proposal received the approval of the Conference.

18. **Animal Nutrition.**—The need for the establishment of a Bureau of Animal Nutrition was emphasized and was supported by the Conference. It was suggested that the bureau should, for the present, be located at the Rowett Institute, Aberdeen.

19. **Animal Genetics.**—The necessity for further research into this subject was pointed out. Veterinary officers should receive special training in the principles of genetics and the Animal Breeding Research Department of Edinburgh University is suggested as the centre for such training.

20. **Dairying.**—The subjects of nutrition, breeding and the physiology of milk production require further investigation. An interchange of dairy research workers would be beneficial.

Soils and Fertilisers.

21. The suggestion that an Imperial Bureau of Soil Science should be created was approved by the Conference and the manner in which such a bureau could best serve overseas workers was outlined. Subjects which received special attention by this committee were soil classification, methods of a mechanical analysis of soils, fertiliser trials and soil deterioration resulting from shifting cultivation and disafforestation.

Plants.

22. **Plant Pathology** (including mycology.—It was suggested that lists of plant diseases should be compiled by the Governments of the Empire for publication and distribution by the Imperial Bureau of Mycology. Other recommendations made by this committee were, that lists of books and periodicals, suitable for the use of Government mycologists, and of the institutions which should receive Government publications on mycology should be prepared. Attention was called to the preparation by the British Mycological Society of a list of scientific and common names of plant diseases. A further recommendation was that funds should be provided for the further inquiry into the nature of virus diseases of plants.

23. **Plant Breeding.**—The deliberations of this committee were devoted to the need for, and functions of, an information organization for the benefit of workers engaged in plant breeding problems. It was suggested that existing institutions might be made use of and that the Institute for Plant Breeding at Cambridge University might be utilised for tropical and sub-tropical crops and the Welsh Plant Breeding Station at Aberystwyth for work on herbage plants.

24. **Fruit.**—The questions related to this subject which are in need of urgent research are:—

(a) The study of stock and scion and their inter-relations.

(b) Surveys of fruit areas to determine the relation of various factors to tree growth and fruitfulness.

(c) Chemical studies relating to the tree and its crops.

(d) The associated physiological studies.

Other matters upon which research should be concentrated are transport and storage, preservation and by-products and the control of diseases and pests.

Entomology.

25. This committee very strongly recommended that at future Imperial Entomological Conferences the delegates selected to represent the entomological service of each Colony should

be entomologists. It was suggested that the quinquennial entomological conferences might with advantage be held in Imperial centres other than London. The establishment of travelling fellowships to enable entomologists to visit other parts of the Empire to study problems similar to their own was recommended. The importance of the biological control of insect pests was emphasized and the necessity for further research in this direction indicated. For this purpose further financial assistance might be provided for the parasite work of the Imperial Bureau of Entomology. Attention was called to the great importance of training in pure entomology as an essential basis for applied entomology.

Insecticides and Fungicides.

26. The committees of entomology, plant pathology and fruit held a joint meeting when the following resolution was passed:—

"That in view of the great importance of insecticides and fungicides in the control of diseases and pests, and in view of the very limited number of substances now available for this purpose, and of their relative inefficiency, this joint meeting of members of the entomology, plant pathology and fruit committees recommends that an investigation of the whole chemical field should be undertaken by chemists working in collaboration with entomologists and plant pathologists. For such an investigation, new appointments would be necessary, since existing workers are already fully occupied."

Economics.

27. **Agricultural Economics** (including marketing).—The importance of agricultural economics was pointed out and the scarcity of technically trained men referred to. More adequate agricultural statistics are required for various parts of the Empire and it was recommended that this deficiency should, wherever possible, be remedied.

28. **Preservation and Transport.**—The solution of fundamental problems connected with preservation and transport should not be left entirely to Great Britain as it has largely been in the past and all parts of the Empire should contribute to these investigations. Special problems requiring solution were mentioned.

Visits to Research Institutions.

29. The following is a very brief summary of the work in progress, and demonstrations witnessed, at the various research institutions visited by the writer:—

National Institute of Agricultural Botany, Cambridge.

(October 14th, 1927.)

30. The nature of the Institute's investigations was explained by Sir Daniel Hall, K.C.B. and the following exhibits were seen:—

(a) Models of diagrams to illustrate the Institute's organization and methods for the testing of the yielding capacity of varieties of farm crops under field conditions.

(b) Grain and sheaves of the chief cereal varieties tested in the past.

(c) The testing of agricultural, garden, and forest seeds for purity and germination.

(d) The examination of certain seeds for the presence of seed-borne diseases.

Department of Agriculture, Cambridge.

(October 15th, 1927.)

31. Professor T. B. Wood, F.R.S. described the activities of this Department after which visits were paid to the various branches and the following demonstrations witnessed:—

(1) **Calorimetry Department of the Animal Nutrition Institute** where research is carried on into the heat elimination of large animals, mainly pigs.

(2) **Poultry Section.**

(a) Digestibility experiments on oats, millets and maize.

(b) Slaughter experiments on Light Sussex fowls including complete analysis of the whole carcase.

(3) **Metabolism Room.**

(a) Investigations into the composition and nutritive values of pasture grass.

(b) Silage investigations.

(c) Influence of soaking and cooking of maize on its feeding value for pigs. Composition and feeding value of flaked maize.

(d) Grading, composition and feeding value of wheat offals.

(e) Chemistry of strength of wheat flour.

(f) Chemical changes occurring in wheat grain during growth and ripening.

(g) Composition and feeding value of sugar beet by-products.

(h) Proteins of blood serum, milk and colostrum.

(i) Protein and mineral metabolism in pregnant sows receiving normal and deficient rations.

(4) **Chemical Section.**—The work in progress in this section was explained to the delegates and several interesting demonstrations witnessed.

(5) **Plant Breeding Institute.**

(a) Genetic and cytological material of cereal crops.

(b) Demonstrations of baking quality in wheat.

(c) Plant breeding material in wheat, oats, barley, peas and beans.

(d) Data and material bearing upon the analysis of field crops.

(6) **Physiology Section of Animal Nutrition Institute.**

(a) Fertility of domestic animals.

1. Artificial insemination; life of spermatozoa.
2. Fertility of the male (stallions).
3. Foetal degeneration in pigs and rabbits.
4. Reproduction in the cow.

(b) Milk section.

1. Development of the udder in the cow.
2. Statistical investigations of milk records.

(c) Growth and meat problems.

1. Seedy-cut in bacon; spaying in pigs.
2. Growth and development of the pig.
3. Growth and development of the sheep for mutton.

(d) Factors affecting quality in wool.

(7) **Farm Economics Branch.**—The main activities of this section comprise economic investigations based on Cost Accounting.

(8) **Departmental Library.**

(9) **Soils and Soil Survey.**

(a) Soil temperature records.

(b) Decomposition of organic matter in alkaline and normal soils.

(c) Whittles' Apparatus of soil dispersion.

(d) Statistical crop maps.

School of Forestry, Cambridge.

(October 15th, 1927.)

32. The Museum of this Department contained a very complete collection of the timbers of the world, several Ceylon specimens being recognized.

University Farm, Cambridge.

(October 15th, 1927.)

33. During a tour of the farm the following sections were demonstrated:—

(a) Seed wheat cleaned and dressed for sale.
(b) Silage and silage crops.
(c) Baby beef cattle.
(d) Sugar beet demonstrations.
(e) Autumn cleaning of stubbles.
(f) Pig feeding.
(g) Grazing experiments.
(h) Fecundity experiments in pigs.
(i) Experiments in plant breeding.
(j) The dairy herd.

A demonstration was given of the control of bunt (*Tilletia tritica*) by:—

(a) The use of formalin, (wet).
(b) The use of copper sulphate, (wet)
(c) The use of copper carbonate, (dry)
(d) Resistant varieties.

The Potato Virus Research Station, Cambridge.

(October 15th, 1927.)

34. This station possessed a recently constructed insect-proof glasshouse for experiments in connection with the possible transmission of potato virus disease by certain insects. Particular attention was paid to the details of construction of this glasshouse and to the technique employed in this investigation in view of the supposed transmission by aphids of the Bunchy Top disease of plantains in Ceylon.

Bio-Chemical Laboratory, Cambridge.

(October 17th, 1927.)

35. The nature of the work in progress in this laboratory was explained by Professor Sir Gowland Hopkins, F.R.S. and is being directed to:—

(1) Mammalian bio-chemistry.
(2) Certain aspects of plant bio-chemistry.
(3) Nutritional studies such as the biological value of proteins and the properties of vitamins.

Molteno Institute of Parasitology, Cambridge.

(October 17th, 1927.)

36. Professor G. H. F. Nuttall, F.R.S. gave an account of the work of this Institute. A very complete and well displayed collection of the parasites affecting man and domesticated animals was on view.

The Low Temperature Research Station, Cambridge.

(October 17th, 1927.)

37. The work of this laboratory is devoted to ascertaining the effect of temperature on fruit, meat, eggs, and fish.

Department of Zoology, Cambridge.

(October 17th, 1927.)

38. An interesting display illustrating the activities of this Department had been prepared. Of special interest to the writer was the exhibit on British crop pests.

Rothamsted Experiment Station, Harpenden.

(October 27th, 1927.)

39. On arrival an outline of the work in progress at this station was given by Sir John Russell, F.R.S. after which the following departments were inspected and the work in each department explained in greater detail:—

(1) **Bacteriology Department.**—The main work of this Department relates to the study of the nodule organism *Bacillus radicicola* in connection with the inoculation of Lucerne seed and the changes in bacterial numbers from day to day in field soils.

(2) **Botany Department.**—The chief investigations in progress deal with:—

(a) The action of copper sulphate and silicates upon plant growth.

(b) The physiological significance of boron in the nutrition of various plants.

(c) The action of various chemical substances upon the germination of seeds.

(d) The influence of fallowing upon the weed flora of Broadbalk field.

(e) The comparative effect of artificial fertilisers on meadow hay.

(3) **Chemistry Department.**—The subjects under investigation relate to nitrogen and carbon cycles, green manuring, chemical processes in the soil, soil reaction, phosphatic, nitrogenous and potassic fertilisers, barley investigations and the influence of certain manures on the yield and sugar content of sugar beet.

(4) **Fermentation Department.**—The work of this Department was confined chiefly to the investigation of synthetic farmyard manures and the purification of the effluents from beet-sugar factories.

(5) **General Microbiology Department.**—The investigations of this Department relate to a study of soil bacteria and protozoa and their effect on nitrogen fixation, ammonification and carbon hydrate decomposition in soils of various types. The effect of treating soil with steam or volatile antiseptics is also under investigation.

(6) **Insecticide and Fungicide Department.**—The insecticidal action of plant extracts and synthetic organic compounds both upon adult insects and their eggs is being tested. Investigations are also in hand regarding the insecticidal effect of stomach poisons and the tolerance of foliage to them. Experiments are in progress with the object of discovering new materials for the destruction of soil pests. Further investigations deal with the changes which sulphur undergoes in the soil under varying conditions. In view of the importance of this subject and the need, as expressed by a resolution of the Conference, for further exploring the chemical field in the hope that new and valuable insecticides and fungicides might be discovered, an undertaking was given that a number of wild Ceylon plants, which are known to possess toxic properties against fish will be collected and dispatched to Rothamsted for analysis and trial.

(7) **Soil Physics Department.**—The investigations of this Department relate chiefly to problems of soil tilth, the effect of clay and organic matter upon the soil particles, the colloidal property of the soil, and the relations between soil solution and the soil. The question of soil cultivation is receiving special attention.

(8) **Statistical Department.**—Enquiries are in progress to ascertain the effects of rainfall and temperature upon certain crops. Investigations regarding the relations between weather responses and manurial treatment have led to certain improvements in the design of field plot experiments, resulting in a considerable reduction of experimental error.

(9) **Entomology Department.**—The work of this Department deals with the reproduction and migration of Aphides a study of the control of insect pests by parasites, apicultural investigations, the control of weeds by insect enemies particularly that of Gorse (Ulex) in New Zealand, an enquiry into the Gall-midges attacking cereals and the seeding of meadow foxtail. The type of insectary in use at this station where insects are bred, as nearly as possible, under open air conditions was of special interest. Methods of breeding termites in capti-

vity were discussed with Dr. A. D. Imms of this Department, who has considerable experience of this type of work.

(10) **Mycology Department.**—The investigations in progress include:—

(a) A study of soil fungi and algae.
(b) The genetics of fungi.
(c) The relation of nutrition to parasitic disease in plants.
(d) The physiology of parasitism with special reference to fungal and bacterial diseases of tropical crops.
(e) The physiology and genetics of the Smut fungi.
(f) The nature and causes of Virus diseases of plants.
(g) Wart Disease of potatos.
(h) Fungicidal investigations.

East Malling Research Station.

(November 1st, 1927.)

40. An account of the work in progress at this station was given to delegates by the Director, Mr. R. G. Hatton, and was followed by a tour of the station and laboratories. During the tour of the station demonstrations on the following subjects were given:—

(a) Variation of horticulturist's material.
(b) Measure of control through rootstock.
(c) Incompatibility of stock and scion.
(d) Pruning in relation to purpose and variety.
(e) Manuring of fruit trees.
(f) Advantages of vegetative methods of propagation.

(1) **Physiology Laboratory.**—The following are the subjects engaging the attention of this laboratory:—

(a) Physiological classification of rootstocks.
(b) Analysis of influence of rootstock on scion.
    1. Influence of stem as apart from root.
    2. Distinction of quantitative from qualitative factors.
    3. The blending of stock characters.
(c) Problems of vegetative propagation.
(d) Relation of secondary thickening to new shoot.

(2) **Mycology and Bacteriology Laboratory.**—The problems under investigation by the staff of this laboratory are:—

(a) Bacterial diseases of plum and cherry trees.
(b) Raspberry diseases.
(c) Crown-gall on nursery stocks.

(d) The effect of root stock on the susceptibility of the scion as illustrated by apple mildew and apple scab.

(e) The control of apple scab and mildew.

(f) The distribution of the Brown Rot fungi.

(3) **Entomology Laboratory.**—The entomological investigations at this station relate to the resistance of apple stocks to Woolly Aphis attack, the control of the Black Current Gall Mite, dormant winter wash trials, and the control of the Apple Blossom Weevil.

The Parasite Laboratory, Farnham Royal.

(November 3rd, 1927.)

41. This laboratory, which stands in six and a half acres of ground is situated near Slough and is maintained by the Imperial Bureau of Entomology. The conversion from a country residence into a laboratory has been skilfully done and the rooms have been well fitted with modern equipment. At present the staff consists of a Superintendent, two technical assistants in addition to a subordinate staff of laboratory assistants, gardeners and a mechanic. Two well constructed insectaries have been erected for the rearing of parasites, and a cold storage plant has been installed.

42. Work in progress, and contemplated, relates to parasites of the Codling Moth, the Lucerne Flea, the New Zealand Earwig, Woolly Aphis, and the Sheep Blow Fly. Several consignments of parasites have already been successfully shipped abroad. A very useful catalogue of the known parasites of world pests is being compiled and an undertaking was given to furnish a complete list of the parasites of common pests already known in Ceylon, many of which may not have been previously recorded. This list is already in preparation. The possibility of securing parasites for tea tortrix was discussed but there was no information available on this matter which would require independent investigation.

43. With the extension of this laboratory and an increase in staff, following further financial support, there can be little doubt that it will, in the future, prove a most valuable Imperial asset and is deserving of the support of every Colonial Government interested in agriculture.

Long Ashton Fruit Research Station, Bristol.

(November 4th, 1927.)

44. A tour of the laboratories and station was made and the work in progress explained in detail. The writer devoted most of this visit to a discussion with Mr. Swarbrick on the heal-

ing of woody stems a subject to which he has devoted a great deal of research. This is a matter which may be of importance in connection with the prevention of die-backs in recently pruned tea bushes, and consequently lead to a diminution in the very serious condition known as wood-rot or " canker."

The South-Eastern Agricultural College, Wye.

(November 7th, 1927.)

45. An account of the courses of instruction was given by Mr. Wilson the Principal, and visits to the laboratories and farm were made.

Appendix I.

Research Institutions to which visits by delegates to the Conference had been arranged.

Cambridge.

National Institute of Agricultural Botany.

Department of Agriculture.

School of Forestry.

University Farm and Potato Virus Research Station.

Bio-Chemical Laboratory.

Molteno Institute of Parasitology.

Low Temperature Research Institute.

Balfour Institute of Genetics.

Department of Zoology.

Institute of Animal Pathology.

Edinburgh.

Animal Breeding Research Department, Edinburgh University.

Royal (Dick) Veterinary College.

Animal Diseases Research Station.

Plant Breeding Station and Plant Registration Station. (Corstorphine).

Aberdeen.

Rowett Institute.

Craibstone.

Belfast.

Gracey Bros.' Cold Store.

Hilhall, Lisburn. (Poultry fattening).

Plant Breeding Station. (Stormont).

Poultry Station. (Stormont).

Animal Diseases Research Station. (Stormont).

Linen Research Institute. (Lambeg).

Other Centres.

The Rothamsted Experiment Station.

Imperial College of Science and Technology. (London).

Royal Botanic Gardens, Kew.

Oxford University.

East Malling Research Station.

Royal Veterinary College, Camden Town, N.W.

Institute of Agricultural Parasitology, St. Albans.

Ministry of Agriculture and Fisheries, Veterinary Laboratory, New Haw, Weybridge.

Royal Horticultural Society's Gardens, Wisley, Surrey.

Glasshouse Crops Station, Cheshunt, Herts.

Long Ashton Fruit Research Station, Bristol.

National Institute for Research in Dairying, Shinfield, Nr. Reading.

Welsh Plant Breeding Station, University College of Wales, Aberystwyth.

Agricultural Department of the University College of N. Wales, Bangor. (Soil Surveys).

South Eastern Agricultural College, Wye, Kent.

The Parasite Laboratory of the Bureau of Entomology at Farnham Royal, near Slough.

Forest Products Research Laboratory at Princes Risborough, Bucks.

British Research Association for the Woollen and Worsted Industries, Leeds.

John Innes Horticultural Institution, Merton Park, Surrey.

Imperial Institute, London.

Appendix II.

Papers submitted to the Conference from Ceylon:—

By the Director of Agriculture.

1. Memorandum on Agricultural Organisation and its work in Ceylon.
2. Memorandum on Agricultural Research Work in hand at present in Ceylon.
3. The establishment of a Bureau of soil and Agricultural Chemistry.
4. The Co-ordination of General Agriculture and Agronomy in the Tropics.
5. Provision for Specialists to visit other Colonies and Protectorates.
6. The effect of Grasses and other Plants (e.g., Leguminous Cover Crops) on Permament Tropical Crops.
7. Soil Erosion.
8. "Shifting" Cultivation.

By the Government Veterinary Surgeon.

1. Memorandum on Work of the Veterinary Department, Ceylon.
2. Economic Aspects Regarding the Place of Live Stock in Tropical Agriculture.