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Report for 1955

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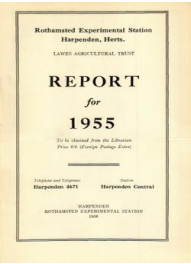
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Tropical Soils

H. Greene

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TROPICAL SOILS

H. Greene

H. Greene visited the Gold Coast and the Gambia in March 1955. In the Gold Coast, members of the Department of Soil and Land-Use Survey, directed by Mr. C. F. Charter, have observed a pronounced lack of magnesium in strongly acid soils which have failed to support cacao. On the other hand, cacao has survived on less acid soils having a higher content of magnesium. That young cacao plants grown in containers need magnesium had been demonstrated in the Belgian Congo by Professor M. V. Homès. These observations throw a welcome light on the nutritional needs of this important crop. Greene also visited the Kpong Irrigation Research Station, which is within the extensive black clay region of the Accra plains. Successive showers were preventing tillage of the sticky soil : tests will show what crops can be grown in spite of the difficult physical conditions. Detailed and reconnaissance soil surveys have been carried out here. Under the direction of Professor J. F. V. Phillips, work has begun at the Nungwa Agricultural Research Station which includes red sandy loams and grey sands, as well as the dark clays of the Accra plains. Large responses to N and P fertilizers have been obtained on the grey sands.

In the Gambia, Dr. R. A. Webb of Long Ashton has been able to demonstrate by means of pot experiments severe nutrient deficiencies in the reddish acid sands which have received no fertilizer in spite of repeated cropping with groundnuts. To make the new information of use to the cultivator, field experiments are needed, but lack of staff for this purpose created difficulties which were discussed in the Gambia and in London.

Greene attended the 9th and 10th sessions of the UNESCO Advisory Committee on Arid Zone Research which were held in Arizona and New Mexico (April, May 1955) and in Paris (November 1955). This committee recommends to the Director General of UNESCO the allocation of grants for studies in the plant ecology, animal physiology and climatology of arid regions. Grants are also made for training, for the publication of reviews and for the holding of symposia. A symposium on Arid Zone Climatology with special reference to microclimatology is to be held in Australia in October 1956. For the next few years the plan is to concentrate attention on problems of arid areas in the Near East and South Asia. The 9th session of the Advisory Committee was held in conjunction with an International Arid Lands Conference organized by the American Association for the Advancement of Science. Local interest was increased by the fact that the discussions were preceded by a punishing succession of dry years. After the meetings, Greene visited irrigation and drainage projects in California and Utah. Post-graduate training in irrigation and drainage is offered by the U.S. Bureau of Reclamation ; help with salinity problems is offered by the U.S. Salinity Laboratory at Riverside, California.

A sub-committee which advises the Colonial Office on soil

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problems recommended soil survey in Swaziland where irrigation is being developed. G. Murdoch, a member of the recently constituted pool of soil surveyors, has accordingly been seconded to Swaziland, and Greene went with him in October 1955 to help in getting the soil survey started. Greene was also able to discuss with Col. C. J. van Heerden and with Mr. A. C. Venn the extension to Swaziland of field experiments with fertilizers that have been so fruitfully initiated in Basutoland by Mr. Venn. Greene also visited Basutoland. During the past 15 years, soil conservation has made good progress in Basutoland, but there are still many gullies and in these there are striking exposures of solodized solonetz, a kind of soil first described in south Russia. In Mr. Venn's experiments with maize, this soil responds to lime as well as to phosphate and dung. Mr. Venn will now begin rotation experiments, probably including legume and cereal crops. This work will effectively support and supplement progress in soil conservation.

In early November Greene revisited the Sudan after an interval of 10 years and found that field experiments with irrigated cotton at the Gezira Research Farm were being carried out with faultless precision. The late Dr. E. M. Crowther helped to introduce into the Sudan the new techniques of field experimentation soon after they were used at Rothamsted and, over a period of years, this influence was maintained by his brother, the late Dr. Frank Crowther. As a result of this, the Sudan has about thirty years' start on territories like Swaziland or the Gambia in this essential and remunerative work. It seems, however, that in the Sudan there is need for further research in plant pathology, plant physiology and soil microbiology, and at present difficulties of recruitment, though not peculiar to the Sudan, have been accentuated by Sudanization of various Government services. This is a particular case of a general and urgent problem : much thought is being given to ways of maintaining the flow of technical aid to underdeveloped countries. If help in scientific research can be given and accepted without provoking antagonism it may go far towards easing social tension as well as achieving practical results.

Recruitment of scientists for soil work in British colonial territories has lagged only a little behind current needs. The creation of " pools " based in this country has helped to secure some young graduates, who, after further training, are available for short-term jobs overseas, and who may accept long-term appointment where that proves convenient.

When at work overseas, soil scientists are liable to lack easy contact with professional colleagues. In order to alleviate this isolation the Adviser on Tropical Soils sends out occasional circulars containing notes on books, equipment and items of soil news. Thus it was reported that a substitute for the expensive porcelain vessels used in pot experiments is provided by polythene tubing within a strong brown-paper bag. These Kraft–polythene containers, which can be sent by post, are supplied in two sizes by Messrs Bennett Bros., Counterslip Works, Bristol. They may permit tests for nutrient deficiencies in places where it is difficult to get porcelain pots. The value of such tests has recently been demonstrated by Dr. R. A. Webb in the Gambia and by Dr. E. M. Chenery in Uganda. Among the news items circulated were notes on soil surveys carried

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out near Ilesha (Nigeria), Mbosi (Tanganyika), Lower Rufiji (Tanganyika), the Trans Perak Swamp (Malaya) and on the Land-Use Survey in British Honduras. A note on the preparation of fresh water from salt reached Dr. H. C. Pereira just after he had received an enquiry about the possibility of processing the brackish water of Lake Rudolph. Other correspondents may have had no interest in that subject, but on the whole they seem to like the snippets of news that are sent round to them in this informal way.