

ROTHAMSTED EXPERIMENTAL STATION

ANNUAL FIELD DAY

ON June 28, the annual field day and inspection of the laboratories was held at Rothamsted, Lord Radnor, chairman of the Lawes Agricultural Trust Committee, presiding. There was a large attendance representing agriculture and the allied industries. Sir E. Kaye le Fleming, chairman of the Council of the British Medical Association, was the chief guest. His presence was a welcome sign that medical men are deeply concerned with matters of human nutrition, and recognize that a prosperous agriculture based on a fertile soil is essential for the supply of home-grown 'protective foods' on which the well-being of our town population depends. This common ground between medicine and agriculture had been thoroughly explored two months previously in a national conference organized by the British Medical Association in which nutritional experts and agricultural scientists took part (see NATURE, of May 6, p. 745); the proceedings at Rothamsted showed that both sides desire this co-operation to continue and develop. The main position, as Sir Kaye pointed out, is clear; doctors are agreed that a high proportion of the population do not enjoy a diet sufficient for the highest physical well-being, and nothing but good could come from a determined attack on this problem. From the medical side, the framer of agricultural policy needs definite information as to the kinds and qualities of food stuffs required to build up an adequate diet, and this information is apparently now available. It is for the agriculturist to show how commodities of the necessary standard may be produced with economy of effort and the maintenance of the land.

In his survey of the activities of the Station, Sir John Russell mentioned that some work had already been carried out in the Dunn Nutritional Laboratories at Cambridge on certain aspects of the vitamin content of the produce of the Rothamsted plots. But so far there has been no confirmation of the view frequently expressed that the nutritive value of produce grown with organic manure is superior to that grown with artificial fertilizers. The produce of the classical fields should provide excellent material for settling points such as these.

An increasing amount of experimental work at Rothamsted is concerned with the action and value of organic manures. Studies are in progress with straw in its many forms, with turf obtained by the ploughing up of grassland, with green manures, and with town refuse. An extensive investigation of poultry manure has been completed, and work on wastes and sewage sludge is in prospect. So far, yield determinations have been the chief measurements; but the much more difficult questions of quality and nutritional value can scarcely be ignored.

The tour of the farm, always an important part of the proceedings, affords an unrivalled combination of the oldest and the newest in field experimentation. Broadbalk, carrying an excellent crop of wheat this year, showed the striking effects of the manurial treatments begun by Lawes and Gilbert ninety-six years ago and continued ever since, the plots gaining

rather than losing interest from the periodical bare fallows recently superimposed upon them. The field is much studied now, not simply as a demonstration of manurial principles, but as a guide to the practical problems of corn growing under semi-continuous conditions. Many wheat growers would be quite satisfied with crops as thick and healthy as Broadbalk has recently carried, for the foot-rot diseases, so troublesome when wheat is grown too frequently on the lighter soils, are seldom serious on the clay loam of the classical field. The continuous barley on the adjoining Hoosfield tells the same general story as Broadbalk, with important differences that are readily visible; the barley, for example, is more sensitive to phosphate deficiency than the wheat but less affected by potash starvation.

Passing on to the modern experiments, the visitors inspected several of the new designs set out to measure fertilizer effects on a sequence of crops. These are necessarily more complex than experiments lasting for a single year only, since special provision must be made to take account of the seasonal factor. One of the modern experiments dealing with alternative systems of cropping newly ploughed up grassland, aroused much interest. A series of excellent crops were on view on land that was in good turf so late as February of this year. Fertilizer effects were also on test, as well as several soil insecticide treatments against wireworm. In view of the official encouragement now being given to the breaking up of grassland, this type of experiment is of the greatest importance.

An indoor programme followed. Investigations in the laboratories link up with the farm work in many directions. Thus 'take-all', one of the foot-rot diseases of cereals, is intensively studied in the Plant Pathology Department, where many of the conditions of the survival of the fungus in the soil have been worked out, and control methods are being developed. In the Entomological Department a technique for measuring the wireworm population of the soil has been perfected and used to assess the value of the various soil insecticides tested in the plots. Various methods put forward for predicting the manurial requirements of soils on the basis of their chemical analyses are being examined in the Chemical Department. A wider range of soils than the Rothamsted Farm can provide is necessary for this work, and in recent years an increasing number of outside centres have been established, each providing the results of a precise and comprehensive fertilizer test and the corresponding sample of soil for laboratory examination.

The Rothamsted Centenary is due in 1943 and the Committee proposes to celebrate it by putting the laboratories, farm buildings and other equipment into complete order for the work that awaits them. The Director announced the present position of the Appeal Fund, and said that although good progress has been made in very difficult times, £7,000 is required to complete the first part of the scheme costing £60,000.