THE ORIGINAL FIELD PLOT STUDIES AT ROTHAMSTED

ROBERT V. ALLISON

IT NOW has been a fifth of a century since I was privileged to spend the greater part of a year at Rothamsted. What a memorable and distinctive year it has proved itself, progressively the more cherished and valuable, it seems, with the passage of time.

While many of the associations and experiences of that period continue to stand out clearly, I am sure that the finest of all will always be the opportunity afforded to talk with Sir John Russell, Mr. Edwin Gray, and others about the early work, and especially to visit the classical experimental fields, Broadbalk, Agdell, Hoos, Park Grass, Barnfield, and all the rest. At such times, it always seemed to me that, by dimming the eyes a bit, one could almost see the tireless forms of Sir John Lawes and Sir Henry Gilbert moving about on the plots among the faithful workers who have carried on and on throughout the many decades of their existence. In fact, I never expect any other experience in my life to be so peculiarly impressive as those visits to the old plots.

EARLY DEVELOPMENT OF THE CLASSICAL EXPERIMENTS

Inasmuch as I have been asked to stress the Original Field Plots or Classical Experiments in the brief time allotted, discussion largely will be limited to those regarded as the principal five, namely, the Broadbalk Wheat Experiment, started in 1843; Agdell Rotation Experiment, started in 1848; Hoos Barley Experiment, started in 1852; Park Grass Permanent Hay Experiment, started in 1856; and the Barnfield Manganese Experiment, started in 1876. The Broadbalk Wheat Experiment was considerably modified as to manorial treatments in 1852, in that only three of the treatments laid down in 1843 have been continued through an entire century without change. However, the chemical treatments have been continuous following the 1852 revision, though a cultural change became necessary late in the 18th century to control weeds which were fouling the plots badly by that time. This was first done by fallowing halves of all plots on alternate seasons for a period of years. However, when a solution for the same problem again became necessary about 1925, the practice of fallowing one-fifth of the field each year was developed. This is continued to the present time, thus giving a rotation of four years wheat and one year fallow.

While these five classical fields have carried the oldest and best known of the Rothamsted experiments, studies that have been laid out on Great Knott, Little Knott, Greatfield, and others must be considered in any complete review that properly show the great part that Rothamsted has played in laying the foundations of Agricultural Science.

A RESPONSE TO FARM PROBLEMS OF THE TIME

It is of particular interest to know that the first comprehensive field studies known to agriculture were planned and developed as an attack on farm production, due to the decline in the yield of certain crops on certain soils. When Sir John Lawes took over the home farm in 1834, at the age of 20, he quickly became aware of these practical problems through the fact that yields were becoming more and more difficult to maintain. History records that one of his first comprehensive field studies was made to determine the differential field response to artificial manures. Through the observation of a neighbor who pointed out that while bone was indispensable for a crop on one farm, another it was useless, Sir John was able to determine that one of the rare powers of insight into natural processes was in the United States in 1895 when he observed on超级phosphate through the treatment of bone and rock with sulfuric acid was first observed and it was during the period of development in the work that an old barn served as a laboratory.

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