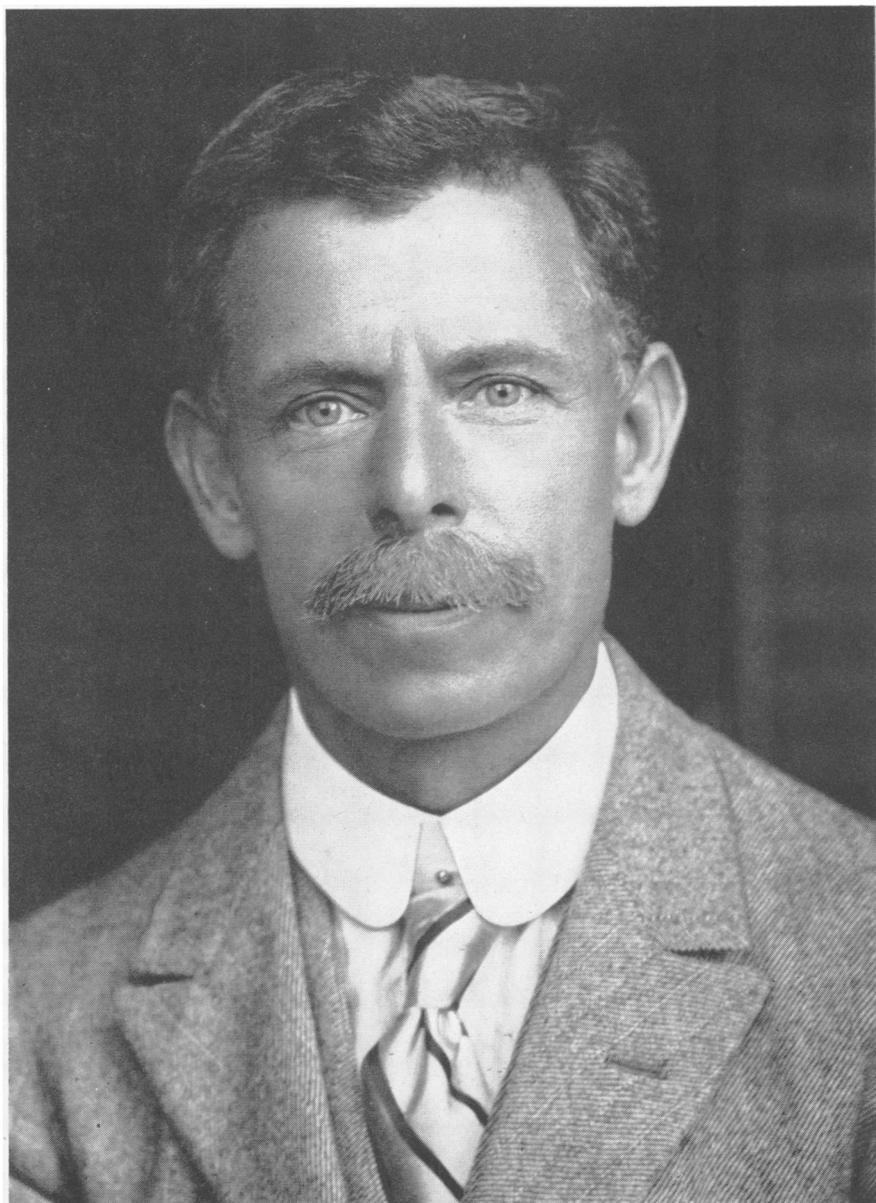


THIS NUMBER OF PLANT PHYSIOLOGY  
IS DEDICATED TO  
SIR EDWARD JOHN RUSSELL  
IN HONOR OF THE SEVENTY-SECOND ANNIVERSARY OF HIS BIRTH  
OCTOBER 31, 1872-OCTOBER 31, 1944



SIR EDWARD JOHN RUSSELL  
OCTOBER 31, 1872

# PLANT PHYSIOLOGY

JULY, 1944

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SIR JOHN RUSSELL

FIRMAN E. BEAR

(WITH ONE PLATE)

Recently retired from the Directorship of the world-famous Rothamsted Experimental Station at Harpenden, Hertfordshire, some 25 miles out of London, Sir JOHN RUSSELL is now living at Woodstock, near Oxford, England. For 31 years he served with distinction as the administrative head of this renowned research institution, the Mecca of agriculturally-minded scientists from all quarters of the globe. Under his direction the Rothamsted laboratories, established a century ago by JOHN BENNETT LAWES, widely extended the range of their researches and contributed greatly to our knowledge of plants and animals, and of the soil upon which they depend.

EDWARD JOHN RUSSELL was born at Frampton, Gloucestershire, on October 31, 1872, the eldest son of the Reverend EDWARD T. RUSSELL. He was educated at University College of Wales, Aberystwyth, and at Victoria University, Manchester, and was later granted the D.Sc. degree from the University of London. He was elected a Fellow in the Royal Society in 1917 and achieved knighthood in 1922. Honorary degrees have been conferred upon him by the universities of Wales, Manchester, Toronto, Maryland, South Africa, Rutgers, Oxford, and Berlin. He was elected president of the International Society of Soil Science in 1930, completing his incumbency in that office at the end of the highly successful Soil Congress held at Oxford in 1935.

Following his university graduation, Dr. RUSSELL became successively lecturer in chemistry at Victoria University, 1898–1901; head of the chemistry department at the Agricultural College, Wye, 1901–1907; Goldsmith Company's soil chemist at Rothamsted, 1907–1912; and finally director of the Station, 1912–1943. In 1903 he married ELNOR OLDHAM of Manchester by whom he had six children, of whom four are living. One son, WALTER, is now soil-physicist on the Rothamsted Station staff.

Under Dr. RUSSELL's direction, new impetus was put into the study of soil microbiology, which was taken up where the pioneering work of PUGH and WARINGTON had left off some years earlier. Four lines of investigation were envisioned, *viz.*: algae, fungi, protozoa, and bacteria, and the accom-

plishments of Rothamsted for the last quarter-century were largely associated with this development. Early in this period, studies on soil sterilization by heat and volatile antiseptics were undertaken as a result of which it was found that the net effect of such treatments was a marked increase in bacterial activity. Out of this discovery grew the "protozoan theory of soil infertility," which was destined to become the center of a world-wide controversy. It assumed that bacterial development in the soil was kept in check by predatory protozoa that could readily be destroyed by partial-sterilization procedures.

Such enthusiasm for this theory was developed at Rothamsted that practically all of the Station's energies for many years were put into very detailed studies of the effects of partial sterilization on the soil microflora and microfauna. Some idea of the intensity of the attack on this problem is gained from the fact that, for a whole year, daily counts were made of the bacteria, amoebae, ciliates, and flagellates in the soil of certain of the field plots. In due time, however, the several microbiologists who had been assembled for these studies began to uncover more promising fields of study. Among these may be mentioned the researches on the nature of the aerobic bacteria concerned in cellulose decomposition; those on the balance between the nodule bacteria of legumes and their hosts; and those on nitrogen-carbon ratios required for rapid decomposition of organic matter in the production of synthetic manures.

To be a successful Director of the Rothamsted Experimental Station, as Sir JOHN unquestionably was, called for a degree of versatility few men possess. Thus the Station was constantly besieged by visitors from all over the earth, some of whom stayed on to work in the laboratories. Twice during his incumbency, England was faced with famine, as food shipments were cut off by the enemy submarines of World Wars I and II. In the intervening periods, ever greater demands were being made on his time, as requests for assistance came from the far-flung parts of the vast British Empire. Thus, although he began as a chemist, and became better known as a microbiologist, Dr. RUSSELL eventually qualified as an agriculturist, as his energies came to be directed more and more toward the broader aspects of the problems of food production.

In the memorable tour of the members of the International Soil Science Society in 1927, following the Soil Congress in Washington, Dr. RUSSELL was the outstandingly popular scientist of the group. At every stopping point on the tour across the United States and back by way of Canada it was he who was called upon to address the gatherings assembled at the banquets arranged by the local entertainment committees. Thus he possessed the capacity for adjustment that permitted of his being a democratic personality in America, but with an attractive trace of the blue-blooded Englishman that came to the fore when the occasion demanded. Certainly no one of the foreign visitors in this group of scientists understood America like Sir JOHN, for he had made lecture tours over the continent and had come to have

tremendous influence on the thinking of our state experiment stations, which are, in effect, copies of Rothamsted.

As an agriculturist, Dr. RUSSELL thinks of the soil, the microbes that live in it, the plants that grow on it, and the animals that consume its produce more as a critical scientist who sees promise of interesting discoveries than as one who runs his hands lovingly through the freshly plowed earth. Anyone who has taken the time to study his "Soil Conditions and Plant Growth," a book that has gone through six editions, and is the crowning publication of his career, will be impressed by the breadth of his scientific vision rather than by the down-to-earth quality of his writing.

A tremendous amount of energy is wrapped up in the body of this wiry, keen-minded man. Probably no other soil chemist and microbiologist has ever traveled so far, seen so many types of farming, and contacted so many research workers in their own laboratories as has Sir JOHN. And wherever he has gone, this restless energy has impelled him to look about in search of new truths in the field of agriculture. Many an associate has walked more miles across the fields, along country roads, or through city parks than he had intended because Dr. RUSSELL felt happier with his feet on the soil and his thoughts on the flora it supports. It is even rumored that he walked up Pike's Peak rather than go by automobile, but there are those who say he walked down instead.

Sir JOHN RUSSELL is widely known as a speaker on agricultural subjects, and when he speaks, men listen because he brings to bear on the subject a more-traveled and broader understanding than most men possess. Within recent years he has been devoting a great deal of time toward the bringing about of more friendly relations between the scientific workers in the field of agriculture in Soviet Russia and those in Great Britain. It is to be hoped that he may still find it possible to come this way again to tell us what is on his mind. In lieu of that, possibly some of us may be privileged to knock at his door, and enjoy a renewal of longstanding friendship. We wish him every happiness as he matures to a ripe old age in the peaceful little English village of his choice, overlooking the lovely agricultural region roundabout.

NEW JERSEY AGRICULTURAL EXPERIMENT STATION  
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