S. J. ROWLAND, B.Sc. (Hons.), Ph.D., Reading, F.R.I.C.

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Obituary

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Samuel John Rowland, who had been a member of the senior staff of the National Institute for Research in Dairying since 1939 and Head of the Chemistry Department from 1950 till his retirement in 1968, died on 12 April 1971 after a coronary thrombosis. Under his headship the Chemistry Department developed from a small analytical section to one of the foremost centres in the world for the advanced study of the composition of milk and of the influence of changes in the feeding, management and environment of the dairy cow on lactational efficiency. He served for 11 years on the Editorial Board of this Journal.

He was born in Yetminster, Dorset, on 15 January 1907. Both his father and his mother (who is still alive) came of West Country farming stock. Rowland entered Sexey's School in Bruton, Somerset, in 1920 with an Intermediate County Scholarship. At Sexey's he was fortunate to find unusually good facilities for scientific studies; this school has given, for 60 years or more, an early interest in science to a succession of boys who, like Rowland, have later achieved eminence in the scientific world. Its influence doubtless played a large part in deciding the young Rowland to take up a scientific career. He did well at school, becoming captain of one of the Houses.

In 1925 he entered the Honours School of Agricultural Chemistry, Reading, which had been recently established under the headship of Professor H. A. D. Neville, an outstanding and discriminating chief who played a large part in the development of the young University. Neville was much impressed by Rowland's ability and shortly after the latter's graduation with honours in 1929 took him on to his staff as lecturer in Agricultural Chemistry.

In his undergraduate days Rowland, tall and well-built, was a considerable athlete, representing his University in football, hockey, lawn tennis and athletics. He became Chairman of the University Athletics Club. For several years after graduation he maintained his skill on the tennis court, but with his increasing responsibilities, amongst which was his becoming official Resident of St Patrick's Hall, most of his other athletic activities had to go by the board.

He remained on Neville's staff for 10 years, during which his researches on the nitrogen compounds in milk resulted, *inter alia*, in a new and valuable method for their analysis. He received a Ph.D. in 1936. In the following year he married Joyce Lansdell of Long Stretton, Norwich, then an assistant librarian in the University.

Though an efficient University teacher, Rowland's real inclination was towards research, and a vacancy which occurred in 1939 at the N.I.R.D. for a 'Chemist and Research Analyst' greatly attracted him, particularly since the Institute was actively extending its research on the composition of milk. He applied for the post and was duly appointed. During the war years much of the duty of the 'Chemist and Research Analyst' was in providing analytical services for other departments, but some chemical research continued. In 1947, Rowland was given charge of an Analytical Section and in 1950 was appointed Head of the full Department of Chemistry, with staff and accommodation of more adequate size.

It was with milk proteins, their quantitative determination, their important industrial properties, including thermolability, and the causes of their variability that much of Rowland's work during a large part of his research life was concerned. His papers published between 1933 and 1939 were laboratory investigations in one or other of these fields. After his appointment to the N.I.R.D. in 1939, which occurred within a few weeks of the outbreak of the war, his interest in milk proteins did not diminish, though as research analyst to the whole Institute his work of necessity embraced a wider field.

One practical war-time outcome of his protein investigations was the disturbing finding that, especially during the winter months, an increasing proportion of milk of inferior protein content was reaching the market. During the war, and in the period immediately following it when the national diet was exceptionally dependent on milk, even a small loss of the nutritionally valuable milk protein was a serious matter. With his colleagues, he was able to provide cogent evidence pointing to the major reasons for this defect. In collaboration with Stephen Bartlett of the Dairy Husbandry department of the Institute he made the important and unexpected finding that it was a shortage of energy rather than a shortage of protein in the diet of the cow that reduced the protein content of her milk – a finding of obvious practical importance.

Amongst the many subjects concerned with lactational efficiency that were studied from 1939 onward by Rowland and colleagues from his own or other departments at Shinfield were the effect on the composition of cow's milk of carefully controlled alterations in the diet (an example is mentioned above) and of other experimental variables – iodinated protein, thyroxine and related compounds, oestrogens, corticotrophic hormones, pre-partum feeding, pre-partum milking, incomplete milking, fractional milking and novel fertilizer treatment of grassland. The fatty acid and other constituents of rumen contents in relation to dietary changes, the composition of silage made in different ways from different materials, the causes and control of hypomagnesaemia and grass tetany, the effect of mastitis on milk composition, and the freezing point of normal and abnormal milk, were also amongst the many questions whose chemical or analytical aspects were investigated by Rowland in collaboration with various colleagues.

His first major researches in the 1930s had been dependent on careful chemical analysis of a complex fluid of great nutritional and commercial significance. During the next 30 years of his working life, alongside his other research and departmental activities, he continued to improve, refine, and assess the real value of these analytical methods, so important to the dairy industry.

Increasing ill health, which after some 10 years was eventually the cause of his retirement at the age of 61, diminished his personal output of published work. That of his department did not suffer. He continued to keep in close touch not only with all the research his immediate colleagues were doing but also with any new work in dairy chemistry that was going on elsewhere. He was able to maintain, in his department, a reasonable balance between basic and applied research. He still had the responsibility for most of the analytical work required by other departments of the Institute, and whilst he was always helpful and cooperative he had to be convinced that the seemingly immoderate amount of analytical assistance that was sometimes called for was justified. He reacted most unfavourably to any work that he con-

sidered shoddy and he did not suffer fools gladly. On the other hand he gave much thought to the welfare, both scientific and personal, of his staff – which made for a happy and harmonious atmosphere in his department.

Rowland was very alert and perceptive, calm in discussion and clear in exposition – a well-balanced and experienced research worker whose ill health and death have been a real loss to dairy science.

His wife and his two sons, John Lansdell, A.R.I.B.A., and Alan David, M.A., M.I.C.E., survive him.

H. D. KAY

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