Obituary

JAMES WALTER McLEOD, 1887-1978

A man of outstanding integrity and commanding presence, Walter McLeod, President of the Society for General Microbiology from 1949 to 1952, was born at Dumbarton, near Glasgow, on 2nd January 1887, second of the three sons of John McLeod, a well-known architect, and Lilius Symington McLeod, daughter of James McClymont of Borgue House in the Stewartry of Kirkcudbright. Moving to Edinburgh in 1895, the three brothers attended George Watson's College until 1898 when the family moved to Switzerland, where for two years Walter attended the Collège Cantonal in Lausanne at a time when Britons were not very popular on the Continent owing to events in South Africa, but where he was able to enjoy fishing and winter sports. In 1900 he returned to Britain, being a pupil at Mill Hill School, London, under the famous headmaster Dr (later Sir John) McClure. In 1903, aged only 16, he entered the University of Glasgow as a medical student, graduating M.B., Ch.B. with commendation in 1908. Already, as a student, he showed a wide range of interests being active in the Student Christian Movement and, aided by his excellent physique, playing both with the Rugby XV and the Cricket XI and taking third place in the Scottish Inter-University Mile.

After 'house' appointments with Dr John Cowan at Glasgow Royal Infirmary and Sir Kennedy Dalziel at the Western Infirmary – both influential personalities as well as great doctors – McLeod was appointed Coats Scholar and later Carnegie Scholar in Robert Muir's Department of Pathology, where he worked under Carl H. Browning on bacterial haemolysins and especially streptococcal haemolysin. During this period he went to India as ship's surgeon and was also a *locum tenens*. In 1912 he left Scotland to become assistant lecturer in pathology at Charing Cross Hospital Medical School where he continued his research on bacterial haemolysins and also studied the culture of spirochaetes.

In June 1914 he married Jane (Jean) Christina Garvie, M.A., daughter of Thomas Garvie, a director of the famous Zyrardów textile factories and a member of a Scottish family long resident in Poland. On the outbreak of war he joined the R.A.M.C. as temporary lieutenant, going to France in 1915 as captain in charge of the 8th mobile laboratory. He was mentioned in despatches four times, being awarded the military O.B.E., and worked equally hard at original research on trench fever, trench nephritis, bacillary dysentery and the bacteriology of epidemic influenza. He was invalided out of the army in June 1919 and was then appointed as the first lecturer in bacteriology in Matthew J. Stewart's Department of Pathology in the University of Leeds, thus commencing an association of 33 years with the School of Medicine. In 1920, as a temporary measure, the bacteriological section was moved to St George's House, adjacent to the School of Medicine, and for 12 years McLeod and his staff carried out routine tests and original research in the cramped quarters of this house, with its quaint winding staircases and wooden flooring in which the gas-heated autoclaves would burn holes! In 1922 following the endowment of a separate Chair of Bacteriology by Lord Brotherton, McLeod was appointed as its first occupant and shortly afterwards as Leeds City Bacteriologist.

Although trained as a medical bacteriologist, and whilst retaining his interest in that field throughout his long life, McLeod was equally concerned to promote research in the more purely scientific aspects of the subject as shown, for example, by the establishment of courses in the Faculty of Science leading to an honours degree in bacteriology and by the long liaison with the then flourishing Procter Department of Leather Industries. He entered bacteriology at a time when biochemistry was still in its infancy, when available apparatus

was of a simple, even primitive, type and the research worker in his department had consequently to improvise much for himself and to design experiments accordingly.

From 1920 he worked with the pneumococcus, ultimately demonstrating the formation of peroxide by that organism, and in the succeeding decade he studied bacterial respiration and oxidation–reduction phenomena, putting forward an interesting theory of anaerobiosis and, together with his colleague John Gordon, discovering the oxidase reaction for the recognition of gonococcal colonies in mixed culture, now widely used in diagnostic laboratories. This work resulted in his contribution on bacterial oxidations and reductions to *The Newer Knowledge of Bacteriology and Immunology* (edited by Jordan and Falk, 1928) and his chapter on bacterial respiration in *A System of Bacteriology in Relation to Medicine* (H.M.S.O., 1930). In 1928 he was elected as a corresponding member of the Société de Biologie.

The diphtheria epidemic then current in Leeds gave McLeod a great opportunity to combine his clinical interests with new diagnostic laboratory methods, of which he took full advantage, culminating in 1931 with the recognition of three types of *Corynebacterium diphtheriae* – *gravis*, *intermedius* and *mitis* – which he correlated with clinical severity and which justified the segregation of *gravis* cases in separate hospital wards, for the protection of *mitis* cases from the risk of a more serious cross-infection. This work aroused worldwide interest and much controversy, his heated blood tellurite medium and its subsequent modifications becoming generally used. McLeod later made a comprehensive analysis of the incidence of the three types in the diphtheria epidemics of North-West Europe and of North America from 1930 to 1949 – an instance of the tenacity with which he held on to a problem once his interest was aroused. At that period, McLeod was involved with problems as varied as the recognition of *Clostridium oedematiens*, the infection of patients with *Cl. tetani* acquired from dust in the ventilating shafts of operating theatres, the inhibition of the action of sulphonamides in nutrient media, the cultivation of pathogenic spirochaetes and the recovery of *Haemophilus pertussis* from case contacts. When penicillin first became available in limited amount for civilian use, he undertook the selection of suitable cases for its application and the distribution of the antibiotic in the Leeds area.

In all this work he kept in touch with every member of the laboratory personnel from the most junior technician upwards, and his fairness, equanimity and understanding won for him the greatest respect from all. Many students found difficulty in understanding Professor McLeod's lectures, owing to his Scottish accent and a rather explosive delivery, not aided by his long sentences with many dependent clauses. He was quite aware of this, once stating that he had 'the reputation of being an indistinct speaker'. Certain delightful phrases still linger in the memory, such as an initial experiment being described as 'a preliminary canter' and a previous phrase being annulled by a sharp 'as you were'! Not until April 1933 when Sir Robert Muir opened the new Algernon Firth Institute of Pathology, covering the site of the old building, was the Department of Bacteriology adequately housed.

McLeod received many academic honours. In 1933 his original contributions to bacteriology were recognized by his election to the Fellowship of the Royal Society; in 1946 he became an Honorary D.Sc. of Trinity College, Dublin; in 1957 a Fellow of the Royal Society of Edinburgh; in 1961 an Honorary LL.D. of Glasgow, his *alma mater* – a distinction which gave him especial pleasure; and in 1970 an Honorary Fellow of the Royal College of Pathology. From 1948 to 1952 he was Dean of the Faculty of Medicine at Leeds, work into which he entered with enthusiasm and enjoyment, although it left him but little time for his beloved laboratory work. On the occasion of his retirement from the deanship and the chair, his many friends commissioned Jacob Epstein to fashion a bronze, now in the library of the new Medical School at Leeds, in which the sculptor has preserved something of the distinction and poise of McLeod's magnificent head.

McLeod had many other activities whilst in Leeds. He was an Elder of Cavendish Road Presbyterian Church (now the Clothworkers' Centenary Concert Hall of the University),

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superintendent of the Sunday School and a founder and captain of the 7th (Leeds) Company of the Boys' Brigade, becoming President of the Leeds Battalion for nine years and Honorary Vice-President until his death. He camped annually with his company in August and many men must now have happy memories of those holidays as boys in Nidderdale or at Buttermere. In these activities he had the loyal support of his friend F. C. Thompson, lecturer in the Department of Leather Industries. Both McLeod and his wife were Presidents of the Yorkshire Society for Celtic Studies. He was a member of the University Staff Cricket and Hockey Clubs and at one time was President of the Medical Students' Rugby Football Club.

In his home life he was especially happy, with his wife, one son and five daughters, and their non-alcoholic hospitality was most generous. They lived first at Springfield Mount, only a few minutes' walk from the laboratory, but with the growth of a young family he removed to more salubrious surroundings at West Park, Headingley, from which the family regularly walked three miles to church on Sunday, public transport being eschewed. However, when the children grew older, the family moved back to the old home in the city centre, so conveniently placed for access to the laboratory at all hours of day or night! On one occasion, returning from Scotland by night, McLeod arrived in York to find that he had missed the train to Leeds. At the age of 62, he thought nothing of picking up his suitcase in the early hours of the morning and walking the 24 miles to Leeds.

In 1952 he retired as Professor Emeritus to Dye Cottage in the Lammermuir Hills, but in the following year his wife's death came as a great blow to him. In 1954 he removed to Edinburgh where he became an Elder of St Michael's Church and a lieutenant in the 50th Edinburgh Company of the Boys' Brigade, in which he took an active part, camping with them until 1963. From 1954 to 1963, under the auspices of the Scottish Hospital Endowments Research Trust, he returned to the laboratory bench, working first in the Department of Surgery, University of Edinburgh, and later in Edenhall Hospital, Musselburgh, on staphylococcal toxins and the bacteriology of chronic urinary tract infections of paraplegics.

In 1956 he married Joyce Anita Shannon, M.B., Ch.B. (St Andrews), daughter of Edgar Frederick Shannon and Anita Lily Shannon (née Frost). From 1963 to 1973 he continued his research in the same field, assisted initially by grants from the Royal Society and the Medical Research Council, at the Central Microbiological Laboratories, Western General Hospital, Edinburgh. In this work and in his latter years when he suffered much from a chronic arthritis of the hip joint, necessitating a major operation from which he made a somewhat stormy recovery, and following an operation for cataract in 1970, Walter owed much to the devotion and loyal support of Joyce. He died on 11th March 1978 in his 92nd year after a long illness. The memorable funeral service on 15th March was attended by his wife, all the members of his family, many colleagues and friends at St Michael's Church, Edinburgh, where the officers and boys of the Boys' Brigade formed a guard of honour, followed by interment in the family grave at Longformacus in the Lammermuirs.

He was a truly great man, generous and understanding to all and with especial sympathy for those who suffered due to the fortunes of war – indeed several members of his staff at Leeds were deeply grateful to him for kindnesses shown to them when in distress. Above all, McLeod would stand by his friends as a veritable pillar of strength, unshaken by any consideration if he knew that he was in the right.

K. I. JOHNSTONE