

OBITUARY

JAMES McINTOSH

On April 5 this year Pathology suffered a great loss in the death of James McIntosh, Professor of Pathology in the University of London and Director of the Bland-Sutton Institute of Pathology at the Middlesex Hospital since 1920. He was a man of wide interests, with an international reputation as an authority in several spheres of pathological research.

He was educated at Robert Gordon's College and at the University of Aberdeen, where he qualified in 1905 and was awarded the M.D. with highest honours in 1908. After spending two years with Levaditi at the Pasteur Institute during his tenure of the Alexander Anderson Scholarship, he returned to Aberdeen in 1908 as Carnegie Research Scholar. In 1910 he became a Grocers Research Scholar at the London Hospital, where he worked in association with William Bulloch, Paul Fildes, and H. M. Turnbull until 1920 when, at the age of 37, he was appointed Professor of Pathology and Director of the Bland-Sutton Institute.

His first outstanding contribution to medical science was his pioneer work with Fildes on the perfection of the Wassermann reaction and the application of Ehrlich's new remedy, salvarsan, in the treatment of syphilis. This investigation was a natural sequel to his researches with Levaditi at the Pasteur Institute on *Treponema pallidum* and other spirochaetes. It was there, also in collaboration with Levaditi, that he performed some of the earliest experiments on the development of resistance to arsenical drugs in micro-organisms. He was always interested in the problem of drug resistance, and he returned to it almost forty years later to make fundamental contributions to our knowledge of the development of resistance in bacteria to the sulphonamides, penicillin, and the acridines. His exceptional grasp of the fundamentals of chemotherapy was again shown in the views he expressed with Whitby in 1939 on the mechanism of sulphonamide action, which were later confirmed and brought to fruition by the discovery of the role of *p*-amino-benzoic acid by Fildes and Woods, who were then housed in his Institute. He also played an important part in the clinical application of the new antibacterial drugs, particularly with respect to the bacteriological control and methods of administration—as will be recalled by members of the Association of Clinical Pathologists who heard his address on subacute bacterial endocarditis at the winter meeting two years ago.



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An achievement which alone would have established his reputation in medical research was his classification of the anaerobic bacteria associated with war wounds. He took up this subject during the 1914–18 war, and it is not too much to say that his work made order out of the chaos then existing because of the inadequacy of the methods in current use for the isolation of these organisms. In this difficult subject he displayed great technical dexterity in the new methods he introduced and, with Fildes, he evolved the anaerobic jar that bears their names and is the

indispensable apparatus for the critical study of anaerobes. His report to the Medical Research Council on anaerobic infections is a classic used by all workers in the most exacting discipline in all bacteriology. His services in this field were again called upon in the 1939-45 war, when he was appointed a member of the War Wounds Committee of the Medical Research Council, who profited not only from his wide experience but also from the investigations he conducted on many urgent problems. Indeed one would not hesitate to say that the high standard of the work done on anaerobic infections during the last war was largely due to his life-long interest in the anaerobic bacteria and to the inspiration he gave to many other workers.

Another sphere in which McIntosh gained distinction was the experimental study of virus diseases. He was first actively involved in this field at the London Hospital where, with H. M. Turnbull, he commenced a study of encephalomyelitis following vaccination, which he continued at the Bland-Sutton Institute. In the report on this subject to the Ministry of Health in 1925 McIntosh found himself so much at variance with his colleagues that he submitted a minority report expressing his conviction that vaccinia virus could not be excluded as a cause of post-vaccinial encephalomyelitis. It was not until many years later that his views on the generalization of vaccinia virus and the causation of post-vaccinial encephalitis became widely accepted. In later years he applied his experience in handling viruses to the experimental study of cancer. He made the important observation that tumours induced by tar in fowls could be transmitted by cell-free filtrates. Although other workers have brought forward indirect evidence in support of his findings, none has succeeded in repeating his demonstration of a virus agent in these induced tumours. He was firmly of the opinion that viruses played the dominant part in the aetiology of tumours, and, with the further inroads that are being made by virologists into the tumour problem, his work is now gaining increasing respect. In his handling of viruses his mechanical genius came to the fore—as it had done before in the design of the anaerobic jar—as exemplified by his adaptation of the spinning-top ultracentrifuge for the sedimentation of viruses and his modification of the Sharples centrifuge for the continuous centrifugalization of large quantities of virus suspensions.

McIntosh will also be remembered for the smooth-running organization he built in the Bland-Sutton Institute, which he administered from 1920. Here,

besides carrying on his many scientific investigations, he was responsible for undergraduate teaching in pathology and also for the pathological services to the Middlesex Hospital. His outside activities in the service of pathology were many. He was a member of the Pathological Society of Great Britain and Ireland, for which he acted as treasurer for many years, a senior member of the Medical Research Club, a past-president and representative to the Library Committee of the Pathological Section of the Royal Society of Medicine, and an honorary member of the Association of Clinical Pathologists. He also took a deep interest in the welfare of his laboratory technicians and did great service for many years in the Pathological and Bacteriological Laboratory Assistants Association, now the Institute of Medical Laboratory Technology. He was also an examiner to the Universities of London, Cambridge, and Manchester, and for the Conjoint Board.

In the 1939-45 war he was pathologist to Sector V of the Emergency Medical Service and directed two laboratories in the Aylesbury district in addition to the Bland-Sutton Institute. As Chairman of the London Sector Pathologists Committee he also played his part in co-ordinating the pathological services of the London area. In addition to his work in the Sector and for the Medical Research Council, he also conducted an investigation of cases of encephalomyelitis on behalf of the Ministry of Health.

McIntosh was a bachelor of a rather retiring disposition, and to strangers and even to many acquaintances he was sometimes difficult to understand. His shyness and habit of self-effacement frequently gave the impression that he was somewhat brusque and disinterested. Those who knew him well, however, were aware that it cost him a great effort to show his displeasure and that when he did so some fundamental principle was involved. Misunderstanding also sometimes arose from his way of expressing himself, which led to apparent contradictions, largely because of his habit of letting his thought outstrip his speech. Even so, one was frequently startled by the rapidity with which he got to the core of a complicated subject and summed it up in a few words by a process which defied analysis.

He had many interests outside his profession, such as his series of high-powered cars, his golf, and his garden. He was a genial host and helped many in their private worries. There are many who will miss McIntosh, not only as an inspiring chief but also as a loyal friend.

F. R. SELBIE.

We regret to record the death of Dr. Gordon Wilkinson Goodhart; an obituary notice will appear in the next issue.