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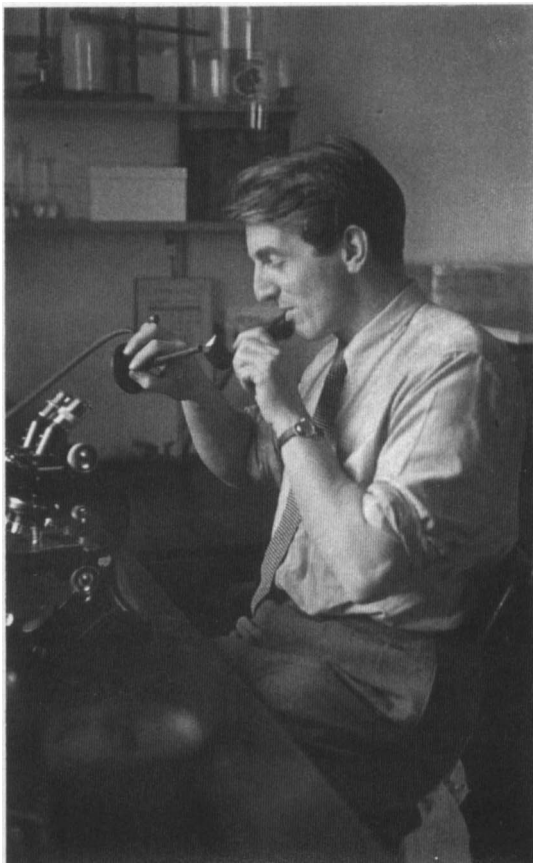
OBITUARY NOTICE



Arnold Ashley Miles
20 March 1904–11 February 1988

Arnold Ashley Miles was born in York where he was educated until he won an exhibition to Kings College Cambridge to read medicine. He died a month before his 84th birthday. He is famous for his simple method of performing viable counts of bacteria and for his co-authorship of Topley and Wilson's Principles of Bacteriology, Virology and Immunity, begun when Topley died in 1944 and continued to the 7th edition published in 1984. The results of his studies on inflammation and the prevention of infection are, however, the most important parts of his outstanding contribution to medical microbiology.

Ashley showed originality and integrity of mind at the age of 12 when no amount of persuasion would make him conform to religious observance which he found unacceptable. As an undergraduate at Cambridge, he developed what proved to be a life-long interest in pathology. Clinical training at St Bartholomew's Hospital, at a time when infection was rife and treatment almost entirely non-specific, centred his interest in the mechanisms in microbe and host which could account for the initiation of symptoms, their variety and for the outcome of infection. Although he gained membership of the Royal College of Physicians while a House Physician he was never attracted to clinical practice. The demands of individual patients would have frustrated his efforts to solve problems which kept presenting themselves to his fertile scientific imagination and he was much too humane to have felt happy to delegate responsibility of care to others.

After qualifying, Ashley became Demonstrator in Bacteriology at the London School of Hygiene where W. W. C. Topley and G. S. Wilson were professors. He was greatly stimulated by the teaching of Professor Topley for whom he retained a lasting admiration. Two years later he returned to Cambridge as Demonstrator in the Pathology Department where he continued work started in

London with G. S. Wilson on Brucella antigens and he collaborated with N. W. Pirie who then held a similar appointment in the Biochemistry Department.

Politically, Ashley was on the left but he was in no danger of joining the Communist Party. He saw a similarity between it and the religious pressure he had withstood as a child.

In 1935 Ashley returned to London as Reader in Bacteriology at the British Postgraduate Medical School and two years later, when he was 33 years old, he was appointed Professor of Bacteriology at University College Hospital Medical School. Now he had responsibility for teaching undergraduate clinical students, Ashley interested himself in diagnostic methods which were at that time qualitative, incomplete and sometimes irrelevant to the clinical problems at issue. He wrote a handbook for those attending the course and developed, and published with a postgraduate Indian student and a statistician, the Miles and Misra viable counting technique. This was invaluable for quantitative work, previously seldom undertaken because the methods were cumbersome and costly. He also showed that Liquoid (sodium polyanethol sulphonate) neutralised the natural bactericidal activity of fresh blood in blood cultures and he insisted on the routine inclusion of anaerobic culture and CO_2 enrichment. However, he was not responsible for the hospital diagnostic service, unless consulted in an epidemic, and it was not until the war, in his capacity as London Sector Pathologist, when the hospital was evacuated to Leavesden near Watford, that these methods were put into practice.

It was known that infection causes far more damage than original trauma so that prevention of wound infection in wartime is of prime importance. Therefore, the Medical Research Council, at the Government's request, set up the War Wounds Committee to devise preventive methods not only in the Field and Base Hospitals but also applicable to civilian hospitals which would receive air raid casualties and which were not subject to strict discipline. Ashley was a member of this committee and became Director of the MRC Infection Unit at the Birmingham Accident Hospital from 1942 to 1946. Methods of infection control were also investigated in the evacuated London Sector hospitals. Ashley collaborated with Wylie McKissock (now Sir Wylie) of the National Hospital Queen Square, whose head injury unit was set up at Leavesden. With McKissock and Joyce Wright he published the first controlled experiment of methods to reduce wound infection in hospital. This pioneering work involved teaching all grades of staff, and Ashley took great trouble to see that everyone in the unit and at Birmingham understood modes of spread. He devised simple experiments which nurses could perform to demonstrate to their own satisfaction that apparently clean sites could be heavily contaminated. For post-graduate trainees, at that time A. C. Cunliffe, E. J. Stokes and R. E. O. Williams, following wound flora from day to day was a valuable diagnostic exercise, especially as Ashley found time to criticise, helpfully, their work. Army pathologists responsible for diagnosis in the field were trained in the Watford laboratory in anaerobic technique, supervised by Nancy Hayward, an Australian microbiology graduate, who published with Ashley the first Nagler reaction plate method for the identification of *Clostridium perfringens* on primary culture plates.

After the war, Ashley left his professorial post when it became clear that financial stringency would not allow him to develop research and in 1946 went to the Department of Biological Standards where he was Director from 1947 to 1952. During this time, in addition to numerous publications on the standardisation of biological products, he collaborated with Janet Niven to investigate enhancement of infection during shock and devised a method of studying inflammatory reactions in guinea-pig skin. In 1952 he left this post to become Director of the Lister Institute of Preventive Medicine and Professor of Experimental Pathology in the University of London, appointments which he held until retirement in 1971. In 1953 he was appointed CBE.

By 1952, antimicrobial therapy had revolutionised bacteriology and this had become the fashionable field for research, but Ashley retained his interest in the fundamental problems of infection and in 1957 published, with J. F. Burke, experimental evidence that the first 4 h after microbial invasion of tissue were vital and treatment delayed beyond this time was unlikely to prevent infection. It took many years for this evidence to be appreciated but it is the basis for short term antimicrobial prophylaxis now generally adopted in surgery. In 1984 Burke gave as his Presidential address to the Surgical Infection Society in Florida, USA, "Ashley Miles and the prevention of infection following surgery".

Directorship of the Lister Institute inevitably led to an increasing administrative load, especially the need to acquire funds for research. By the 1960s Ashley found himself deprived of time for bench work, which he greatly preferred, and was seldom able to publish without collaborators though work

continued on serum globulin permeability factor and its role in the vascular phenomena of inflammation. Ashley was approachable without appointment to his colleagues, senior or junior, and had the capacity to wrench his mind from his own work and understand within minutes problems in other fields. After a few searching questions he would suggest further investigation which often proved fruitful. He would not, however, claim credit for this and his name was never attached to a publication unless he had played a major part in the work. He insisted on clear and precise writing and personally read all papers published from the Lister. His rapid understanding of other peoples problems and his sound judgement made him invaluable as a committee member and in the proceedings of scientific societies. He was a Member of the Medical Research Council, of the Public Health Laboratory Service Board and Committees of the World Health Organization. He was President of the Society for General Microbiology, which he had helped to found, and of the Executive Board of the International Association of Microbiological Societies. In 1961 he was elected Fellow of the Royal Society, served on many of their committees and became Biological Secretary and Vice President from 1963–8. He was an Honorary Member of the Pathological Society of Great Britain and Ireland. In 1966 he was knighted. His election to honorary Fellowships are too numerous to list.

After retirement from the Lister Ashley held an MRC grant to work at the Clinical Research Centre, Northwick Park, where he investigated the importance of free iron as a stimulant to bacterial growth and its possible significance in infection. In 1976 he was invited to be Deputy Director of Medical Microbiology at the London Hospital Medical College. There was a great shortage of experienced medical microbiologists at that time; Ashley accepted the appointment and was glad once more to be among undergraduates and young post-graduate students. He took part in teaching and continued his work on iron metabolism in infection. Unhappily this work was interrupted when he suffered a disabling stroke and although he was able to continue part time, travelling by minicab from his home in Hampstead, he never regained his full remarkable capacity. His last publication was in 1986.

Ashley demanded the highest standards from his staff. He was a fearless critic and could appear formidable; pomposity attracted his wit. He was an iconoclast, which made him unpopular with some, but he was without malice. He always assumed people were as generally well informed as himself and never talked down to students. He was very loyal to, and much loved by, his colleagues.

Ashley's inquiring mind ranged over many fields. Indeed it is easier to mention his lack of interest in sport and gardening than to list those activities which intrigued him. He was knowledgeable in the arts, especially music and enjoyed playing piano duets. Innovators always attracted him, he was an admirer of Britten and Bartok in the 1930s and of Satie, whose music he played for his own entertainment. Had he been wealthy he would have acquired modern French paintings and he admired Steinberg and Escher before they were well known. He was interested in philosophy, both ancient and modern and enjoyed natural history and the countryside. He was an excellent raconteur and to the end of his life acquired a fund of stories, often slightly risqué with which to amuse his friends.

In the laboratory Ashley was helped by his wife Ellen who had missed an academic career through illness in her youth. She was educated in Britain but was half Norwegian and half French. She was witty, stylish and an outstandingly good cook. They were childless and she was able to work with him at the bench during the war and at the Lister; she joked about publishing as Miles and Miles. She was a great support to him in his last years helping him to overcome disablement and in this they were both aided by Barbara Prideaux who had been his secretary at the Lister. Ellen died suddenly in January 1988.

To work with Ashley was stimulating and often fun. To contribute so much to microbiology and yet retain interest and knowledge of what was going on in so many other fields was truly remarkable. The results of his research and teaching will be a lasting memorial to him.

E. JOAN STOKES