

Sir Almroth Wright: pioneer immunologist

This year marks the 150th anniversary of the birth of Almroth Edward Wright, whose pioneer work in immunology saved countless lives, especially in the First World War, but whose name and work are all but forgotten today.

Wright was born in 1861 in Middleton Tyas, Yorkshire, where his father, an Irish protestant and considerable Hebrew scholar, was the minister. Almroth's Swedish mother, the daughter of NW Almroth, governor of the mint in Stockholm, was responsible for his unusual first name. She had the rare distinction of having served as a nurse with Florence Nightingale in the hospital at Scutari in the Crimean War.

Much of Almroth's early life was spent in Dresden and Boulogne, where his father held livings, and he became remarkably fluent in French and German, adding Spanish and, in much later life, Russian to the list of his languages. In 1878, Wright entered Trinity College, Dublin and graduated 4 years later with first class honours in modern languages. At the same time he studied medicine and qualified as a doctor in 1883.

Never attracted by clinical practice, Wright left immediately for Leipzig, to research blood coagulation, then to the Brown Institute in London and then Cambridge. In 1889 he moved to the new medical school in Sydney to teach physiology. Two years later ('by the best stroke of luck that a man ever had', he wrote), he was appointed professor of pathology, and only civilian, at the Army Medical School at Netley, the enormous army hospital outside Southampton. It was here that Wright began his seminal work on typhoid fever, then a major scourge in military medicine.

A few years earlier, Pasteur had shown with anthrax and hydrophobia, and Haffkine with cholera that inoculation of living, but attenuated, cultures of bacteria or of virus-containing tissues held the possibility of the prophylaxis of these diseases.

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After many months of intensive laboratory work, Wright and his young colleagues were able to show that killed (and therefore safe) cultures of typhoid bacilli inoculated into both animals and themselves resulted in their blood serum being able to destroy the living bacilli.

There was considerable resistance from the authorities to the use of typhoid inoculation, but its value became apparent in limited trials during the Boer War, where typhoid killed far more soldiers than bullets. At the Siege of Ladysmith, for example, of 10529 uninoculated troops, 1 in 7 went down with typhoid, in contrast to 1 in 48 among the 1705 inoculated men. Wright's work was soon recognized; he was elected Fellow of the Royal Society in 1906 and knighted in the same year.

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Further experience with the British army in India gave even stronger evidence of the efficacy of the vaccine and typhoid inoculation was adopted by the War Office some years before the outbreak of the First World War. During the war, the British troops were almost entirely protected from the disease, notably during a severe epidemic in 1915, after which the German army also introduced typhoid inoculation.

Meantime, in 1902 Wright was appointed professor of pathology at St Mary's. Here, unlike his good facilities at Netley, he commenced work in one small room. At first there was no equipment; he was allocated a grant of £50 to remedy this, all of which was promptly spent on a microscope.

It was at St Mary's that Wright began the work that was to occupy him and his team for the next 40 years; the possibility of controlling bacterial diseases already in progress by inoculation of killed cultures of the responsible organisms – vaccines. For example, using a killed vaccine from a

patient's lesion in cases of chronic staphylococcal infection such as furunculosis, boils and acne. He attracted a group of brilliant young men to the department, including Leonard Colebrooke, who was later to pioneer the use of sulphonamides in puerperal sepsis at Queen Charlotte's Hospital, and Alexander Fleming, whose early observations on the penicillin mould are well known. It might well be that the comparative lack of interest in penicillin at St Mary's was the result of the philosophy that vaccination rather than chemotherapy was the way forward.

In World War 1, Wright and much of his team were recruited into the Royal Army Medical Corps, Wright with the rank of colonel. He was placed in charge of the laboratory at the base hospital established in the casino in Boulogne.

Here his group carried out fundamental work on wound infection, especially by the clostridia, devising new cultural methods for these anaerobic organisms. Wright had numerous clashes with the surgeons, pointing out that powerful antiseptics poured into the wound damaged the tissues as well as killing organisms. He received the Knighthood of the British Empire for his military work in 1918.

Returning to St Mary's after the war, Wright continued to direct the pathology and vaccine departments until he finally retired at the age of 75 years. Even then, when into his 80s, he regularly visited the department – by now he was much occupied by philosophical studies and writings now long forgotten. Of course, treatment by vaccines more or less died in the antibiotic era, and his persistence in the promotion of vaccine therapy was, at the time, misplaced. However, interest is reviving with the possibility of treatment of tumour viruses and of antibiotic-resistant organisms.

Almroth Wright died in 1947 following a myocardial infarction at the age of 85 years. Today his name is little remembered, but his early work on preventative inoculation was at the time revolutionary. **BJHM**

Conflict of interest: none.