

Staph. albus on normal skin and on skin from which the skinoils had been removed by ether — and showed much longer survival in the latter case. He then removed the ether and tested the remaining oils against cultures of Staph. albus — and found that the oils were bactericidal. This led to changes in the approaches of surgeons to skin sterilisation prior to surgery.

Finally, another example of serendipity. Dr. Audrey Smith, Head of the Cryobiology Division of the National Institute for Medical Research, had, over a number of years succeeded in freezing small animals solid and then restoring them to apparently normal life. When she was demonstrating this to an

official MRC visiting party led by its then Chairman, the late Earl of Limerick, she invited him to feel a lifeless frozen rat. He rubbed one of its ears between his fingers. When it was restored to life it was entirely normal apart from that ear, which was frost-bitten. This chance observation led to the abandonment of the previous policy of massaging frost-bitten extremities with snow.⁷ It is far better to wrap them in insulating material (e.g. cotton wool) and to avoid all trauma until revascularisation has occurred.

REFERENCES — see p.118

Paul Ehrlich and Almroth Wright

William Gillespie, MD, FRCP

Early in the 20th century both were considered very great men. Ehrlich is still so regarded, but Wright's reputation is much diminished.

Paul Ehrlich (1854-1915) was Jewish, born in Silesia, qualified M.D. Leipsig. He became director of the Institute for Experimental Therapy, Frankfurt (1899-1915). He was among the greatest scientific workers in medicine since Pasteur.^{1,2} Ehrlich had a deep understanding of organic chemistry. He wrote "Mine is a kind of visual, 3-dimensional chemistry. Benzene rings and structural formulae disport themselves in space before my eyes. It is this faculty that has been of supreme value to me".²

Ehrlich's days were filled with an excited, enthusiastic concentration on his scientific ideas and plans for research. He made three great contributions:

- (1) Invented modern cytological staining methods based on chemical affinities between dyes and cell structures;
- (2) His studies of Immunology won him a Nobel prize in 1908;
- (3) He invented scientific chemotherapy.

In well-planned research he and his assistants synthesized hundreds of organic arsenical compounds, starting from Atoxyl and tested them in rabbits infected with spirochaetes. The 606th agent to be tested was Arsphenamine ("Salvarsan"), remarkably successful against syphilis and the standard treatment until penicillin came. Ehrlich called it a "Magic Bullet" which destroyed the germs without harming the host.

On a personal note, I knew Professor Hans Sachs, formerly an assistant of Ehrlich, who came to Dublin as a refugee in 1939. He and Frau Sachs told me many stories of the great man. Often, enthusiastic about a new idea, he would take a cab and keep it waiting during a lengthy visit to a colleague. This made him popular with the cab drivers of Frankfurt. I took Sachs to see the film "The Magic Bullet" in which Edward G. Robinson played Ehrlich. Sachs was delighted and said it accurately portrayed Ehrlich, his enthusiasm and method of working. The producer must have been advised by someone who knew him well.

Sir Almroth Wright (1861-1947), son of an Irish clergyman and Swedish mother studied languages and medicine simultaneously at Trinity College, Dublin, with excellent degrees in both. He went immediately into physiological research in Leipsig, Cambridge, Sydney. He became Professor of Pathology at the Army Medical College, Netley, in 1892, and Professor of Pathology, St. Mary's Hospital, Paddington in 1902. At Netley he embarked on Bacteriology. His study of prophylactic anti-typhoid vaccination, which he did not invent, and which was a controversial subject, led to the wide use of the vaccine, saving thousands of lives during the Great War. Another of his important contributions was in the treatment of war wounds at the military hospital in Boulogne (1914-1918). He opposed the treatment of wounds with strong antiseptics, which damaged leucocytes. He insisted that wounds be cleaned and excised as soon as possible, in France, and not left for

operation until after evacuation to England. Hence, although he had never been a house surgeon, Wright greatly improved wound surgery.

Wright's success with prophylactic vaccination led him to believe that existing infections could be cured by injecting therapeutic autogenous vaccines made from the causative organism. The timing of injections was regulated by repeated estimations of the phagocytic power of the blood (opsonic index). The need for repeated blood samples led Wright to develop micro-techniques, using tiny volumes of capillary blood, described in his book "The Technique of the Teat and Capillary Pipette".

Vaccine therapy was once regarded the most important of Wright's contributions and for many years dominated the treatment of many infectious diseases — and yet it was valueless. His definitive paper in the *Lancet*³, described in detail a few men with boils and acne, who improved during treatment with autogenous vaccine; but there were no controls! Foster² says that this paper was one of the most influential in medical bacteriology — even though there are few more worthless papers in scientific literature!

And yet — the idea of stimulating the body's defences to promote recovery from infection was a good one. Conceivably, it might return in a more sophisticated form, e.g. in treating H.I.V. infection. Who knows?

The collapse of vaccine therapy greatly reduced Wright's reputation — unfairly, perhaps. Vaccine therapy had positive, indirect results. It stimulated the development of clinical bacteriology. Colebrook⁴ gives a sympathetic picture of Wright's Inoculation Department at St. Mary's where he and his assistants worked long hours, seeing patients with all sorts of infections, making diagnostic cultures and preparing vaccines. One assistant, Alexander Fleming, discovered penicillin.

Wright had many distinguished visitors, including Ehrlich. A non-medical visitor, George Bernard Shaw, based the central character of "The Doctor's Dilemma" on Wright.

Wright was very intelligent, very cultured, an accomplished linguist. He wrote two books on philosophical subjects. His weakness was a lack of judgement, and over-confidence in the ability of an intelligent man to know, by instinct, when he was right. He mistrusted statisticians and said that every commonsense man is capable of forming a judgement as to whether or not a particular result is the result of the operation of chance!

Wright's capacity to make wrong judgements was shown by his position in a contemporary political controversy, women's suffrage. He opposed it vigorously. He did not dislike women but believed that they lacked judgement. In fact, Ehrlich and Wright were linked by a woman. After Ehrlich died, his secretary, Martha Marquardt, spent her life, collecting records of his career and writing his biography. Later, over 30 years after Ehrlich's death, Wright invited her to London and arranged financial support for her to write an English version.⁵ In this book she acknowledged the help of "the late Sir Almroth Wright, for more than fifty years a friend of Ehrlich".

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Book Reviews

CLINICAL ONCOLOGY

By Gareth J. G. Rees

Castle House Publications. 1989.

ISBN 0 71940 133 X. Price £12.95. pp. 356 + x

This book aims to give basic information on the management of adults with cancer for junior hospital doctors. The first half, covering the general principles and practice of oncology, provides an excellent introduction to the philosophy of treating patients with cancer. As expected, there are chapters on tumour biology, surgery, radiotherapy, chemotherapy and pain control. Dr. Rees gives a concise but adequate account, suitable for those not needing to specialise in oncology. Moreover he includes a comprehensive survey of associated complications such as metabolic disturbances and immunosuppression and covers also the rehabilitation and psychological needs of patients.

The second half consists of 22 chapters on the common malignancies, following a "lecture notes" style, which are informative and comprehensive. At the end of each chapter Dr. Rees lists the salient messages for a doctor looking after such patients on the ward and these "patient points" would provide useful rapid reference or reminders.

Altogether this is an excellent book for any junior doctor managing patients with cancer which can also be used as a sound basis for further oncological study.

V. L. Barley

80 YEARS IN BATH

The Minutes of the Clinical Society of Bath 1908-1988

Edited by Peter Henderson. Published by Addkey Print Ltd., The Precinct Church, Corsham, Wilts.

Dr. Peter Henderson, President of the Clinical Society of Bath in 1987 decided to produce an edited version of the minutes of the society from its inception in 1908. The result is a narrative that is surprisingly readable and records faithfully what the medical fraternity in Bath were thinking and writing papers about, the clinical cases they presented and how they conducted their affairs. The book which runs to 248 pages was obviously a labour of love for its compiler and will be of great interest to members of the Clinical Society of Bath. Leafing through its pages my interest was constantly aroused by expressions of current opinion on current practice as recorded in the discussions often enlivened with flashes of wit. Not all the entries record 'parish affairs'. Some of the speakers were of international eminence on subjects of cosmic importance. Sir Fred Hoyle spoke to the Society in 1979 on his theory of the continuous creation of virus particle in outer space, how they cause episodes of influenza and why he thinks life must have started extraterrestrially. It is the sort of archive from which the medical historian of the future will be able to learn how medicine progressed in the greater part of the twentieth century. It contains no index and that diminishes its usefulness to anyone wishing to research a specific interest, otherwise a model which other medical societies could well emulate.

M. G. Wilson

THE RETURN OF BLOOD TO THE HEART

Venus pumps in Health and disease

A. M. N. Gardner and R. H. Fox

John Libbey and Company, London. Price £32

The authors were the first to describe the existence of a "foot pump" which they reported in our predecessor, the Bristol Medico-Chirurgical Journal in 1983. This book is not only a complete statement and elaboration of this discovery but also a review of the entire subject of venous return. In the sole of the foot there are large plantar veins which are emptied by weight bearing and the authors were the first to recognise that this "foot pump" was the means by which much of the venous return from the leg was returned against gravity to the heart. It depended upon the pressure of the weight of the body and not upon muscular action as in the case of the "calf pump" already recognised.

This book however also describes the other mechanisms by which blood is returned to the heart from other parts of the body, the methods by which they have been investigated, their pathology and how the new knowledge can be used in the prophylaxis of deep venous thrombosis and pulmonary embolism. There is a good historical introduction describing the development of the understanding of the circulation from earliest times. There is a bibliography of 588 references and a very complete index. The book is copiously and beautifully illustrated. It brings up to date the knowledge of a subject of great importance in the prevention of pathology and mortality only too commonly the result of venous disease.

M. G. Wilson

ctd. from p.107 "Serendipity" — Lush

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ctd. from p.107 "Ehrlich and Wright" — Gillespie

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