

Book Reviews

Preceding Keilin's account of his own work and the further development of research on the cytochromes there is a short discussion of the state of knowledge of the respiratory activity of organisms and of intermediary metabolism. Although it is only a minor criticism of this book, it appears to the reviewer that this section is rather summarily dealt with, especially as it is so competently and concisely written.

The final two hundred or so pages could have been autobiographical. Instead, Keilin has presented a fascinating account of the rediscovery, occurrence, properties and biological significance of the cytochromes. The whole of this part is beautifully written, fully documented and gives, from a historical point of view, the most comprehensive account of these compounds that is available today.

This is an exceptionally pleasant and readable book which will be of interest to medical historians and biochemists alike.

A. L. GREENBAUM

Starling on the heart. Facsimile reprints including the Linacre Lecture on the Law of the Heart, analysis and comment by C. B. CHAPMAN and J. H. MITCHELL, London, Dawsons, 1965, pp. 191, illus., 55s.

It was William Harvey who uttered the thought which has pursued cardio-vascular physiologists to the present day, 'I found the task so truly arduous, so full of difficulties, that I was almost tempted to think, with Fracastorius, that the motion of the heart was only to be comprehended by God. For I could neither rightly perceive at first when the systole and when the diastole took place . . .'

So it must have seemed to his successors although occasional determined attacks were made at the problem over the centuries notably perhaps by Stephen Hales, D.D., F.R.S., Minister of Teddington, Middlesex, who in 1740 described his immortal experiments, 'In December I laid a common field gate on the ground, with some straw upon it, on which a white mare was cast . . . and then laying bare the left carotid artery I fixed towards the heart the brass pipe . . .' When the mare was dead Hales proceeded to measure the diastolic volume of the left ventricle by a bees-wax cast 'in order to make an estimate, with what force the heart of this mare must propel the blood'. This may be the first anticipation of Starling's attempts, as enunciated in the collected papers in this volume to unravel the determinants of cardiac action,

The problem that intrigued his co-workers, and previous investigators A. Fick, J. von Kries, O. Frank, and M. Blix, was 'the extraordinary ability of the heart to adjust its performance almost instantaneously to meet the rapidly changing requirements of the peripheral tissues' (Braunwald 1965). It was this problem which Starling largely solved in a series of brilliantly contrived experiments which led him to define the 'Law of the Heart.'

These experiments were published in a series of six papers from 1912 to 1920 and facsimile reprints of these papers, at least two of which are rarely found in medical libraries, form the basis of this volume. Valuable as it is to have these reprints, this volume acquires an extra usefulness by the fact that an authoritative evaluation of each paper is printed along with it. In addition there is a good historical survey of previous work and workers on the subject and also a very useful concluding chapter

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on Starling's influence on contemporary cardio-vascular physiology. The authors, Dr. Carleton B. Chapman and Dr. Jere H. Mitchell of the University of Texas, have rendered a fine service in presenting us with such a carefully prepared résumé of Starling's work and their devoted work will receive wide acclamation. The reviewer's only criticism is the lack of more biographical information on the main characters in this drama of experimental investigation. Sidney Patterson for example was working as a general practitioner in a small wheat town in Australia when his former Professor of Physiology at Melbourne, Sir Charles Martin, persuaded him to take a Beit Fellowship and work at University College with Starling. He became a most important member of the team and after the war, having married Starling's eldest daughter, returned to Australia as Director of the Walter and Eliza Hall Institute.

It is nice to be able to record that Starling's work has recently been confirmed in the intact human subject by Dr. Eugene Braunwald of Bethesda. ('The Control of Ventricular Function in Man', *Brit. Heart J.*, 1965, 27, 1).

ARTHUR HOLLMAN

Foundations of Anesthesiology, by A. FAULCONER and T. E. KEYS, Springfield, Illinois, C. C. Thomas, 1965, 2 vols, pp. 715 and 1,337.

In surveying any particular branch of medicine, the historian is obliged to go back to original papers and publications. In many cases there will already have been pondered over by his predecessors and some may have assumed their rightful place in the perspective of the history of the subject. But from the point of view of the practitioner within such a discipline, a look back at the work of the pioneers will, more often than not, widen his view of his work, enable him to grasp present concepts more surely, and may sometimes give him clues to further work which he may follow. So often, too, does the modern student become bogged down in a morass of technicalities, that a glance at the older simpler work may help to clear the way for him.

Such a book as the present gives him the opportunity so to look back, while it will also provide the historian of anaesthesia an access to works not otherwise readily available.

The authors of these interesting volumes are respectively Head of the Section of Anaesthesiology, and Librarian, at the Mayo Clinic, and the latter is already well known for his writings upon the history of anaesthesia. These qualifications give them authority to compile a notable anthology of one hundred and fifty papers on anaesthesia and related topics. They divide these into eight sections, the first of which, on *Respiratory Physiology*, ranges from Vesalius on *Artificial Respiration in a Sow* (1543), through Paul Bert's famous paper *Gases Contained in the Blood at Different Barometric Pressures* (1878) to Yandell Henderson's *Lecture on Respiration in Anaesthesia* (1925). The latter is an interesting paper in which much of modern theory is envisaged, though as the authors of the present volume point out, the views expressed on the use of carbon dioxide would shock the modern student. In this connection, it is important to realize that Waters' paper on carbon dioxide absorption had appeared two years earlier and this also is reproduced in the appropriate section. Even more fundamentally important are the papers by Barcroft on *Anoxaemia* (1920) and those of Paul Bert (1878) and Haldane and Smith (1893). These titles