Book reviews

REFLEXES AND MOTOR INTEGRATION—SHERRINGTON'S CONCEPT OF INTEGRATIVE ACTION By Judith P. Swazey. (Pp. 273; 14 figures; 63s). Cambridge, Massachusetts: Harvard University Press; Cambridge, Mass. 1969.

In the last decade there has been a number of books about Sherrington and his influence on neurophysiology. Two of the more relevant accounts of Sherrington's scientific achievements have been written by scientists who had a close association with him. Professor E. G. T. Liddell, who collaborated with Sherrington in the 1920s, and succeeded him in the Wayneflete Chair of Physiology in Oxford, recounts in *The Discovery of Reflexes* the state of knowledge about the structure and function of the nervous system, which Sherrington inherited, and how he subsequently moulded and extended this older work, giving rise to new interpretations and new ideas.

Professor Ragnar Granit spent a few years in Sherrington's laboratory in the late 1920s, and, subsequently, was a frequent visitor and correspondent. His is the second book to which I referred. It is a lively book, intended more for the 'scientific layman', entitled *Charles Scott Sherrington, an Appraisal*, which is essentially an experimentalist's account of the way Sherrington's work has influenced modern neurophysiology, though there is also a biographical chapter and one that overlaps Professor Liddell's book.

Mrs. Swazey is a professional historian with a biological training. She has had at her disposal the scientific papers of Sherrington as well as his other works, the several monographs about his work, biographical details from his son and various pupils, and access to the private papers of the late John Fulton. It seems likely that, had not fate stepped in, Fulton himself would probably have written a biography of Sherrington, for he had recorded details of his meetings with Sherrington and collected many anecdotes and correspondence.

There is, of course, some overlap between Mrs. Swazey's book and those of Professors Liddell and Granit, but, by and large, these three books are complementary to each other, and this triad presents a very clear picture of Sherrington and his achievements.

Mrs. Swazey tries to analyse the events, scientific and otherwise, that shaped Sherrington's work and led to the formulation of his ideas and his experimental approach. From his writings, up to about 1906, the step-wise progression of knowledge materializes: anatomical studies, reflex formation, the synapse, inhibition and facilitation, reciprocal innervation, reflex muscle management, the principle of the final common path, the integrative action of the nervous system. It is fascinating reading.

The book terminates with a number of appendices, dealing with Sherrington's vital statistics, Sherrington's career at the Ipswich School, an example of an experimental protocol, table of contents from Sherrington's 1898 paper on sensory and motor pathways, the contents of Sherrington's Silliman Lectures, and, finally, Sherrington on sensory integration and uses of

psychology. Following the appendices come the brief notes and reference verification on various points raised, chapter by chapter, and including the appendices. These are particularly enlightening, and infinitely preferable to footnotes. There is also a bibliography of Sherrington's unpublished, as well as published, work, and a bibliography of references mentioned in the text of the present book.

Mrs. Swazey has done an excellent, and very thorough, piece of work and her style of writing is easy enough to make it a pleasure to read this book and to follow the logical evolution of events. It does not much matter that, even in the section 'Technik ist alles', she fails to come to grips with some of the special details of Sherrington's experimental techniques, details which were vital to the success of his experiments. Fulton, among others, has dealt with these.

I doubt, too, whether the list of 'some of those who came to work under his guidance at Liverpool and Oxford' is strictly accurate.

The line drawings throughout the book are clear and apt.

This book is strongly recommended to all who are interested in Sherrington's crucial role in the development of modern neurophysiology, and in an important period in the history of biology.

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VESTIBULOMÉTRIE CLINIQUE By G.-F. Grenier, C. Conraux and M. Collard. (Pp. 336; illustrated; 130F). Deren & Cie: Paris. 1969.

This book presents a comprehensive, readable and up-to-date account of our knowledge of tests of vestibular function. The authors have enlisted the services of a dozen other workers all with expert experience of different branches of the subject who have each contributed sections dealing with physiology, anatomy and descriptions, and discussion of the relative merits of the numerous methods of investigation now available.

The authors themselves have concentrated upon the use of sinusoidal movement, which they claim to compare most closely with physiological stimuli. They have, at the same time recognized the value of other methods and emphasize how it may be only by an evaluation of the results of different tests that a diagnosis can be arrived at.

Particular attention has been devoted to describing the various methods of recording vestibular responses with discussion of their advantages and shortcomings.

The book is well illustrated and contains useful bibliographies at the end of each chapter. There has long been the need for a work of this kind in view of the many advances in our knowledge and numerous testing techniques developed over the past three decades. The book should prove invaluable for reference for all workers in this field.

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