present, and a biographic account of 124 araneologists from Linnaeus to date, with portraits of 106 of these. There is also a discussion of typographical and nomenclatural rules employed in this volume, and indexes of authors and subjects.

Prof. Bonnet did his own editing and is preparing a supplement in which any corrections and additions that come to his attention will be made. A brief account in the Postface of the struggles he had with governmental red tape and paper shortages will constitute a bond of sympathy with any harassed editor in this country.

The second and third volumes, yet to be published, will arrange the systematics of all spiders known to the author and a synonymy of some 200,000 names. This work will, of course, be an invaluable reference tool to any zoologist and naturalist, as well as a model and a challenge to students of fields other than arachnology.

RELIS B. BROWN

University of Mississippi

Howell's textbook of physiology. (15th ed.) John F. Fulton. (Ed.) Philadelphia: W. B. Saunders, 1946. Pp. xxxv + 1304. (Illustrated.) $8.00.

Only a few resemblances between this and the earlier editions remain. Among them are the retention of the original author's name, now moved up into the title, and a barely recognizable similarity to the earlier format. Under the able editorship of John F. Fulton the book has been completely revised and rewritten and stands today as a fitting memorial to one of America's great medical educators. Twenty-four physiologists have contributed to the work, 15 of them from Yale.

Of its 1247 pages of text, 545 are devoted to nervous and sensory physiology. However, those who wish an authoritative account of modern nervous physiology will be satisfied with the large proportion of space allotted to this subject, for it would be difficult indeed to find a more thorough treatment of this complex field. It would be futile to try to summarize even the full body of material presented; suffice it to say that it is all there. The three major contributors to this section of the book, J. F. Fulton, D. P. C. Lloyd, and T. C. Ruch, deserve only the highest praise for the manner in which they have synthesized and summarized those advances in nervous, muscular, and sensory physiology resulting from the increased application of the methods of oscillography to these fields.

A section on blood and circulation comprises 309 pages and is as admirably done and as up to date in scope as the preceding one. It is a composite effort on the part of D. J. Hitchcock, D. H. Barron, H. Lamport, and J. F. Fulton and includes a chapter on the pulse by W. F. Hamilton, who is certainly well equipped to handle this subject. Areas in which recent advances in circulatory physiology have been made, such as the fractionation of plasma proteins, electrocardiography, and ballistocardiography, and the coronary and cerebral circulation, are well covered.

Since 854 of the 1247 pages of text have been devoted to nervous, sensory, and circulatory physiology, not much space is left for the rest. Consequently, the treatment accorded such important fields as respiration, kidney function and water balance, digestion, etc. is less comprehensive than that in the earlier sections of the book. However, although kidney physiology, including a discussion of water balance, takes up only 50 pages, into this short space R. W. Clarke has managed to compress all the essential facts, including an able presentation of Smith's recent work on tubular excretory (absorptive) mass. Such a compact presentation will satisfy the medical students who have long suffered in their textbooks lengthy treatments of certain physiological subjects more suitable to monographs for the advanced specialists.

Again, in the section on respiration, we are greatly indebted to R. F. Pitts for an excellent and succinct summary of the recent work in this field, including a discussion of the newer concepts of the respiratory center to which Pitts himself has added so much. It is interesting to note that the section on digestive physiology was written by G. R. Cowgill, who is also responsible for the same section in another well-known physiology text. Metabolism and nutrition are well done by J. R. Brobeck and include much new material on temperature regulation, vitamin action, and intermediary metabolism. The section on reproductive physiology, edited by W. U. Gardner, maintains the same high standards of the others.

Clinical applications of physiology are not discussed except as they serve to clarify the strictly physiological material and to enliven the text. Recent trends in physiology are nicely balanced in their presentation and should orient the student as to the direction in which this science is moving without confusing him unduly with conflicting opinions. At the end of each section is a short bibliography which gives any individual who wishes to read further in the subject a good start in his quest for the original literature. There is happily included as an introductory chapter an historical account of the development of American physiology. An excellent index greatly increases the usefulness of the book.

A section devoted to the endocrines is lacking. This was obviously deliberate policy, the material usually incorporated in such a section being scattered through the book under those parts dealing with carbohydrate metabolism, electrolyte and water balance, etc. This procedure has much to recommend it since it diverts attention from the endocrine glands as anatomical entities to their function as integrators of bodily activity. But in this particular instance the interrelationships which exist between the endocrines themselves and which play an important role in the regulation of bodily function are completely neglected. For instance, it would be hard indeed for the student to discover that thyroid activity is controlled by a reciprocal relationship between the thyroid and pituitary gland. Further, this reviewer would be interested to know if anyone can find mention of the parathyroid gland. He could not.

DIETRICH C. SMITH

Department of Physiology
University of Maryland Medical School