SCIENTIFIC BOOKS

THE RAT IN LABORATORY INVESTIGATION

The Rat in Laboratory Investigation. By JOHN Q. GRIFFITH and EDMOND J. FARRIS, editors, and thirty contributors. 488 pp. 178 illustrations. J. B. Lippincott Company, 1942.

THIS book, being the product of many workers, has all the strength and weakness of that form of writing. Each author treats his topic from his own point of view and with little regard for the contributions of the others. The chapters are therefore of very different lengths—5 to 76 pages—quite regardless of the relative importance of the topics, and the general treatment varies in the same way. Some of the chapters are excellent—others much less so, but in general the average is high.

An inspection of the various chapters shows that, with few exceptions, they are concerned with experimental procedures. The first of these, by Edmond J. Farris (17 pages), gives the standard procedures of the Wistar Colony, now perfected after years of experimentation. It is called "Breeding the Rat." The next, "General Methods," by John Q. Griffith (5 pages), which deals almost entirely with anesthesia, follows. Then comes one of the non-experimental chapters on "Gross Anatomy" (28 pages), by Eunice C. Green, a brief account of normal structures in preparation for later chapters. An introduction to the "Experimental Methods and Rat Embryos" (28 pages) by J. S. Nicholas comes next. This is largely an account of normal development. Then follows a treatise (36 pages) by Richard H. McCoy, dealing with the dietary requirements of the rat. In this the various substances are considered separately, with a summary at the end and a long, condensed bibliography. Following this is an account of the teeth (63 pages), by Isaac Schour and Maury Massler, including the effects of various agents upon their development. This has also a fairly long bibliography. Then comes a brief account (13 pages) by Thos. E. Machella and J. Q. Griffith on "The Digestive System," which is almost entirely experimental. This is followed by another account on "Metabolism" (13 pages), by C. Jelleff Carr and John C. Krantz—carbohydrate, fat nitrogen and respiratory metabolism—with reference, in the final sections, to the effects of operative procedures and drugs upon metabolism. A short chapter (8 pages) on the "Central Nervous System," by W. A. Jeffers, J. Q. Griffith and E. Roberts, deals with various operations. Then follows a long section (76 pages) on "Techniques for the Investigation of Psychological Phenomena," by George L. Kreezer, well organized alphabetically under headings, with cross references. This has the longest bibliography of any in the book. Next there is a chapter on the "Circulatory System" (17 pages), by J. Q. Griffith, W. A. Jeffers and E. Roberts, in which are considered various experimental procedures. A short chapter (7 pages), dealing with the use of the rat in biological assay, follows. Then comes a long chapter (55 pages) on "Dosage of Drugs," by Harald G. O. Holck and Donald R. Mathieson. This is largely a tabular arrangement, preceded by a discussion of some general conditions and followed by a long bibliography. The chapter on "Haematology of the Rat," by Adolph J. Creskoff (16 pages), takes up methods and draws comparisons with human blood. The fifteenth chapter deals with the use of x-rays (16 pages) and is largely a series of pictures. The next section deals with the topic of "Surgery" (19 pages), by Dwight J. Ingle, John Q. Griffith, W. A. Jeffers, M. A. Lindauer, H. U. Hopkins and Albert Segaloff, and presents a series of operations in detail. Then comes a chapter given to "Histological Methods" (7 pages), by W. H. F. Addison—fixing, imbedding and staining. "The Osseous System," which follows (22 pages), by R. M. Strong, is general in character and consists in the description of methods for gross and microscopic preparations. The chapter on "The Eye" is the shortest in the book (5 pages) and is by W. E. Fry. Then comes a section on the "Protozoan Parasites" (13 pages), by D. H. Wenrich, divided into those of the digestive tract and of the blood and tissues. Following this is a chapter on "Metazoan Parasites" (14 pages), by Herbert L. Ratcliffe, arranged according to the type of animal parasites. Finally there is a chapter on "Spontaneous Diseases of Laboratory Rats" (15 pages), also by Herbert L. Ratcliffe, in which are considered various rat diseases.

From this brief review it is apparent that the present work is a practical compilation of some of the more important phases of rat technique. It deals almost entirely with methods and procedures—it is a worker's hand book and, as such, forms an indispensable guide. In the very nature of its preparation it can not be complete and well rounded, and even, in the detail of bibliography, each author follows his own ideas. The many illustrations are good and the format and typography are excellent.

C. E. MCCLUNG

STELLAR DYNAMICS

Principles of Stellar Dynamics. By S. CHANDRASEKHAR. x + 251 pp. Illustrated. Chicago: University of Chicago Press. $5.00.

THE latest addition to the Astrophysical Monographs sponsored by the *Astrophysical Journal* is an important volume by Dr. S. Chandrasekhar, of the University of Chicago and the Yerkes Observatory. Through his studies of the dynamics of a rotating