

of the book along systematic lines, with chapters treating reptiles, amphibians, birds, mammals, and, in the next volume, arthropods and fishes. A further loss is that in some cases the systematic accounts are incomplete; for example, for desert mammals only temperature regulation is treated. A newcomer to the field will have to search from chapter to chapter and delve deeply into the references to uncover the general features of adaptation to the desert by animals.

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Psychopathology

The Epidemiology of Depression. CHARLOTTE SILVERMAN. Johns Hopkins Press, Baltimore, 1968. xx + 188 pp., illus. \$7.50.

The title of this book seems simple, but neither of the terms in it is sharply definable. Depression can denote a normal emotion, a symptom, a syndrome, or a phase of a disease: it ranges from grief to manic-depressive psychosis. How the term is used depends on the user's view about psychopathology and classification, on which there is perennial dispute. Silverman sides with the angels.

Epidemiology, no longer restricted to the study of communicable and epidemic diseases, is now used in extended senses, ranging from Greenwood's "study of the mass-aspects of disease" to the American "study of the distribution and determinants of disease prevalence in man." Definitions mostly agree in indicating that it is concerned with groups or populations in relation to their environment, and that it is essentially characterized more by its methods than by its subject matter or uses. This is evident in such diverse fields of epidemiologic study as lung cancer, coronary occlusion, and mental disorder—chronic conditions of multiple etiology. The last of these has received much epidemiological attention during the last 30 years.

The World Health Organization, recognizing the demands—and the pitfalls—that beset psychiatric inquiry of this sort, commissioned an admirable guide in D. D. Reid's "Epidemiological Methods in the Study of Mental Disorders" (*Public Health Papers* No. 2, 1960). Silverman's comprehensive review of a narrower field offers guidance to all

who have to explore an untidy but extensive literature (much fomented by the support given to symposia by the pharmaceutical industry). It is the outcome of a larger epidemiologic project embracing all mental disorder, in which she was engaged when she was chief of the relevant branch of the National Institute of Mental Health.

Because of her broad interpretation of what epidemiology comprises, Silverman traverses the whole field of depression, under the familiar heads—classification, diagnosis, morbidity trends, prevalence and incidence, suicide, social and ethnic factors, response to treatment, heredity, biochemical and endocrine anomalies, associations with somatic diseases, and psychodynamics. It is legitimate to shelter all these under the hospitable umbrella of epidemiology, but the amount of space allotted to such aspects as heredity and psychodynamics seems unduly generous in this context. Elsewhere, however, the detailed exposition of findings is balanced and does justice to the relative importance of the papers cited. Unfortunately, in the papers cited there is a conspicuous gap, due entirely to the fact that of the 358 references only three are to publications in a language other than English. Consequently there is no mention of such outstanding contributors as Johannes Lange or, more recently, Jules Angst or H. J. Weitbrecht.

Silverman is under no illusion regarding the present state of our knowledge. Depressions, she declares, are poorly defined, very variable in intensity and form, responsive to available treatment "in a non-specific way, if at all, and they vary in outcome over a vast spectrum. . . . Their etiology remains obscure. Knowledge and theory about them have not advanced very much beyond the level of clinical description." This excessively gloomy appraisal of the current state of affairs is not lightened when she contemplates what epidemiological studies have accomplished. Using morbidity surveys, chiefly, as the medium of investigation, they have cast up hypotheses, but these "hypotheses about the nature, course and consequences of depression . . . have remained largely untested." This weakness she attributes to the directing of effort toward unduly narrow objectives. She advocates a closer concern with natural history, prospective investigations into causation, and better selection and grouping of samples of population for retrospective studies.

The proposals she puts forward for

future research do not break any fresh ground or show how the intrinsic barriers to productive inquiry into causes and prevention can be cleared away. They do, however, suggest a useful approach to the consideration of suicide, treating it as the mortality component in the spectrum of depressive illness: longitudinal studies of the "natural history" of depression would in suitable populations have suicide as their "definitive outcome event."

This book is a useful review of a large amount of published material. It could with advantage have selected and evaluated much of it more critically, and there are some surprising slips (for example, the Hutterites are alleged to have been completely free from mental disorder at the time when Eaton and Weil studied them, whereas in fact these investigators reported that "psychoses and other forms of mental disorder were found to occur with regularity in the Hutterite population"). But in the main Silverman has produced a serviceable guide, doing justice to the solid work carried out in a number of countries, as well as to the rather heated conflicts about classification and diagnosis.

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History of the Neurosciences

The Human Brain and Spinal Cord. A Historical Study Illustrated by Writings from Antiquity to the Twentieth Century. EDWIN CLARKE and C. D. O'MALLEY. University of California Press, Berkeley, 1968. xiv + 926 pp., illus. \$25.

Anyone who has attempted to track down primary sources in the history of the neurosciences, particularly in English translation, will appreciate the monumental task undertaken by Clarke and O'Malley in compiling this source book. As they themselves point out in their preface, preparation of an anthology such as this involves difficult problems of selection. "At each stage individual preferences are likely to intervene and hence criticism [is] courted."

Apart from the general frustration one feels with any source book because of the brevity of its excerpts, however, this reader can find few grounds for criticizing *The Human Brain and Spinal Cord*. Faced with the vast range of subjects pertinent to the development of neuroanatomy and neurophysiology,

Clarke and O'Malley have judiciously limited themselves to two broad themes: main anatomical structures, such as the neuron, spinal cord, and cerebrum, and basic physiological principles, such as the reflex and localization of cerebral functions. The book is divided into 13 chapters, the first devoted to a general survey of writings from antiquity to the 14th century and the remaining 12 to specific structural and functional topics. The selections in each chapter are arranged in chronological order, and each selection is preceded by a brief biographical sketch which includes mention of the relation of this contribution to the work of other investigators and to other selections in the volume. Readers will appreciate the compilers' having taken the time to provide these cross references.

In many instances, particularly with the writings of authors who may be unfamiliar to most readers, one wishes that space had permitted more detailed textual commentaries by the compilers. This lack, however, is more than offset by the book's many virtues. Many of the selections, often rare and hard to find even in the original, have been translated into English for the first time, so that we are now able to sample writings generally known only through secondary sources; other selections have received new and more accurate English renditions. It is a pleasure to find included the contributions of many figures generally neglected by historians, such as Otto K. F. Deiters (1834–1863), the "forgotten histologist" whose excellent preparations and descriptions of the nerve cell body and its processes were largely ignored by his contemporaries and successors.

The value of the book is also enhanced by the fact that Clarke and O'Malley have resisted the lure, which has trapped many less expert historians, of treating only those figures whose lines of research and ideas are judged "correct" or "important" in the light of present knowledge. In the chapter on the neuron, for example, they have included the writings of the "Reticularist School," which held that nerve cells and fibers are organized as a directly continuous nerve net, or reticulum. The genesis and significance of the neuron theory cannot be appreciated fully without a grasp of the reticularists' theories and their protracted and vigorous debate with the developers of the neuron theory.

Another welcome feature is the appendix on neuroanatomical technique,

which briefly covers some of the major contributions to dissection techniques, fixation and preservation of nervous tissue, coloring agents in neurohistology, and tract tracing methods. Throughout the history of the neurosciences, the techniques available to investigators have been crucial determinants of the rate and direction of progress. One wishes that a more extended treatment of techniques, both neurophysiological and neuroanatomical, had been included in this study, though the subject could fill a volume of comparable length.

One might wish *ad infinitum*, however, that certain subjects had been included or dealt with more fully in any source book. As it stands, *The Human Brain and Spinal Cord* is a sound, comprehensive, well-organized, and handsomely illustrated work, and one that helps to fill a great void for historians of biology and medicine.

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Developmental Patterns

Invertebrate Embryology. MATAZO KUMÉ and KATSUMA DAN, Eds. Translated from the Japanese edition (Tokyo, 1957) by Jean C. Dan. Published for the National Library of Medicine and the National Science Foundation by the NOLIT Publishing House, Belgrade, 1968 (available as TT 67-58050 from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). xvi + 608 pp., illus. \$6.

The combination of low cost and good quality makes this one of the best purchases of the decade for a developmental or invertebrate biologist. The translation is outstanding in providing a uniformity of style and precision of statement throughout the multiauthored text.

The book covers the major developmental patterns seen in all of the major phyla and some of the smaller ones. The last comparable volume was the final edition of Korschelt and Heider's *Vergleichende Entwicklungsgeschichte der Tiere*, which was published in 1936 and has been out of print for many years.

The major defect of this translated edition is that it is from a text that is already 12 years old. The editors did not take advantage of the impending

translation to carry out their stated intention of revision to bring the volume up to date. The omission of knowledge gained during these years on fertilization, insect hormones, regulation of cephalopod development, and biochemical and cellular interactions in invertebrate development reduces the value as both a text and a reference. A secondary deficiency is that a number of the smaller phyla are omitted, as are most of the parasitic groups. This is particularly unfortunate at this time when most developmental biologists lack training in invertebrate zoology and parasitology, for these groups surely have a great deal to offer the biochemically oriented investigator.

There is great variation in the depth and breadth of coverage of the different groups. In some cases the chapters are little more than abridged translations of Korschelt and Heider's book, whereas others consider almost exclusively the more recent work of Japanese investigators, which is largely unknown to American scientists.

Specialists will find omissions and errors in almost every chapter. Most are of minor significance but some are not. In the chapter on cephalopods, the papers of Sacarrao (1943–1954) are not considered, although they have direct bearing on the material discussed. Costello's classic paper (1945) on the analysis of development of *Nereis* is not included in the bibliography to the annelid chapter. *Ilyanassa* is listed as having a levotropic third cleavage in the discussion of the relation of cleavage direction to that of shell spiraling (p. 51), even though the shell is dextral and the direction of cleavage has been known for more than 50 years to be dextrotropic.

The book has been carefully produced, and there are few typographic errors. The line drawings which appear on almost every page are excellent, even though some are quite small. Although some of the figures are familiar from older texts, many have been taken from more recent papers. Reproductions of photographs are uniformly poor, but since there are few their quality is not particularly detrimental to the work as a whole.

The approach of this book is primarily descriptive, and, except in a few chapters, neither the experimental analysis of development nor the special evolutionary problems of the various groups are considered in any detail. A few words on the origin and significance of determinate cleavage, on the