Book Reviews

The Fossil Evidence for Human Evolution. An introduction to the study of paleoanthropology. W. E. Le Gros Clark. University of Chicago Press, Chicago, 1955. x + 181 pp. Illus. $6.

This book is the first in a new series intended to provide "authoritative information about the growth and status" of various biological and medical subjects. It does this job admirably and will be important reading for specialists, students, and people interested primarily in other fields.

The author has not attempted to inventory the fossil record of the human family. In the first chapter he has chosen to underline some major problems of a morphological and phylogenetic nature important in analyzing and interpreting hominid evolution. He indicates the basic features that characterize the hominid and pongid radiations and the importance of defining clearly taxonomic categories on carefully chosen comparative-anatomical grounds. The need for an appreciation of modern evolutionary and genetic concepts is stressed and the significance of functional anatomical studies is indicated. The author emphasizes particularly the value of "total morphological pattern" (a term more inclusive than the "character complex" of the zoologist) in contrast to comparisons of isolated characters in assessing the status of a fossil.

The remainder of the book deals with the major taxonomic categories in the fossil record of the Hominidae. The author applies separate generic terms for the australopithecines of Africa and the Middle Pleistocene men of China and Java (*Australopithecus* and *Pithecanthropus*, respectively); all other fossil hominids are regarded as members of the genus *Homo*. The author's treatment proceeds from the present species (*Homo sapiens*) to that most recently extinct (*H. neanderthalensis*) and finally to the still earlier forms, *Pithecanthropus* and *Australopithecus*. After a discussion of the major morphological features of each, definitions are offered of each major category, and probable relationships are indicated. Although the book is well illustrated with line drawings, it is unfortunate that no photographs of fossil hominids are included.

There has long been a need for an up-to-date introduction to human evolution, particularly one that recognizes fully advances made in modern biology. Sir Wilfrid's book fills this void excellently. Undoubtedly many workers will quibble about minor points, but it remains nonetheless as a major effort by a worker well acquainted with the complexities of the field and the difficulties involved in providing final answers.

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Biochemistry of the Developing Nervous System. Proceedings of the first International Neurochemical Symposium, held at Magdalen College, Oxford, 13–17 July 1954. Heinrich Waelsch, Ed. Academic Press, New York, 1955. xvii + 537 pp. Illus. $11.50.

The rapid advance of biochemical techniques and knowledge in general has, during recent years, intensified research in brain and nerve chemistry. Investigators in a variety of border fields have become interested in this development. Organization of meetings on neurochemistry on an international scale appears therefore to be a useful effort. The book under review presents the proceedings of the first International Neurochemical Symposium. The conference was devoted to the "Biochemistry of the developing nervous system," but topics were discussed that covered a wide range of related fields: morphological and functional ontogeny of the central nervous system, chemical composition and intermediary metabolism of brain during growth, enzymes and enzyme inhibitors, genetic, hormonal, and pathological factors.

To illustrate the diversity of the specific subjects reviewed, a few of them may be mentioned. V. Hamburger discussed "Trends in experimental neuroembryology"; J. Folch-Pi, "Composition of the brain in relation to maturation"; W. M. Sperry, "The lipids of the brain during early development in the rat"; D. Richter, "Metabolism of the developing brain"; H. Waelsch, "Blood-brain barrier"; L. B. Flexner, "Enzymatic and functional patterns of the developing mammalian brain." The pathological chemistry of the developing brain was reviewed by E. Klenk; "Genetic factors of the development of the nervous system" by S. Gluecksohn-Waelsch. Remarkable developments in ultramicro techniques were presented by Lowry and Hyden; the former showed well reproducible data on enzyme activity with 0.1 microgram of tissue or less; the latter described a new method of x-ray microphotometry, which permits in the analysis of nerve cells the determination of the intracellular mass, lipids, and proteins, in amounts of picograms (10^{-12} g).

It is impossible to mention all the interesting papers presented. Some of them, as might be expected among such a great number of papers, did not stand up to the high level maintained in general, but the few examples noted here may suffice to show the broad approach that was applied. The rapid scientific developments in so many directions make it difficult for the investigator to follow neighboring fields of interest in his work, and it should be one of the functions of such symposia to serve as a means of communication. Although the book contains much valuable information, the discussion of the innumerable gaps in our knowledge of the various fields is perhaps as profitable as the presentation of the progress achieved.

The question may be raised whether it is worth while to include in the book all the discussions. Many remarks, even if appropriate at the meeting, do not really contribute to the information of the reader. On the other hand, they increase the editorial burden, probably out of proportion to their significance, raise the costs, and impose unnecessarily on the time of the reader. A procedure may be found to include only those discussion remarks that contain pertinent criticism or additional information of real value. On the whole, the book is to be recommended as a collection of interesting and stimulating papers that convey a fair picture of the present state of the subject to all those interested in the field.

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Small-Angle Scattering of X-rays. André Guinier and Gérard Fournet. Translated by Christopher B. Walker. Wiley, New York; Chapman & Hall, London, 1955. xi + 268 pp. Illus. $7.50.

Small-angle scattering of x-rays was first used in 1930 to study particle size. In the 25 years that have elapsed, especially in the last 10, the study of such scattering has become of very great importance, particularly because of its application to the