histology that was opened up by the electron microscope. The book therefore covers a field more familiarly known as molecular biology. The book is well made; almost all the electron micrographs are excellently reproduced.

The overall coverage, though broad, is uneven. The subject of lipids and membranes, the author's principal interest, is covered *in extenso*; it is unfortunate that the present vigorous research activity relating to membranes and the conformation of proteins within membranes should have arisen while the book was being written or after. The subject of mineralization and calcification is presented succinctly and well, and its treatment fills a gap which many books of this nature have left open. The subject of striated muscle is well covered in an up-to-date manner, although little is said of smooth muscle. Nothing is said about the mitotic apparatus, although an attempt is made to resolve the present complicated picture of the mammalian chromosome structure. The structure and conformation of collagen and elastin are discussed in some detail, but no mention of cross-linking is made with respect to either protein. The structure and function of enzymes are discussed, allosterism is mentioned, and the chapter is brought right up to date by the example of the interaction of lysozyme with its substrate as defined by recent x-ray data, but no mention is made of feedback inhibition.

The book includes a summary of methods of ultrastructure research, and here too the coverage is uneven. The subject of x-ray investigation is covered in a very broad manner; in many cases the breadth exceeds that necessary to give an appreciation of the power and limitations of the method, which surely is the justification for presenting the topic. By contrast, ultracentrifugation is barely mentioned, and although electron microscopy is covered in some detail, little reference is made to freeze etching and none to the scanning microscope.

The book is intended for students as well as research workers in molecular biology, and for the needs of the former the chapters close with lists of well-chosen sources for further reading. For the research worker the lack of direct reference for many of the statements in the text is annoying; some snippets of information are given which a worker might well wish to pursue, but no reference or comment on authors is given to aid in the identification. Some such reference should be given to validate the statement that the 60*S* ribosomal subunit in mammalian cells contains two RNA molecules

In summary, this book presents an informative discussion of the roles of small molecules and macromolecules in cell function and in the building up of tissue. The fundamentals of intermolecular relationships, including the subjects of solvation and micelle formation, are discussed, and the more important methods of investigation are reviewed. The author has successfully condensed this mass of information into an easily read book of reasonable size.

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Neuroembryology

Aspects of Neural Ontogeny. A. F. W. HUGHES. Logos Press, London; Academic Press, New York, 1968. xii + 249 pp., illus. $12.50.

Hughes deserves our gratitude for authoring the only book devoted exclusively to neuroembryology to appear in recent years. This short but fact-laden book of four chapters is concerned primarily with the interactions between the nervous system and the periphery during development of the vertebrate limb, and features Hughes's own research on amphibians. Two other subjects are discussed. One, the history of the neuron concept and description of the genesis and growth of neurons and Schwann cells, occupies the first chapter. This chapter is presumably intended to serve as a background for the following chapters, but its themes are rarely integrated into later sections. The other, the famous experiments on regeneration of cutaneous and optic nerves, is briefly summarized in the final section of chapter 4. Despite the narrow focus, Hughes has laced his account with bibliographical references to a somewhat wider field. Perhaps the best feature of the book is that it will serve as a useful guide to the literature.

Although its very uniqueness makes it valuable to the student of neuroembryology, this work has two major shortcomings. First, without being otherwise subjective, it is centered squarely upon Hughes's personal interests and provides no evaluation or even enumeration of the major problems with which neuroembryologists are grappling. Unless the reader has some background in the neurosciences, he might forget that there are other major areas of research in neuroembryology, such as the role of the nervous system in insect morphogenesis and the development of the vertebrate brain. Second, and more disappointing, although the chapters are subdivided into discrete topics which follow a logical order, the material in each subdivision is presented in an undigested manner. The contributions of individual investigations are briefly summarized, often with verbatim quotes from the publications. These summaries are strung together with virtually no evaluation or synthesis. Thus one is usually left with a puzzling assortment of hard and soft facts. Such extreme objectivity is hardly more useful than a simple bibliography. Hughes has forfeited his opportunity to advance valuable opinions or to excite the reader with interesting speculations and hypotheses.

Hughes's book is offered not only as an account of limb and spinal cord development but also as an enticement to prospective biologists to become neuroembryologists. Those students who survive the struggle with the difficult prose and the often conflicting data may emerge irritated and frustrated and aroused enough to do just that—in which case Hughes's book will have been a great success.

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Surface Phenomena

Contact and Frictional Electrification. W. R. HARPER. Oxford University Press, New York, 1967. xii + 369 pp., illus. $11.20. Monographs on the Physics and Chemistry of Materials.

The author writes that this book is intended solely to present arguments that the charging of insulators is not due to electron movement. Nevertheless, the reader will find that it is in general an excellent review of the field as well as a significant contribution to a rather complex subject. The author has been active in the field for many years, and a considerable fraction of the experimental results presented are his own. His arguments are convincing and well thought out, though he tends to oversimplify the problem somewhat