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Review Of "The Nature And Origin Of The Biological World" By E. J. Ambrose

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Review
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working scientists do not have a high regard for the history of science. Undaunted by their attitudes, Fruton has gathered information on past and present leaders in the biochemical sciences that will be useful to historians and scientists alike. Each of the thousands of entries includes references to biographical or bibliographical source books in which the person is mentioned, or citations of books or articles in which biographical information may be obtained.

GENERAL BIOLOGY

THE NATURE AND ORIGIN OF THE BIOLOGICAL WORLD.

By E. J. Ambrose. Ellis Horwood, Chichester; Halsted Press (John Wiley & Sons), New York. $49.95. 190 p.; ill.; name and subject indexes. 1982.

E. J. Ambrose has written a curious little book. In the space of 180 pages, he tries to present a unified picture of the natural world. I wish I could tell you that he has succeeded, but, alas, he has not.

He divides this work into three parts, the first of which explores modern experimental biology. Here Ambrose considers nucleic acid structure and functions, energy relationships, and the scientific method. The coverage here is rather simplistic and not very modern. In the second part, he discusses the major unifying concepts of the biological world. He analyzes genetics, organismal diversity, development, energy relationships, and more. In the third part of the book, entitled "Origins," Ambrose comes to grips with evolution, and this is certainly the most intriguing part of the entire book. He examines the current debate over the gradualistic evolutionary mode versus the punctuated equilibrium mode, and he interweaves this analysis with systemic energy requirements and with some attempt to place all of this into an evolutionist/creationist context. The final chapter, on creative intelligence, is truly a personal view and will probably be the most controversial. I found it provocative and creative to say the least.

This book is flawed by some very confusing and poorly labeled diagrams, too many typographical errors, and the unnecessary and often cumbersome use of analogies. The book is supposed to be not informative for biologists, yet is written for students of biology, among others. Perhaps professional biologists will not acquire new information, but they will certainly learn of a special and controversial way of looking at the biological world.

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MOLECULAR BIOLOGY

ORGANIZATION AND REPLICATION OF VIRAL DNA.

Edited by Albert S. Kaplan. CRC Press, Boca Raton (Florida). $67.00. v + 202 p.; ill.; index. 1982.

This small volume on the organization and replication of animal virus DNA has been needed for a long time. A. Kornberg's excellent monograph, *DNA Replication* (W. H. Freeman, 1980) provides a comprehensive review of biochemical aspects of DNA replication, from the enzyme level to that of the intact cell, but deals almost exclusively with bacteria and their viruses. Animal virus DNA replication is only briefly described. The Kaplan book fills the void with a timely review of the strategies used for genome replication by each of the five major families of DNA-containing animal viruses. The coauthors are highly respected authorities who have themselves made important contributions to our understanding of DNA replication. The first chapter, by K. I. Berns and W. W. Hauswirth, describes the organization and replication of autonomous (MMV) and defective (AAV) parvovirus DNAs. The reader is introduced to the inverted terminal repetitions at the ends of the linear, single-stranded DNA of these viruses, to the Cavalier-Smith model of self-primed initiation of DNA replication, and to the way that this model can account for the two populations of 3′- and 5′-terminal sequences in parvovirus DNA. Parvoviruses are the smallest of the DNA-containing animal viruses; the strategy they use to replicate their DNA foreshadows mechanisms used by the larger viruses discussed in the later chapters of the book. The chapter by T. J. Kelly, Jr., presents a concise and lucid picture of the structure of the double-stranded adenovirus DNAs. We encounter the strand displacement model of DNA replication and initiation through the use of "*terminal proteins*." The longest and certainly one of the best chapters of the book is the one written by M. L. De Pamphilis and P. M. Wasserman on papovavirus DNA replication. They provide a thorough and critical review of the voluminous literature (542 references) on SV40, BKV, and polyoma virus replication. The

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