Book Reviews

Soviet View of Ecology

The Ecology of Animals. N. P. NAUMOV. Translated from the Russian edition (Moscow, 1963) by Frederick K. Plous, Jr. Norman D. Levine, Ed. University of Illinois Press, Urbana, 1972. x, 650 pp., illus. $17.50.

This book summarizes the state of animal ecology as viewed in the Soviet Union in 1960. It was published in 1963 as a text for the state universities of the U.S.S.R. and is a standard work on animal ecology in the Soviet Union. The author is one of the leading Soviet ecologists.

If ecology were a rapidly moving science, this book would be of historical interest only. But progress does not overwhelm us, and we are thus given an interesting glimpse of the state of the ecological art in a part of the world which is partly isolated from our English printing presses.

Naumov approaches ecology from a classical point of view, highly descriptive, largely nonquantitative, and nonexperimental. The first half of the book is devoted to the ecology of individuals and is a mixture of environmental physiology and natural history. The next quarter of the book covers the ecology of populations. Emphasis is placed on the structure of populations from the geographical to the local scale, the social organization of populations, and the variations among individuals in a population. One chapter covers population dynamics. The final part of the book discusses the ecology of associations. Predator-prey and parasite-host relationships occupy two excellent chapters. Food chains are discussed in one chapter, and the final chapter covers human activity as an ecological force.

Naumov's book is notable both for what it covers and for what it does not cover. There is no clear statement of the problems which ecology as a science is attempting to solve. Not a single controversy is discussed and there is no indication that alternative explanations might be provided for some observations. There is no discussion of competition theory; the word "competition" does not even appear in the index. Succession is dealt with in seven pages, productivity in two. There is little discussion of species diversity and only passing mention of biological control and the ecology of introduced species. Animal ecology to Naumov is clearly population-oriented.

One strength of this book is the use of numerous Soviet examples to illustrate the discussions. Naumov's preferences show through here. Of the 287 figures in the book 64 percent use vertebrate examples and 21 percent are from the rodents alone. About 13 percent of the examples are from birds and about the same proportions from fish, from insects, and from the other invertebrates. All in all, Naumov's choices will please the mammalogist, satisfy the ichthyologist, and dismay the entomologist.

The book is well translated and well edited, with only a few mistakes. Somehow David Lack has gone to the U.S.S.R. and returned as D. Lek. Ricker's discussion of stock and recruitment has come back as dealing with "supply" and "complement." But these are minor errors, and we should be grateful to Naumov for his effort in compiling this Soviet view of ecology, and to Norman Levine and Frederick Plous for making it available to us.

CHARLES J. KREBS
Department of Zoology,
University of British Columbia,
Vancouver, Canada

Biological Process

The Chemistry and Biochemistry of Nitrogen Fixation. J. R. POSTGATE, Ed. Plenum, New York, 1971. xii, 326 pp., illus. $20.

The study of the nitrogen cycle and nitrogen fixation appears as a paradigm of the history of science, attracting some of the giants of classical science and displaying all the genius, the foibles, the pointless controversy, and the excitement attendant on the exploration of the physical and biological unknown.

Even the specter of power—that which would accrue to the individual (or organization) able to duplicate the methods used by living organisms in dealing with the activation energy of the dinitrogen molecule—appears in this history. (The comparatively high requirement for adenosine triphosphate in the biological fixation process now makes the attainment of power by this route unlikely).

Extensive progress of the past decade in sorting out the biological mechanisms of fixation, triggered by the development of active cell-free preparations, has been continued in this heroic vein. There have been occasional brilliant flashes of research production illuminating first one and then another detail, with large clouded areas between. This progress has continued the tradition of claim and counterclaim, hasty trips to the publisher, an overall gentlemanly dog-eat-dog arrangement among the principals, and a lot of sagacious scientists with just a little clay on their feet. To it all the Princes of Serendip have provided humbling counterpoint.

This volume—not truly a review, by intent of the editor—captures by both direction and indirection the excitement and excessively human nature of this history with emphasis on the explosive decade just completed—or at least that portion of it considered of import by the current generation of giants.

As is not unusual in a publication of this type, there is variability in style, organization, and emphasis from one chapter to another and some internal inconsistency. Some subject matter not appropriate to the title of the volume or the chapter is dealt with in detail and some more appropriate is omitted.

Perry Wilson, fortunately, could not simply be honored as intended but was required to contribute to the work, providing valuable historic background as well as literary quality. He does still insist on favoring ammonia with the whimsical crown of "key" intermediate but, after all, that is part of the history.

The titles of the chapters (and for that matter their content) do not represent a highly logical subdivision of subject material—the appendices even less. Why a separate review of the work of Soviet scientists?

There are some minor editorial in-