rate on this phase of plankton productivity. "The nature and biology of the zooplankton" occupies about one-quarter of the text. Treatment is according to major taxa, but consideration is given to a wide range of topics such as general biology, seasonal succession, life history, feeding, and geographical distribution. The section on ecological distribution of calanoid copepods brings together widely scattered literature. Much to my surprise, Hutchinson does not attempt to classify lakes according to their zooplankton communities. The last two chapters, "The vertical migration and horizontal distribution of the zooplankton" and "Cyclomorphosis," are complete literature reviews of these special aspects of zooplankton biology.

More than 1500 references are cited. Hutchinson has a complete grasp of limnological literature which can only be described by using one of his own favorite adjectives—"fantastic." Although he has done a remarkable job in weighing evidence pro and con, there are many paragraphs and short sections where his well-known talents as an essayist are paramount. American limnologists will be impressed with the great emphasis placed on European investigations. In some areas I feel that important American papers have not been given their due. That this fine volume contains little material on pond plankton or stream plankton is a trivial criticism. It is a redundancy to conclude this review by saying that this volume belongs in every limnologist's personal library.

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A Unique Trace Metal

Zinc Metabolism. ANANDA S. PRASAD, Ed. Thomas, Springfield, Ill., 1966. 481 pp., illus. $16.75.

This book was compiled in an attempt to present under one cover a comprehensive review of zinc metabolism. It reviews nutritional, biochemical, and clinical knowledge concerning zinc in plants, animals, and man. The appearance of this book is timely, since, to paraphrase one of its contributors, it appears at the close of the classical period of zinc physiology and at a time when the biochemical role of this trace metal as an essential component of many enzymes is becoming apparent. Moreover, the recent development of new analytical methods—in particular, atomic absorption spectroscopy—now makes it possible to measure zinc in biological materials with relative ease and remarkable sensitivity. Although, as the editor suggests, numerous good reviews of zinc metabolism have been published and this book is not entirely new in that sense, it does bring together widely dispersed data from many areas for consideration by students and scientists interested in this unique trace metal.

The editor and his colleagues describe a new method for analysis of zinc in plasma, red blood cells, and urine with the use of a commercially available atomic absorption spectrophotometer. It appears to be accurate and precise and should hasten the acquisition of new data in human zinc metabolism. A. S. Prasad's extensive studies on zinc deficiency in Egyptian dwarfs are reviewed and supplemented by new data. It is remarkable that the conditioning factors which account for the zinc deficiency in these patients are still poorly understood. The authors imply that such zinc deficiency may be a common denominator in the widespread growth retardation seen in many tropical and subtropical areas.

One is impressed in general by how little is understood in chemical or biochemical terms about the causes or results of zinc deficiency in any plant or animal species. Much phenomenology is gathered together in this book, but few studies in zinc metabolism have been undertaken with a general biochemical hypothesis in mind. The pioneering studies of B. L. Vallee and his co-workers on zinc metalloenzymes would seem to furnish such a framework for future studies.

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