serves to extend our horizon in the biologic significance of viruses at a time when this is sorely needed. His account of symbiotic organisms is also timely. If their presence had always been recognized, some workers might have been spared waste of time and disillusionment in the search for organisms pathogenic for man and domestic animals. There is a very useful bibliography, a brief analysis of subjects and author and subject indices. The illustrations are excellent. The infections of insects are treated more thoroughly and more critically than has ever been done before. The volume should be of great service to biologists, pathologists, entomologists, public health officials and to all those who realize the economical and medical importance of insects in human welfare.

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FORAMINIFERA

Foraminifera, Their Classification and Economic Use, second edition, and *An Illustrated Key to the Genera of Foraminifera.* By JOSEPH A. CUSHMAN, Cushman Laboratory for Foraminiferal Research, Special Publication Nos. 4 and 5. Sharon, Massachusetts, 1933.

JOSEPH A. CUSHMAN, in 1928, issued, under the title "Foraminifera, Their Classification and Economic Use," the most comprehensive review of the Foraminifera published up to that time. In August of 1933 appeared a second edition of this work, revised and greatly enlarged, and accompanied by "An Illustrated Key to the Genera of the Foraminifera." In this new edition, many additional plates show the evolution of the genera and families, and several introductory plates illustrate the more common structures for the especial use of students beginning work on these forms. Also, many generic diagnoses new to the first edition have been added. The chapters on the two specialized fields of Fusulinidae and Orbitoididae were written by Professor Carl O. Dunbar, Yale University, and Professor T. Wayland Vaughan, respectively, specialists in these two fields.

The author has visited many of the foreign museums and examined their types, with the result that the types or topotypes of at least 95 per cent. of the known genera have come directly under his observation; so that the work is based upon actual material rather than upon the often inadequate original descriptions and figures. It is also apparent that this classification of the Foraminifera is based not alone upon the personal ideas formed during the author's thirty years of intensive study, but cognizance is taken of the best thought developed by the many workers since Brady's classification in 1884.

The extensive bibliography arranged by subjects which brings the volume to a conclusion will be an immense help to all students of these forms, as will also the ten introductory chapters upon the living animal, methods of study, distribution and other general topics.

In appearance these volumes leave nothing to be desired. Of a size convenient for handling, the excellent paper, type and unusually fine illustrations reflect great credit upon the Cushman Laboratory. The plates in the "Key" are particularly attractive and set forth a new feature, namely, the carrying out of the figures nearly to the edge of the plates, thereby permitting the placing of more figures on each plate and thus rendering possible direct reference from plate to description. The black background also brings out the details of the Foraminifera in a way that no other method would accomplish. Lastly, the fact that the plates can be used without constant turning, while one studies the various genera in the larger book, is a convenience that will appeal to every student. Students of the Foraminifera are to be congratulated that such a useful volume is available for their use.

R. S. BASSLER

SCIENTIFIC APPARATUS AND LABORATORY METHODS

RECOVERY OF CARBON TETRACHLORIDE[1]

IN the course of certain investigations in the laboratory of gastro-enterology at the Evans Memorial, extraction of fatty acids from previously treated bile is a part of a routine procedure.

Recovery of the carbon tetrachloride became desirable from the economic standpoint. In the course of the recovery the volatilization of the carbon tetrachloride resulted in distress among the laboratory workers. They developed nausea and dizziness. With the possibility that continued exposure to the fumes might result in chronic poisoning, the recovery of the carbon tetrachloride was studied whereby the fumes would not escape into the room and also be almost if not completely recovered.

The following method has been adopted and the apparatus for same is illustrated in Fig. 1. The carbon tetrachloride extract is placed in the Erlenmeyer flask (A). The flask is warmed by means of an electric heater. As the carbon tetrachloride is

[1] From the Department of Pharmacology, Boston University School of Medicine, the Evans Memorial and the Massachusetts Memorial Hospitals, Boston.