

The special adaptations of case-bearing miners and aquatic plant miners are considered individually. This is followed by a detailed account correlating mining habits with larval morphology, where the influence of environment on the development of the species is fully appreciated.

Associated with a chapter on host selection is a comprehensive list of plant families known to support a leaf-mining fauna. Opposite each family will be found the orders of insects recorded on them. The last part of the book covers the colour of the mines; the effect of mining on the growth of the plant; parasites, inquilines and symbionts; and, finally, a section on collecting, breeding and the difficulties in determination of the more difficult species.

This book contains a wealth of knowledge, the result of more than thirty years detailed study of the subject. It is well indexed, and the bibliography comprises nearly one hundred pages. The work makes interesting reading, the only marrring feature being the unusual number of errata.

V. W. FOWLER

A PIONEER OF PLANT PATHOLOGY

Erwin Frink Smith

A Story of North American Plant Pathology. By Andrew Denny Rodgers, III. (Memoirs of the American Philosophical Society, Vol. 31.) Pp. x+675+4 plates. (Philadelphia: American Philosophical Society, 1952.) 5 dollars.

ERWIN FRINK SMITH (born in 1854), and from 1886 until his death in 1927 a scientist in the service of the United States Department of Agriculture, was not only the acknowledged 'dean of American plant pathology', but also a man of international reputation, whose pioneer work will always be remembered. In this considerable volume the author has produced an unusually well-documented biography of a great man. The story is simply told and the reader, almost unawares, finds himself living in that great period of botanical renaissance in Europe and of botanical exploration and discovery in the vast regions of the United States. On this period, Mr. A. D. Rodgers is particularly qualified to write. His first pictures of Erwin Smith are of a modest young man of unusual perceptiveness and competence, gradually finding his feet in science and in a philosophy of life, and enjoying in its manifold aspects the poetry of existence in a great and varied continent. Smith's inherent qualities were soon to become evident in an insatiable curiosity about the objects of Nature in general, and plants in particular, in a devotion to the precision of scientific methods, and an eye alert for innovations in ideas and techniques that would open up new high-roads in biology. Thus, a time came when his researches into fungal pathogens, and more especially into the quite new field of the bacterial diseases of plants, were to lead the world. These studies, which were characterized by great thoroughness and a mastery of illustration, have long occupied a fundamental place in this branch of biological science, and will continue to do so. He also made important contributions to our knowledge of plant viruses.

Although this book tells the life-story of a man, it also records the history of an unusually important

period in biological and medical science, and in agricultural economy, both in the Old and New Worlds. Accordingly, this volume should prove of value as a source-book for information about the progress of pathology in general, as well as of Smith's own significant and numerous contributions. In this connexion it is probably a pity that in so extensive a book space was not found for a chronological list of Smith's papers and books. The book can also be recommended to all who like to read of lives well lived, and who wish to gain some insight into the springs of contemporary knowledge.

OLD HAWAII

Hawaiian Antiquities (Mooelo Hawaii)

By David Malo. Translated from the Hawaiian by Dr. Nathaniel B. Emerson, 1898. (Bernice P. Bishop Museum, Special Publication 2.) Second edition. Pp. xxii+278. (Honolulu: Bernice P. Bishop Museum, 1951.) n.p.

DAVID MALO was a Hawaiian of good family, born about 1793, who spent his early life at court and became a great authority on native customs and traditions. When he came in contact with Christian civilization, he soon became an enthusiastic convert, and finally a Christian minister. He died in 1853.

His book "Hawaiian Antiquities" was written in the Hawaiian language, and the translation, with notes, by Dr. N. B. Emerson, edited by W. D. Alexander, was published by the Bishop Museum as long ago as 1903. It has long been out of print, and this second edition, which is little altered apart from improvements in format, has been issued in response to many requests.

The title of the book is misleading, since it is not an archaeological treatise but rather an account of Hawaiian ethnology before contact with European civilization. It deals with many things, including customs, ceremonies, myths, traditions, the code of conduct, political organization, sports and material culture. Under the last-named heading are accounts of such matters as house building, furniture, food, bark cloth, stone adzes, canoes and articles of value, which will be particularly useful to those who have Hawaiian collections under their care. The few drawings which accompany these sections are probably Emerson's. Wherever appropriate, the native names of objects, ceremonies, etc., have been quoted in the translation, which therefore constitutes a kind of glossary of Hawaiian terms.

As a convert to Christianity and an admirer of Western civilization, Malo was bound to regard the old ways with disapproval, which comes out in such statements as "The newly imported articles are certainly superior to those of ancient times" and "Some of these miserable practices of the ancient Hawaiians were no doubt due to their devotion to worthless things"; but remarks of this kind are confined to a few lines at the ends of chapters, and most of the work seems purely objective. If he had known to what extent future generations would have to depend on writings such as this for information about his forbears, he would doubtless have dealt with many matters more fully than he did; nevertheless, we can learn a great deal from the book, and in the circumstances it is greatly to his credit.

G. H. S. BUSHNELL