

1924, presumably on the Twentieth Century Limited. The date makes it appear possible that the apparatus may have belonged to someone who attended the meeting of the British Association for the Advancement of Science in Toronto. The instrument was manufactured by Schall & Son, of London.

Inquiries should be directed to the undersigned who will take the necessary steps to have the instrument returned to its owner.

PAUL E. KLOPSTEG

CENTRAL SCIENTIFIC CO.,  
CHICAGO, ILL.

### SCIENTIFIC BOOKS

*Applied Entomology—an Introductory Text-Book of Insects in their Relations to Man.* By H. T. FERNALD, Ph.D. New York, McGraw-Hill Book Co., 1926, 395 pp., 388 illustrations. [Second edition.]

THE first edition of Dr. Fernald's excellent introductory text-book was published in 1921, and has been used extensively by teachers of applied entomology. There has been much progress in applied entomology in the last five years, and a text-book must keep up with the times. The result has been that, while a revision was probably desirable three years ago, it has become a necessity after five years.

It has been the obvious attempt of the author and publishers to confine the volume to about the same size, and the new edition covers only ten pages more than the first edition, and no new illustrations have been added to the 388 of the first edition. Three hundred and eighty-eight illustrations for a book of 382 text pages is a large number, but this is a subject that not only lends itself to illustration but demands illustrations. A good figure is better than three pages of description. These illustrations have been derived from all possible sources, perhaps the majority of them having been borrowed from previous publications of one kind or another; but, as Dr. Fernald says in his introduction, "Where satisfactory illustrations are already available it is questionable whether new ones are any gain, particularly when all are new to the student." While approving strongly of practically all of the illustrations used, the writer of this review regrets that in the five years since the first edition was published Dr. Fernald did not find time to substitute one of his own excellent photographs for the figure of a Tachinid fly, as published on page 329. The average student will instantly in his mind compare this figure to a house fly crushed on a window pane. Perhaps in his next edition he will accept this friendly suggestion from one of his friends and admirers.

The arrangement of the material of the book is

that which is generally adopted in courses of study or lectures in most of the colleges in the country; that is to say, it follows in the main the classification of the insects rather than the classification of crops affected and other human interests. There is, for example, no grouping of the injurious Lepidopterous larvae of a certain crop, like apples, but the apple caterpillars will be found in their proper systematic place in the chapter on the Lepidoptera. In the same way the Diptera that affect human beings are found in their proper taxonomic families, and not in a chapter on medical entomology. This arrangement is quite different to that in Professor Herriek's book reviewed by the writer in SCIENCE of May 21, last. It is for the teachers themselves to say which is the best method. The writer, never having been a teacher, is not competent to judge.

In this new edition the Hymenoptera have been rearranged in accordance with more recent classificatory views, and a short chapter has been added on "Animals not insects, with which the entomologist is expected to deal." This chapter covers only five pages, and the new edition as a whole is, as we have stated, only ten pages longer than the original edition.

As a matter of fact, it is almost as impossible to keep a text-book up to date with the progress of economic entomology as it is to keep up with the year to year spread of imported pests. A text-book writer must do the best he can under these circumstances, and if his publishers will not allow him to prepare a revised edition every six months, or at least once a year, the text-book is bound to be always a little bit behind the time. But then the teacher can refer his students to the latest state or government bulletin or leaflet, and so relieve himself of the possible criticism that he does not know everything that is to be known about his subject. Dr. Fernald himself is an up-to-date man and a thoroughly good teacher. He was in his earlier days more broadly trained in zoology and general biology than most of the present teachers of entomology. He was associated for many years at the Massachusetts Agricultural College with his father, the late Charles Henry Fernald, an inspiring teacher. Between them the Fernalds have trained many of the strongest of the workers in applied entomology of to-day.

The entomologists accept with respect everything that comes from the present author, and doubtless this new edition of his text-book of applied entomology will not only be found to be widely useful, but the publishers will remain in a contented frame of mind and will back him up by issuing the frequent revisions which will doubtless be necessary on account of the rapid march of our fight against injurious insects.

L. O. HOWARD