Except for the ten-page introduction, the bulk of the book (Chapters II to VI) is an exact reprint of five papers that have already been published in scientific periodicals at different times during the progress of the research. The reviewer has noticed that this feature has been matter for adverse comment in certain earlier reviews. It must be admitted that it makes certain difficulties of reading and a certain amount of repetition ; but these are minor matters which are completely outweighed by the benefit of being able to follow the chronological sequence of the whole research, with the inevitable retracing of steps at certain places and the equally inevitable drawing of blanks at times that must fall to the lot of every faithful research worker. The reader who has a good scientific library at his elbow to command could, of course, follow this equally well in the original papers ; but the field forester in remote countries or stations has seldom such opportunities : and the reviewer as one such has derived both pleasure and benefit from re-reading in book form what he had previous read in part in widely separated articles.

The completely new material in the book—introduction, glossary, bibliography and index—is in itself justification for purchase by the isolated forest officer concerned with building up a small authoritative personal reference library. The introduction in particular is a masterly resume of the case for the study of the ecology of the soil microflora, and of the history of the development of knowledge of mycorrhizas since 1882. No small part of the merit of the book is that its finding is that "the complete answer is not yet," a conclusion far removed from that of some earlier mycorrhizal research.

The young student and the layman will not find the book easy reading ; no amount of literary skill could achieve that with such an obscure and intricate subject ; but any persistent, careful and determined reader with a practical interest in forestry will learn much from perusal and re-perusal. He must not be deterred from persisting even when he finds that roots of Sitka Spruce may bear mycorrhizas, pseudo-mycorrhizas, and actively lethal fungi on the one and same plant. Here and there his persistence will be rewarded with the admission that this "result was already anticipated by foresters."

C.M.S.

Outlines of Entomology. Dr. A. D. Imms, F.R.S., pp. vii + 188, 96 figures, London, Methuen & Co. Ltd., 2nd Ed., 1944, N.Z. Price £1/1/- approx.

When asked to review "Outlines of Entomology" one's first feelings were of pleasure attached to which was the hope that the dubious word "Outlines" had been properly employed. Too often an author after producing a work of many hundreds of pages incor-

porates the word "Outlines" in his title, whereby frequently flattering both himself and his subject and producing an unnecessary feeling of trepidation in the intending reader.

On being confronted with "Outlines of Entomology," one's feelings change to something akin to alarm. Certainly "Outlines" postulate a book which is not large, but this book seems, at first glance, to be so very small. Those familiar with Imms' General Text Book of Emtomology and whose knowledge of Entomology is reasonably wide must immediately doubt whether the subject is capable of being pruned and compressed to within such a small compass, and a worthwhile result still achieved. Here one must ask why such a feat should be attempted. We are told that the book is written more especially for the student who embarks upon a University training in Zoology or Agriculture in preparation for a career, and to serve as a preliminary manual for the would-be professional entomologist during his first year's course.

The first half of the book is taken up with Anatomy and Physiology, and this section is admirable in every respect. It is clearly and plentifully illustrated, most of the illustrations being original. A sound knowledge of Anatomy and Physiology is an essential prerequisite to further study and especially so to the would-be professional entomologist. The author has been wise in devoting a substantial part of his work to these two aspects of the subject. The second half of the book deals with Embryology, Growth, Metamorphosis, Nomenclature and Classification, and relationships of insects. A point in connection with metamorphosis (which has also been noted by another reviewer) may prove to be difficult of general acceptance. The author appears (page 92) to consider that a prepupal stage should be considered to be present in all Holometabola. The reasons given by the author do not seem to the reviewer to be conclusive and while a prepupal stage is in a number of cases distinct and rightly designated as such, the advisability of the general use of the term seems doubtful.

As was to be expected the individual orders are dealt with but briefly. The general characters of the order and a few remarks concerning life history are all that is attempted. There are, however, four appendices which are rather unusual and which follow some of the orders. For instance a short account of the "nature of insect colours" follows the Lepitoptera. After Hymenoptera is a short account of "social insects." "Parasitism" comes after the Diptera. Other appendices follow the Orthoptera and the Homoptera. These appendices are a pleasant break in the mass of basic facts with which the student has been confronted and will no doubt encourage many to seek further sources of information. The final sections of the book deal shortly with the ancestry of insects and the mutual relationships between the various orders. A valuable appendix on literature is given.

It must be stated at once that the author has succeeded in achieving his object to a very great degree. His task was that of selection and presentation. It is difficult to see how the presentation could be improved and the selection has been wisely made. First year students may have some difficulties with terminology, but the whole book should serve not only to give the basic information required, but should encourage students to look further for more detailed information upon these aspects of the subject in which they are particularly interested. Undoubtedly "Outlines of Entomology" has filled a necessary want and this is shown by the fact that the second edition has been brought out slightly less than two years after the first. To both students and teachers alike the book can be most highly recommended. Professional entomologists will note with pleasure a remark made by the author in his preface, to the effect that when circumstances allow a revised edition of his General Text Book of Entomology will be published.

A.F.C.

New Zealand Geographer. Vol. I, No. 1. Published by the New Zealand Geographical Society (Inc.).

The New Zealand Geographer is published by the recently formed New Zealand Geographical Society. In an excellent foreword the editor, Mr. K. B. Cumberland, explains that the aims of the journal (and of the Society) are "to interpret the Dominion to its people . . . to be of assistance in the further development and conservation of its resources." In principle, all New Zealand foresters must surely be in accord with these aims. In practice, they may be forgiven if they are at first a little suspicious of yet another group with its own formula for the conservation of New Zealand's resources. Any suspicions they may have, however, will be very quickly allayed by a perusal of this, the first, number of the journal. For it is immediately evident that the New Zealand Geographer has just those qualities which are lacking in other publications dealing with similar subject matter. It has, in fact, that unsentimental and scientific approach without which no solution of New Zealand's land-use problem can be forthcoming. The tone is set perhaps by Professor Jobberns in a very comprehensive article called "Geography and National Development." It is more than refreshing to read in his paper such statements as these:—"No adequate understanding of human society can possibly be had without proper appreciation of the habitat or environment on which it is based," and "it is in the systematic explanation, interpretation and future direction of . . . the change in vegetation cover that the botanist contributes to the very foundation of our geography." These are ecological truisms, but they are truisms which are in constant need of restatement and it is the fact that they *are* ecological which makes their appearance here significant.