

denuded slopes in Region IV (South Island tussock hill country) is advocated without qualification as to the nature of the tree or shrub cover that can be established and maintained on the degraded parts of a region in the main incapable of supporting forest even in its virgin state before vegetative retrogression leading to severe soil erosion had taken place.

The suggested sowing of indigenous tree seed by aeroplane is not likely to commend itself to any with a knowledge of the seeding habits and ecology of our rain forest species.

The salient weaknesses of New Zealand's exotic forest policy in the past—the tendency to concentration on remote, pastorally sub-marginal land and the maldistribution of age classes—are stressed. Perhaps over stressed, as the impression is given that there continues to be an overwhelming preponderance of *Pinus radiata* planted where it is unsuited both edaphically and climatically.

One wishes that the distinction had been made between tree growing for timber production, erosion control and farm shelter. The facile assumption, all too commonly held, that the three objectives can always be combined, is dangerous. Sometimes one or more ends can be served, but the primary objective must not be prejudiced by undue regard to the possible secondary uses.

“Soil Erosion in New Zealand” provides an excellent general reconnaissance of the country's erosion problem; a subject of increasing importance to its foresters.

G.H.H.

Problems in Tree Nutrition. (Pubd. Faber & Faber Ltd., London, 1944). pp. 184—27 plates—12/6. By M. C. Rayner & W. Neilson-Jones.

This volume presents in chronological sequence the methods and the results of some fifteen years of continuous research work on tree mycorrhizas. The immediate objective of the research was the successful afforestation of one particularly refractory area of waste land in Dorset, the Wareham Heaths, of which, as the authors point out in the introduction, records of barrenness and sterility go back at least to Domesday, if not indeed to Caesar's time, but which is now termed Wareham Forest. It is not quite clear whether the area is now a forest in fact or merely in law; but there is no doubt at all that, as the result of the research described in the book, there is much greater hope for the establishment of a forest cover on the heaths than there was twenty years ago. The wider result of the research is a much clearer knowledge of the fungal processes involved in forest growth than was the case twenty years ago; and a much clearer appreciation of the enormous gaps that still occur in our knowledge of tree root functions and of tree root symbioses and symbionts.

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 previously 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-