

economy, and polity of the termitarium, the extraordinary differentiation of the various descendants of a single pair, the pitiless subordination of the apparent well-being of the individual to that of the community, that principally engage the author's attention. A matter of which he treats at considerable length is the symbiotic relation between termites and their intestinal protozoa, the recognition of which we owe to the recent investigations of L. R. Cleveland.

The architecture of the common habitation is briefly described, and sketches are given of the distinctive characters and behaviour of the workers, soldiers, and royal couple. But the author's speculations on the origin and development of the various instincts that combine to make up the life of the termite society are vitiated by his persistent attempts to attribute foresight and intelligence to its constituent members. The key to the problem is to be found, no doubt, in the comparison of the more or less advanced stages of elaboration reached by the development of different species, under the influence of natural selection. Considerations of this sort, however, do not appeal to M. Maeterlinck, who appears to prefer to have recourse to the supposed "intelligence and will" of the termites. Thus, on the subject of their nutrition he asks, "Why not recognise that they may themselves have found it more convenient, preferable, to install digestive protozoa in their own bodies, so as to be able to give up vegetable mould and eat whatever they choose?" Then again, in reference to the mushroom-cultivating species, he says:

"The termites must have noticed that such mushrooms provided a far richer, more certain and more directly assimilable food than vegetable mould or waste wood, and possessed the additional advantage of helping them to get rid of the embarrassing protozoa whose weight was becoming so oppressive. Thenceforward they proceeded systematically to cultivate these cryptogams."

It is true that M. Maeterlinck adds, "Evidently, or at least probably, all this is due merely to chance"; but his reference in the same passage to the method of cultivation in the neighbourhood of Paris shows that his attribution of conscious ingenuity and method to the termite is deliberate and intentional. It seems, in fact, from this place and from many allusions to the *anima mundi*, that he would not be disinclined to apply to the 'white ants' what Vergil says about the bees:

"his quidam signis atque haec exempla secuti
esse apibus partem divinae mentis et haustus
aetherios dixere."

F. A. D.

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Our Bookshelf.

An Introduction to the Scientific Study of the Soil.

By Prof. Norman M. Comber. Pp. 192. (London: Edward Arnold and Co., 1927.) 7s. 6d. net. ^{In library}

THE great advance in our knowledge of soil physics and chemistry during recent years has been accompanied by a flood of literature which renders it increasingly difficult for any worker to obtain a comprehensive view of the subject without the expenditure of undue time and labour. Prof. Comber is therefore the more to be congratulated, in that he has succeeded in presenting the salient features of the subject in such a way that not only students (for whom the book is primarily intended) but also advanced research workers will find much illumination and assistance therefrom. His exposition is masterly, a few words conveying the essentials of each point without burdening the reader with details, which can be found when necessary in the original papers, to which an adequate bibliography is provided. One striking feature is the simple explanation of common phenomena which are not often thought about, as, for example, why seeds fail to grow if planted too deeply.

After dealing briefly with the relations between the soil and the plant, the origin and development of different soils are described under the heading "soil genetics," and then the components and attributes of soils are treated individually in more detail. This leads up to an account of various bases of soil classification, from the agricultural and the scientific viewpoints, special attention being given to the work of the Russian school of investigators and to the United States work on soil profiles. Various experimental methods for comparison of the effect of different types of soil treatment in the laboratory and the field are outlined, with indications of their relative value. An unusual feature is introduced in the form of practical suggestions to the student as to the best methods of utilising the literature of the subject, a matter which seems simple at first sight but is apt to involve the inexperienced in a welter of information which obscures the end sought. This book, with its clarity of concentration of a complicated subject, should prove of the utmost value to all who are working on the soil, whether from the biological, chemical, or physical point of view.

The Propagation of Electric Currents in Telephone and Telegraph Conductors. By Prof. J. A. Fleming. Fourth edition, revised and extended. Pp. xv+422. (London: Constable and Co., Ltd., 1927.) 21s. net.

THE addition of a new chapter to this book has greatly increased its usefulness. The enormous improvements in the design and manufacture of submarine cables, and the advances made in the construction of telephone and telegraph cables, make some account of them essential to the student. The use of powdered iron instead of iron wire in the cores of 'loading' coils has practically