An Introduction to the Theory of Seismology

By Prof. K. E. Bullen. Second edition. Pp. xv+296. (Cambridge: At the University Press, 1953.) 35*s*. net.

THE first edition of Prof. K. E. Bullen's "Theoretical Seismology" was so clearly and concisely written that within a short time it had become the accepted standard treatise on the subject. The only substantial point of criticism of that edition was the absence of references, evidently with the idea of brevity. This defect has been remedied in the second edition, which concludes with twenty pages of references to treatises and original papers, classified under chapters, or sections of chapters, instead of the more usual kind of reference to a specific sentence or phrase in the text. Actually, this method has the advantage of serving both as a list of references (with the name of the author of a paper as a sufficient connecting link) and as a bibliography for each subdivision of the subject.

The second edition follows the pagination of the first, but sentences and short paragraphs have been inserted which bring the book up to date. As examples mention may be made of the application by F. Birch of Murnaghan's theory of finite strain, and B. Gutenberg's discussions of Californian earthquakes (which have suggested the idea of 'low-velocity layers'). Prof. Bullen might well have enlarged on his own recent contributions to the theory of the structure of the Earth's interior; in fact, however, he does little more than mention his 'Model *B*', in which the coefficient of incompressibility is taken as a smooth function of the pressure p below the region C—that is, below about 1,000 km. An account is given of W. H. Ramsey's theory of phase transitions, in which the Earth and the terrestrial planets are assumed to have the same primitive chemical composition, with phase changes induced by pressure. Bullen has shown that the use of his Model *B* gives a closer fit with the data than does his Model *A*, as used by Ramsey.

Other additions are an account of the recent work of Jeffreys on the thicknesses of the continental layers, and a brief statement of Willmore's discussion of the observations made on the Heligoland explosion. The author is to be congratulated on the freedom from misprints and on the maintenance of the standard of conciseness despite the development of the subject.

R. Stoneley

Plant Climate and Irrigation

Edited by Sidney A. Searle. Pp. xi+155. (Chichester: Chichester Press, Ltd., 1954.) 20*s*.

THE title of this book is misleading; it suggests a work on the relation of plant growth to regional climates and the application of irrigation principles to all kinds of crops. In fact, the book refers almost exclusively to glasshouse crops and mainly to tomatoes.

As so often happens with symposia, the contributions by the different authors are very unequal in quality and value. Scientifically, the most valuable contribution is the chapter reviewing the measurement of soil moisture, since, apart from the contributor's own more extensive review published elsewhere, this information has not previously been collated. A large section of the book is a reprint of a thesis submitted for a higher degree and is, *ipso facto*, unsuitable for publication, in spite of the useful work described. Elsewhere there are some bad errors in plant physiology and a number of theories based on slender evidence. A chapter entitled "Growing in a Microclimate" turns out to be an *ex parte* argument in favour of a particular system of heating for glasshouses. In passing, it may be remarked that it is difficult to imagine how plants in a glasshouse would be considered as growing in anything other than a "microclimate"—a much overworked word at the present time.

The book is intended for the commercial grower; but in the reviewer's opinion it might well be misunderstood by such a reader if he were not scientifically trained and could sift the grain from the chaff.

R. H. Stoughton

Freshwater Microscopy

By W. J. Garnett. Pp. xii+300+50 plates. (London: Constable and Co., Ltd., 1953.) 30*s*. net.

THIS book is intended as a simple introduction to the microscopical study of the plants and animals of the fresh waters of Great Britain. It is written in a popular style and the author no doubt had the amateur microscopist mainly in mind when writing it; but it could be used also by students of biology at schools and universities. It can be recommended to anyone taking up this branch of study. Not very many species are dealt with, but the distinguishing characters of the selected organisms are given clearly, so that it should be possible to achieve at any rate an approximate identification of many of the common microscopic organisms of fresh water. Recognition will be greatly helped by the numerous photomicrographs, most of which are very characteristic of the living specimens.

The author makes quite a number of mistakes in matters of fact (as well as in spelling); but many who could easily correct the slips could not write nearly such a good book as this. It is obvious that the author has first-hand acquaintance with his subject and a lively interest in it, and he writes with infectious enthusiasm. He is essentially an observer of the living organism and its activities. The practical advice is on the whole good, though one regrets that he does not mention the valuable mounting media introduced by Amann.

John R. Baker

Cells and Societies

By Prof. John Tyler Bonner. Pp. iv+234+8 plates. (Princeton, N.J.: Princeton University Press; London: Oxford University Press, 1955.) 25*s*. net.

IN this lucid and entertaining exposition, the author's central theme is that in animals and plants at all the levels of development in the scale of evolution, including that of man himself, a certain recurrent sameness can be discerned, in particular in such activities as the intake of food, reproduction and co-ordination; and this is demonstrably true whether we make an analysis of life processes in an animal society or in an individual unicellular organism. While the details of how these needs are met are endlessly varied in different groups and organisms, a scrutiny of the wide range of materials which the author discusses shows how general and pervasive are certain basic phenomena. Because of the simplicity and clarity of the exposition, and the effort that the author has made to formulate and discuss general ideas on life processes, this book can be commended both to the interested lay reader and to the student of biology.

C. W. W.