

Trace Elements in Human and Animal Nutrition

By E. J. Underwood. Second edition, completely revised. Pp. xiii + 429. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1962.) 76s.

"COMPLETELY revised" is a phrase which often means less than it says, but the author of this book has certainly justified his sub-title, for the second edition of his well-known book has every sign of careful preparation. Those who have read the first edition will be glad to know that the second is no longer, and that the chapters are cast in the same order and form. The subject-matter, moreover, has been carefully scrutinized and brought up to date. Many of the old references have gone and new ones have taken their place. This must have taken a lot of doing and it has been done well, and Underwood has not lost sight of his original objectives—the proper selection of material and the necessity of treating it in a balanced way. It is this care which makes the book retain its value both for the specialist and for the more general reader.

As before, the author has devoted separate chapters to iron—not really a trace element to mammals but one well worth its place in the book—to copper, molybdenum, cobalt, zinc, manganese, iodine, fluorine and selenium, but nickel has joined the group of miscellaneous elements in a portmanteau chapter toward the end. The physiological and hence the economic aspects of some of these elements are enormous, and Australia has derived great benefit from the investigations of its agricultural scientists in this field.

The author writes with a pleasant enthusiasm unusual in a man of his experience. For him the new discoveries about chromium are still 'exciting', and he directs attention to other new and 'promising' discoveries in his introduction. He does not mention the toxic effects of cadmium on the testicle and its prevention by zinc reported by Pařizek in *Nature* in 1956. No doubt we shall hear about this in the third edition; and also perhaps about some of the older problems which are still unsolved. Why should barium, for example, accumulate in the eyes of cattle, and why are strontium and fluorine major elements in the marine slug, *Archidoris britannica*?

The photographs, particularly of animals, were not very well reproduced in the first edition; the same ones have appeared again and are, frankly, a little disappointing in a book of this calibre. Nevertheless, this is a good book, better if possible than the first edition.

R. A. McCANCE

The Theory of Transonic Flow

By K. G. Guderley. Translated from the German by J. R. Moszynski. (International Series of Monographs in Aeronautics and Astronautics. Division II: Aerodynamics, Vol. 3.) Pp. xviii + 344. (London and New York: Pergamon Press, 1962.) 63s. net.

THIS book is a translation of the German edition issued in 1957 and published by Springer Verlag. Such a long delay in publication of an English edition would prove a considerable handicap to most advanced texts of this kind. In the field of transonic flow, however, this is not the case. In latter years transonic flow theory has become distinctly unfashionable as a research topic although the more practical applications of it have been developing apace. It is to be hoped that this deeper physical understanding may stimulate further developments in this difficult field.

The author describes the, by now, classical theory of transonic flows in the development of which he has played no small part. The extensive bibliography contains no less than twenty-three of his papers.

The main difficulty of the transonic flow problem which arises from the complicated nature of the governing equations is the inability of the theory to predict the flow conditions around a given profile. The necessity to solve the problems in the transformed (hodograph) plane makes

the results often very mathematical in form, and even in the author's opinion it is only possible "to develop a measure of perception of transonic flow phenomena which permits an extrapolation of the results beyond the range of exact analysis". It is therefore a very limited aim which he can assign to the theory, namely, "first of all to attempt to explain the fundamental properties of the flow". In this his work succeeds admirably. It will prove more worthwhile if it fulfils his second desire, however: ". . . [to] point out to the applied mathematician the mathematical questions imposed by the physical problem so that [he] could fill in the gaps, simplify the reasoning, and bring new methods to bear in the field".

NEIL C. FREEMAN

Rock Garden Plants of the Southern Alps

By W. R. Philipson and D. Hearn. Pp. 167 + 105 plates. (Christchurch, N.Z.: The Caxton Press, 1962.) 47s. 6d.

INITIALLY disappointment is aroused by the un-serviceable flexible cover, innocent of lettering, of this quite expensive little volume. (The "Southern Alps" of the title are those of New Zealand.) When the book is opened, this first reaction is dispelled by admiration for the technical merit and sometimes great beauty of the many illustrations. Not the least interesting chapter is the final one, discussing the photographic equipment and methods used. Appreciation is the keener for realization of the effort, skill and patience required to obtain such pictures.

Prof. Philipson wisely begins with an admission that among New Zealand native plants the vast majority of conspicuous flowers are white, and the kaleidoscopic glory of alps in the northern hemisphere is quite unmatched. Then, however, making good use of the abounding oddity of specialized form, he writes persuasively to infect the reader with his own obvious enthusiasm for the New Zealand mountain flora.

The book is intended primarily for the amateur plantsman and makes no pretension to being a scientific textbook. Nevertheless an attractively readable style carries a great deal of sound science. Plant ecologists will find it stimulating as well as entertaining; and many professional taxonomists would be the better for taking to heart various passages, for example, pages 55 and 56 on *Gentiana*.

Altogether, this is a book which field botanists and 'alpine' gardeners should at least borrow to read, if not buy for its photographs.

S. CLAY

Science in Authority

Essays by Prof. Lancelot Hogben. (Unwin University Books No. 3.) Pp. 157. (London: George Allen and Unwin, Ltd., 1963.) 18s.

THE book is a collection of nine addresses and essays delivered or written over the past twenty years or so up to Prof. Hogben's retirement from the chair of medical statistics in the University of Birmingham. Not all of them are dated nor is it clear how far they have been previously published; some, but not all, are documented, and there is an index to the whole book. The subjects include the race concept, the origins of species. Whewell's dilemma of classification, the nature-nurture issue in a contemporary curriculum of medical studies, the assessment of remedies, the present crisis in statistical theory (1956), science and its social functions, and the new authoritarianism (1949), and they have in common the theme that no society is safe in the hands of so few clever people. On questions of science and Government they have nothing to say, and while they illustrate the range and penetration of Prof. Hogben's thought, and the ease and style of his exposition, they scarcely seem to justify the title of the book, and readers who are led by the title to look for a penetrating contribution to one of the major issues of to-day will be disappointed.

R. BRIGHTMAN