

Progress in Organic Chemistry

Vol. 5. Edited by Dr. J. W. Cook and Dr. W. Carruthers. Pp. viii+172 (Progress Series). (London: Butterworth and Co. (Publishers), Ltd., 1961.) 50s.

THE present volume contains a mixture of topics drawn from the fields of natural products, synthesis and reaction mechanisms. Dr. W. A. Waters's lucid chapter, "Homolytic Oxidation Processes", includes sections on autoxidation and one-electron oxidations by ions containing transition metals. "Developments in Hydroxylation of Phenols", by Dr. J. D. Loudon, is a beautifully presented survey of recent preparative methods in this field, including the author's elegant ortho-hydroxylation sequence. "The Chemistry of Dextrins", by Dr. C. R. Ricketts, summarizes present knowledge of the structure and biosynthesis of this polysaccharide which finds important application in blood transfusion. "The Chemistry of the Higher Terpenoids", by Drs. J. A. Barltrop and N. A. J. Rogers, includes some diterpenoid topics of recent interest and an excellent summary of the now very fully explored biosynthesis of squalene and some of its cyclization products. Prof. T. Nozoe contributes the final chapter, "Tropylium and Related Compounds", dealing with the tropylium ion and recent syntheses of tropones and tropolones, including some naturally occurring tropolones. The interesting photo-chemical transformations of colchicine and simpler tropolones and a postscript on the chemistry of heptafulvene conclude this chapter.

Progress in Organic Chemistry aims to summarize areas of the subject where a vantage point has been reached and a degree of order can be seen to emerge. The present volume is a good example. Viewing the series as a whole, the editors' choice of topics has in many cases been timely and the list of contributors includes an impressive number of acknowledged authorities. The non-specialist reader, to whom these reviews are addressed, will look forward to future volumes. He may, however, in view of the price, regard the drastic reduction in size of the present volume with some misgivings. K. H. OVERTON

Advances in Agronomy

Vol. 13. Edited by A. G. Norman. (Prepared under the auspices of the American Society of Agronomy.) Pp. xi+386. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1961.) 86s.

THE general agronomist, whose chemistry may not be very near the surface, may find some of the articles in this volume specialized or difficult. Thus, the contributions on physical chemistry of clay-water interaction and that on iron chlorosis in plants are rather heavy going, while the article by the late Dr. Alex. Muir on podzol and podzolic soils will be fully appreciated mainly by pedologists and soil surveyors.

Compared with the above the treatment of subterranean clover is almost bedside reading. This paper naturally comes from Australia, where, thanks to sound experimental work, this crop has put a new face on millions of acres in that country. All aspects of this fascinating crop have been dealt with, and some 250 references quoted. Equally readable is the summary of the barley yellow dwarf virus disease of small grains. The widespread virus diseases of cereals are not well known outside pathology circles. The cause of the disease, an aphid-borne virus, was

only discovered in 1951. A very clear picture of the follow-up of this discovery is given. As so often happens with the diseases of cereal crops the most hopeful remedy appears to be in the hands of the plant breeder. Stubble-mulch farming is typically associated with wheat monoculture in arid or semi-arid areas of the United States, where one of its main functions is to stabilize the soil against erosion. The review shows that there are still plenty of problems to be solved, especially if the practice is to be extended to areas with greater rainfall.

There are shorter articles on earthworms, the effects of which on soil productivity are still somewhat uncertain; and the rather specialized problem of the agricultural aspects of the contamination of soils by petroleum hydrocarbons. H. V. GARNER

An Introduction to Statistical Science in Agriculture

By Dr. D. J. Finney. Second edition. Pp. 216. (Edinburgh and London: Oliver and Boyd, Ltd., 1962.) 30s. net.

IN the course of the preface the author states: "The book is intended to supplement . . . an elementary course of lectures for agricultural students who are without mathematical training"—"The book is designed for consecutive reading, not for occasional reference"—". . . my chief aim is to show statistical science as a whole—as a single attitude of mind to quantitative problems, and not as a series of isolated methods . . .". In all these aims and intentions Dr. Finney has succeeded admirably. This second edition extends the discussion of sampling and sample surveys and adds a chapter on general questions of experimental planning; there are also other additions and revisions. The author is particularly successful at indicating the backgrounds of experimental situations, wherein lie all the difficult problems that so rarely yield a cut-and-dried solution for the conduct of an experiment. At the same time, basic statistical ideas are lucidly dealt with, within the necessarily restricting framework of the book. Students and research workers alike, who are working in this field, will scarcely fail to find something to interest them here. J. A. NELDER

Teach Yourself Atomic Physics

By Dr. J. M. Valentine. (Teach Yourself Books.) Pp. 192. (London: The English Universities Press, Ltd., 1960.) 7s. 6d. net.

THIS little book is intended to give the layman an introduction to the ideas of atomic and nuclear structure and of the experimental methods used in atomic physics. The language is simple and mathematics are confined to a few elementary equations. The subject is developed along orthodox lines, beginning with kinetic theory and the gas discharge, and proceeding through the Rutherford-Bohr model of the atom to an outline of nuclear structure and stability. There follow chapters on particle accelerators, detectors, nuclear reactors and nuclear weapons, and finally on the industrial, medical and biological uses of isotopes.

The treatment is clear and perhaps more full than is usual in popular books. But a book with this title, published in the 1960's, ought to give its reader some notion of wave mechanical concepts. As it is, he is left with a firm impression that electrons move in circular orbits about a nucleus which can be penetrated only by particles capable of surmounting the potential hill around it. K. E. B. JAY