Ultraviolet Spectra of Aromatic Compounds

By Dr. Robert A. Friedel and Dr. Milton Orchin. Pp. 52+579 Spectra. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1951.) 80*s*. net.

AFTER so many publications on the theory of aromatic character, a book dealing with purely experimental data is refreshing. This work contains a collection of 579 absorption spectra, all on the same scale (one inch corresponds to 400 A. and also to one unit on the log ε scale). The loose-leaf binding allows the pages to be removed so that spectra may be compared directly. Unfortunately, the curves are not supplied with the values for the maxima, which the user must estimate by measurement of the graphs.

The collection of ultra-violet absorption curves is preceded by a short theoretical introduction of thirty-six pages. A brief account of the experimental procedure is given with reference to the American-manufactured Beckman and Cary recording spectrophotometer; the use and influence of solvents are described. The theoretical section is concerned only with classical theories and useful empirical rules. The effect of introduction of various substituents (alkyl, alkenyl, aryl, hydroxyl, amino, methoxyl, carbonyl, cyano, nitro and halogen), the effect of steric hindrance, the fine structure effect, etc., are clearly described and explained, using predominantly examples taken from the American literature. Other chapters deal with the use of absorption spectra for qualitative and quantitative analysis. All this is expertly and succinctly done.

The formula of each compound, its name, the solvent used, and the literature citations are given alongside each absorption curve. The references do not always give the name of the author who first described the quantitative spectrum of the pure compound, but relate to the most recent reproduction of the absorption curve. It would have increased the value of the work if the bibliographies had been more complete.

This well-printed collection of absorption spectra will undoubtedly attract widespread interest, and it is to be hoped that it will be followed without much delay by an improved new edition. E. CLAR

Progress in Metal Physics

(Progress Series.) Vol. 4. Editor: Dr. Bruce Chalmers. Pp. viii+403. (London: Pergamon Press, Ltd., 1953.) 60*s*.

IN recent years the output of research work in metal physics has been so great that few have been able to keep in active touch with more than a small proportion of the subjects which are now advancing so rapidly. The original purpose of the present series of books was to present authoritative reviews written with the direct object of enabling "research workers in one part of the field to remain up-to-date in other branches" (foreword to Vol. 1 reprinted in the present book). Unfortunately, those responsible for the series appear to have lost sight of its original purpose, and the present volume will be of little value to those wishing for reports enabling them to realize easily the progress made in branches of science other than their own. For this purpose the seven articles in the book are nearly all too long, and are written in such a way that only occasionally can the real progress be seen unobscured by a mass of secondary detail. The book must therefore be regarded as one which fails in the original purpose of the series; but at the same time it will be of great value to those who are so directly concerned with the subjects reviewed that they are willing to consider papers the length of which varies from 30 to 66 pages, with from 80 to 191 references. For serious study of this kind the book can be recommended; the articles are authoritative and good, except that the standard of writing is variable, and sometimes becomes little more than a collection of references or brief extracts.

The subjects dealt with are: (1) internal friction in metals (A. S. Nowick); (2) the mechanism of oxidation of metals and alloys at high temperatures (K. Hauffe); (3) gases in metals (C. R. Cupp); (4) the theory of sintering (G. A. Geach); (5) theory of dislocations (A. H. Cottrell); (6) diffusion in metals (A. le Claire); (7) nucleation (J. H. Hollomon and D. Turnbull). W. HUME-ROTHERY

A Contribution to the Theory of the Living Organism

By Prof. W. E. Agar. Second edition, revised. Pp. vi+235. (Melbourne: Melbourne University Press; London: Cambridge University Press, 1951.) 27*s*. 6*d*. net.

IN this, the second edition, Prof. W. E. Agar has maintained and elaborated his thesis of living organisms—and he means all organisms—as perceiving, experiencing subjects, capable of purposive actions, in an effort to attain limited 'hormic goals', which, however, may have very important biological consequences. With some rearrangement of his materials, the emphasis, as before, is on the essential unity of the organism, on the possibility of considering it, on grounds which are strictly scientific, as a psychophysical system, and on behaviour in terms of perception. It is evident that the author has been at great pains to state his ideas, reasons and conclusions with precision and clarity, his concluding chapter on evolution being a model of its kind. This is a work which will be read with appreciation by those who are specially interested in the philosophy of biology; but it deserves to be introduced to a much wider circle.

Science News, 25

Edited by A. W. Haslett. Pp. 128+24 plates. (Harmondsworth: Penguin Books, Ltd., 1952.) 2*s*.

THE twenty-fifth number of "Science News" maintains the standard set by the former volumes. An important article by N. W. Pirie entitled "Concepts Out of Context" examines the concepts of species, purity and efficiency and shows how fundamental errors can occur by the transference of a concept into a field in which it is inapplicable. "A sensible philosophy controlled by a relevant set of concepts saves so much research time that it can nearly act as a substitute for genius. . . . We avoid the problems which are real in adjacent fields but are pseudo in our own." There follows a good summary by J. Little of the use of radio-frequency methods in the study of atoms and molecules. D. E. Tribe writes briefly on the validity and significance of self-selection of diet in animals; and J. E. Sutcliffe on the mechanism of mineral salts absorption by plants. A more extended essay by Katharine Tansley and R. A. Weale reviews the evidence against the trichromatic theory of colour vision. Current lines of research and development in gas turbines are reviewed by J. Hodge. There is an account of progress in underwater television with interesting photographs, an article by Margaret Knight on consciousness of the brain, and a research report. W. L. SUMNER