

Introductory Quantitative Chemistry

By Axel R. Olson, Charles W. Koch and George C. Pimentel. (Series of Chemistry Texts.) Pp. x+470. (San Francisco: W. H. Freeman and Company; London: Bailey Bros. and Swinfen, Ltd., 1956.) 5 dollars; 42s. 6d.

THE authors, all on the staff of the University of California, write for first-year students, including those not 'majoring' in chemistry. They have taken great pains to further their aim of giving a philosophical, enlightened and interesting introduction to analysis, and they have succeeded in presenting it as a subject worthy of serious study.

The table of contents, which begins with weighing, measuring and other customary introductory matter, is not unnecessarily crowded with theory. Instead, the physical principles considered are wisely limited to those having a direct bearing on analysis. Thus, there are chapters dealing with such topics as the evaluation of quantitative data, reversible systems, solubility and precipitation, and the physical structure and growth of precipitates. The combined ideas, teaching experience and scholarship of the three authors have manifestly gone to the making of these chapters, which are exceptionally clear and of great teaching value. The main part of the book consists of gravimetric and volumetric procedures described and applied to familiar determinations, such as those used in Intermediate Science courses in Britain and in first-year university work. An unusual chapter on the biologically important polybasic acids, illustrated with no less than fourteen titration-curves, and ending, as do all the chapters, with a great variety of questions, gives some idea of the style of the book and of the thoroughness of the treatment.

By considering some of the simpler methods of physical analysis, the authors have brightened their book and given scope and encouragement to the abler students. Their selection includes several determinations by colorimetry, and one or more by electrolytic separation, carrier separation, and by the use of ion-exchange resins. Before any determination is undertaken, by whatever method, attention is directed to the significance of the result of a preliminary investigation, and to the necessity of framing the plan of work on the underlying theory. The difficulty of the exercises is graded to train the student to be self-dependent. This is not a reference manual of analysis: it is a bright, well-written, instructional book of the first class. G. FOWLES

Advances in Applied Mechanics

Vol. 4. Edited by H. L. Dryden and Th. von Kármán. Pp. x+413. (New York: Academic Press, Inc.; London: Academic Books, Ltd., 1956.) 10 dollars.

THIS collection of seven surveys of selected topics in continuum mechanics is the latest addition to a useful series. The publication of these occasional volumes was initiated some years ago by R. von Mises, and the editorial work is now in the hands of G. Kuerti. H. L. Dryden and Th. von Kármán are the general editors, with three European scientists as associate editors.

Two of the articles in this volume are concerned with elasticity of solids (non-linear elasticity, and elastic instability), two with the physical properties of solids (fatigue, and dislocation theory of plasticity), two with fluid mechanics (turbulent boundary layers, and three-dimensional boundary layers), and one

with mathematical technique (the method of co-ordinate perturbation for finding approximate solutions of differential equations). The scope of the field from which the surveys are drawn is too wide for any one reader to be interested in them all, but the subjects are well chosen and most people active in this field will be drawn to one or two of them. F. Clauser's careful and systematic account of what is known about turbulent boundary layers appealed especially to me. On the whole, the writing seems to have that extra degree of clarity and authority that is so important in accounts of the present state of research.

G. K. BATCHELOR

Thermodynamic Tables and Other Data

Edited by R. W. Haywood. Pp. 23. (Cambridge: At the University Press, 1956.) 2s. 6d. net.

THIS little book of tables is a first-class production. The data in it have been collected from various sources and are presented clearly in a way which will commend itself, particularly for use by students. Further, the price is a modest one.

The list of contents falls into three parts. The first of these contains a selection of general information on gases, such as calorific values, molecular weights, etc. The second part is devoted to steam tables and contains triple-point data; properties of saturated water and steam; super-heated steam; compressed liquid water. The last part concerns refrigerants and contains properties of ammonia, carbon dioxide, 'Freon-12' and methyl chloride.

R. E. D. BISHOP

Come Rain, Come Shine

More Country Contentments. By John Moore. Pp. 256. (London: William Collins, Sons and Co., Ltd., 1956.) 18s. net.

THE smell of bonfires, the cawing of rooks, all the scents, sounds and sights of the countryside, particularly the Cotswold country, come to us from the pages of John Moore's latest book, "Come Rain, Come Shine". In it he wanders at large through garden, orchard, field and coppice. He also strolls down the village to watch the fair or seek a drink at the 'pub'. He tells us of country personalities, human and otherwise, from his special pal the kind-hearted, red-faced Colonel, down to insects, such as the members of his colony of large blues among the wild thyme. He writes of this rare and lovely butterfly with special enthusiasm. Its rarity, he points out, is due to a peculiarity of its life-history. "After its third moult the caterpillar wanders away from its food plant and allows itself to be discovered by a particular kind of ant, which seizes it", not to devour it but to carry it off to the nest, where it is carefully tended, "for it exudes from a gland in its body a kind of sweet liquid which is to the ant as honeydew or indeed ambrosia".

Fed on young ants, the caterpillar is kept the winter through, hibernating until spring, when it is again fattened up on ant grubs, until it changes into a pupa. "Out of this chrysalis in July there emerges what I think is one of the loveliest of our British butterflies and having found its way by a complexity of corridors out of the anthill and into the sunshine, it takes wing and flies in the sun". The reader will find many similar descriptions of things big and things little in Mr. Moore's most charming country pages—they are full of country scenes and country people.

FRANCES PITT