

Chemical Kinetics

Chemical Kinetics. Edited by J. C. Polanyi. Consulting Editor A. D. Buckingham. Pp. 322. (MTP International Review of Science. Physical Chemistry. Series one, Volume 9.) Pp. 322. (Butterworth: London; University Park: Baltimore, Maryland, 1972.) £10.00; \$24.50.

TWENTY-TWO years ago, volume 1 of *Annual Review of Physical Chemistry* was inaugurated with an ambitious survey, including eighteen sections, one of which, *Chemical Kinetics*, gave a reasonable coverage of that then relatively young field. It is a reflexion of our time that Butterworth has now announced a new series to review biennially all of chemistry in 33 volumes and three indices. Volume 9, *Kinetics* is one of thirteen volumes of the series devoted to physical and analytical chemistry. It contains ten chapters by very well-known research workers under the categories of reactions: unimolecular, by D. W. Setser, including for the first time that of ions; bimolecular, by I. M. Campbell and D. L. Baulch, mostly of atoms and small radicals; free radicals, by E. Whittle; hot atoms, by F. S. Rowland; chemiluminescence, by T. Carrington and J. C. Polanyi; molecular beams, by J. L. Kinsey; ion-molecules, by J. Dubrin and M. J. Henchman; solvated electrons, by F. Dainton; energy transfer, by J. I. Steinfeld; and relaxation techniques, by J. E. Crooks.

The material covered extends, in general, from 1967 to 1971 though many of the authors have chosen to avoid overlap with recent reviews, and so cover only the period 1970–1971. The second set of thirty-three volumes will cover the period 1972–1973 and is scheduled for 1974. The style is that of the typical review and does not lend itself to easy reading, except by specialists. The reviewers in general, however, write well and with authority so that the volume is excellent for conveying to the “cultured” scientist current progress in each field and some flavour of the directions and interests of kineticists today. Its greatest usefulness, however, will be to the research worker and specialist for whom it will represent an appreciable saving in time. In spite of its length, it suffers from the fault of most reviews of being descriptive rather than critical, so that apparent or hidden contradictions are not resolved. This is possibly the inevitable state of any active research field. There are a relatively few, but glaring typographical errors.

In these days of shrinking library budgets and expanding scientific literature (both original and review), the author refrains from judgments on the transient or ultimate utility of so imposing and expensive a project. At

about £10 (\$24.00) per volume, it will represent a forbidding investment in money and space to both libraries and research workers. Perhaps this only underlines one of the most painful and critical weaknesses of science today—our archaic communications system.

S. W. BENSON

Statistics of Spectra

Gamma-ray Spectroscopy, with Particular Reference to Detector and Computer Evaluation Techniques. By P. Quittner. Pp. 111. (Adam Hilger: London, 1972.) £4.

THERE have been two revolutions in the field of gamma-ray spectroscopy since 1946. The first came in the late forties with the advent of the scintillation counter. This provided the first efficient gamma-ray detector as well as a spectrometer of rather poor pulse height resolution.

The emergence of the Ge(Li) semiconductor detector in the early sixties produced the second revolution. With this detector, the high counting efficiency attained with the scintillation counter could now be complemented with a superb pulse height resolution which, in many cases, can surpass the best resolutions obtainable with magnetic and crystal spectrometers.

This little book is not primarily concerned with the physics of these counters, but rather with the many elaborate statistical techniques that have been devised as aids in the interpretation of their spectra. As such, it has been written very much for the specialist and does not make light reading.

Its main part surveys techniques of spectrum smoothing, detector response function, peak location, peak area determination, weighted least squares resolution and spectrum stripping. Another chapter is devoted to miscellaneous applications such as decay curve analysis programs, detection limits and on-line applications.

The value of these surveys lies not so much in their aiding the implementation of the techniques, but rather in a discussion of their scope, supplemented with a lengthy list of references. One shortcoming is the fact that, although these techniques rely implicitly on computers for their execution, very little mention is made of the many programs that are now accessible to all workers; but maybe this is too much to expect from a work of this size.

This book can be expected to play an important role in the future for workers in the fields of nuclear and particle physics, activation analysis, X-rays, and more generally workers in many other fields involving statistical observations.

D. K. BUTT

Earth Science

Geophysical Surveys. Edited by Wm. Markowitz. (*An International Journal of Geophysics.*) Vol. 1. No. 1. Pp. 119. (D. Reidel: Dordrecht, September 1972.) \$25.29; Dfl. 170 (libraries and institutions). \$22.75; Dfl. 70 (individuals).

THE appearance of a new earth science journal is not nowadays such a rare event. Over the past few years a number of publications, each catering for a limited range of interest, have appeared, the great majority of them having their birth in publishing houses and not the learned societies.

The title “Geophysical Surveys” means “exploration” to most earth scientists, and “Geophysical Reviews” might better describe the contents of the first issue and indeed the aim of the journal as a whole. The object of the publication is to provide a contemporary synthesis of progress in various branches of “geophysical research”. Each article is preceded by a full explanatory introduction to give background and aid in understanding the significance of the work.

This first issue contains papers on earthquake prediction, the Rhine Rift Valley, the hydraulics of the stream flow, tidal flow and the Earth's core. Papers are by invitation only and original research papers will not be included. The papers are indeed informative and there is certainly a crying need for papers of this kind—and not just in this branch of science—which collates a lot of information together in one place. It is almost impossible nowadays to keep abreast of all journals in earth science, in a particular field, and the thought of reading one journal, which updates progress from time to time, will doubtless appeal to many.

Even so, for this privilege institutions are asked to pay about £23 a year, whilst individuals receive the quarterly issues at about £9.50 which at nearly £2.40 an issue borders on the expensive. Would-be readers will have to decide if the convenience of these reviews justifies the price.

J. R. V. BROOKS

Pulp and Polymerization

Chemical Modification of Papermaking Fibres. By Kyle Ward, jun. Pp. viii + 246. (Marcel Dekker: New York, December 1972.) \$18.50.

THE orthodox maker and user of paper tends to treat his fibre as an inert material and to forget that cellulose is both a polymer and an alcohol and therefore capable of entering into many interesting and possibly useful chemical combinations. The chemist who wishes to study more thoroughly the reactions