

has imparted to the work as a whole. It is all the more to be regretted that the publishers, in spite of their reputation and their experience, have allowed the most appalling errors to appear in the printing of the illustrations. Five of the tables in the book have had all data in them omitted in printing. In a tardy attempt at correcting this error, the publishers have issued with the later copies offered for sale an eight-page 'errata sheet', but with incredible incompetence these have been printed in a way that makes it impossible to substitute them for the faulty pages, as each has been backed on to another, with p472 backing, for example, p516. It can only be hoped that a new printing can put such a stupid blunder right.

**P. C. Sylvester-Bradley**

*P. C. Sylvester-Bradley is F. W. Bennett Professor of Geology in the University of Leicester, UK.*

## Reaction kinetics

*The Organic Chemistry of Electrolyte Solutions.* (Interscience Monographs on Organic Chemistry.) By John E. Gordon. Pp. xxi+554. (Wiley-Interscience: New York and London, December 1975.) £15.35.

*The Electrolyte Chemistry of Organic Solutions?* No, that will not do either; the title is strange and ill-chosen.

The book's aim, according to the author, is to provide the organic chemist with everything he needs to know about electrolyte solutions, to treat all important solution chemistry measurements in one of its three chapters, while avoiding treating in detail aspects accessible through books such as Robinson and Stokes, and Harned and Owen; and therefore to graft on to the traditional physicochemical framework more 'chemical' information lacking in the great books from non-traditional sources such as vibrational and nuclear magnetic resonance spectroscopy. In less pretentious phraseology, to up-date the standard texts by including the important advances over the past 20 years made through the application of spectroscopic techniques. This is not the first attempt to do so in spite of the fly-leaf's claim, nor does the book seem to have been produced any quicker than a multi-authored volume, as the Series Editor claims, for the literature coverage is complete only to mid-1973 and cuts off in August 1974; and the book was not published until the end of 1975.

The three chapters referred to above are called Salt Effects, Ion Solvation and Ion Association, which are not mutually exclusive categories, as

the author realises. Each chapter concludes with a lengthy section discussing applications to kinetic studies, thus revealing the true interest of the author and his intentions. Has he succeeded? To a very large measure, he has. The book is no paste and scissors concoction, but scholarly and nearly always sound in approach and explanation if not in balance and selection of material. For, in discussion of theoretical conductance equations, only the earlier work of Fuoss is discussed, neglecting his later contributions and those of Prue, Pitts and Justice amongst others. Similarly the discussion of  $pH$ , under the heading of 'Single ion activity coefficients', returns unnecessarily to the 1920s treatment; and the widely adopted important NBS method is described as "based on yet another convention". Order of introduction of new concepts could have been better conceived. Terms which will surely puzzle the uninitiated when they first appear often receive more detailed explanation many pages later. The book is well illustrated with figures and diagrams drawn from the literature but not always too well associated with textual explanation. Nevertheless, physical organic chemists and others should find much of value in this book as a source book to the extensive literature on electrolyte solutions. It should help to continue to advance the interpretation of reaction kinetics in organic solvents, a subject which has progressed a long way since ion-pairs and solvated ions were first invoked to explain kinetic data when mechanistic explanation was otherwise at a low ebb.

**A. K. Covington**

*A. K. Covington is Reader in Physical Chemistry, University of Newcastle upon Tyne, UK.*

## Cell split

*Cell Division in Higher Plants.* (Experimental Botany: An International Series of Monographs, Vol. 7.) Edited by M. M. Yeoman. Pp. x+542. (Academic: London and New York, April 1976.) £16.50; \$41.

KNOWLEDGE of the cell division process and its control in plants has developed rapidly in recent years from observations made in a diversity of research fields. Dr Yeoman's concept behind this volume was clearly that this scattered material had to be brought together and presented in a developing sequence so that this recent progress could be fully appreciated and the as yet outstanding problems critically identified. The Botany Department at the University of Edinburgh has been one of the main centres of current research on cell division in plants, and

members of this department have obviously played a critical role, under Dr Yeoman's astute editorship, in the realisation of this volume. Professor R. Brown, in an introductory chapter, identifies the problems posed by the organised cell divisions in plant meristems and develops, in a thought-provoking way, models which will clearly guide future research. A group of chapters then deal with the process of cell division both in somatic and reproductive cells. A. F. Dyer contributes two chapters on mitosis which deal in a most lucid way with mitotic cycles and the origin and consequences of mitotic modifications and errors. A parallel chapter by M. D. Bennett (Plant Breeding Institute, Cambridge) deals with meiosis. M. M. Yeoman and P. A. Aitchison summarise our present very limited knowledge of the molecular events of the cell cycle, and Rachel M. Leech (York) our similarly very imperfect understanding of plastid replication.

The second major section of the book considers cell division in relation to the generation of form. The very intensive studies on the root apex are surveyed by F. A. L. Clowes (Oxford). This is followed by chapters on the shoot apex (R. F. Lyndon), leaves (J. E. Dale) and cambium (I. D. J. Phillips, Exeter). W. A. Jensen (Berkeley, California) contributes a disappointing short chapter on cell division in embryo development. This section of the book is completed by an interesting survey of unorganised cell division and morphogenesis in tissue and cell cultures by A. W. Davidson, P. A. Aitchison and M. M. Yeoman.

A final section headed Summary and Perspectives and written by Dr Yeoman suffers from its extreme brevity (4 pages) so that it is little more than a list of central themes and a signposting to the various fields of research (covered in the preceding chapters) which are contributing to these themes. Some critical discussion of perspectives would have been of real value here.

Setting aside these minor blemishes the volume is timely, well conceived, and scholarly written. It fills a real gap in botanical literature. In general the chapters are uniform and appropriate in standard so that they will be of value to established scientists looking for a well documented survey but equally appropriate for advanced undergraduate reading. The authors and press are to be congratulated on the excellent plates and informative line diagrams many of which have been specially prepared for the volume.

**H. E. Street**

*H. E. Street is Professor of Botany at the University of Leicester, UK.*