Chemical Relaxation in Molecular Biology

Edited by I. Pecht and R. Rigler
Springer-Verlag; Berlin, Heidelberg, New York, 1978
xvi + 418 pages. DM 79.80; $35.20

Relaxation techniques are the methods of choice for the study of reactions involving small energy changes. For this reason they find wide application in investigations of ligand binding and conformation changes in solutions of macromolecules. Studies of perturbed equilibria or fluctuations are not only usefully applied to very fast processes. It is often advantageous to be able to study reactions of complex biological systems repetitively on the same sample without mixing.

The volume under review is definitely designed for the expert or one who wishes to become one. The latter would be well advised to read Eigen and de Maeyer's chapter in Weissberger or Bernasconi's book before embarking on a study of the chapters presented here. Two chapters on the principles of relaxation and fluctuation studies are followed by a series of review articles on the application of these techniques. The following topics are surveyed by well-known authors who are all experts in their fields: substitution at metal ions, proton transfer, helix-coil transitions in nucleic acids, dynamics of tRNA, RNA polymerase, protein folding, antibody–hapten interaction, enzyme self assembly, carrier mediated cation transport. This volume is dedicated to Manfred Eigen and I feel it is a worthy tribute to the wide applications of his ideas and his broad interests.

H. Gutfreund

Introduction to High Performance Liquid Chromatography

by R. J. Hamilton and P. A. Sewell
Chapman and Hall; London, 1977
xii + 183 pages. £8.00

An upsurge of interest in liquid chromatography which will probably increase in the future owes much to the realization that gas chromatography has some disadvantages which cannot be overcome. Liquid chromatography offers a method of analysis and separation under mild conditions and one which does not require the compound to be initially volatile or capable of being converted to a volatile derivative. Thus at a glance it is possible to see that complex plant pigments, glycosides or large thermally unstable molecules could be best separated by HPLC. In the event, the range has been extended to include nearly all classes of compounds, many of which were equally well separated some years ago by gas chromatography methods.

The introduction of highly efficient liquid chromatography columns dates from about 1967. This book serves as a useful primer to the subject of high performance (pressure, price) liquid chromatography and could be read with profit by undergraduates in science courses, as well as researchers who have analytical and separation problems to solve. The first chapter gives a brief account of the various forms of chromatography. This is followed by an account of chromatographic theory, much of it having been developed as a result of studies in the gas chromatog-

raphy field. The chapter on equipment succinctly describes pumping methods and detection systems. Further chapters give an account of the packing materials in the columns, the mobile liquid phases used and preparative techniques. Each chapter has an adequate reference list. The book is clearly written and the text suitably interspersed with graphs and drawings. However, a book intended for the beginner should always explain unusual, professional terms, e.g., 'fingerprint' chromatogram (p. 112) and isocratic (p. 126). This book does not. This reviewer's main criticism lies with the final chapter (31 pages in this small volume). This consists of listed details of 89 different applications of the method, 37 of which are from commercial 'applications sheets'! An alphabetical compound index and a compound class index are also supplied referring uniquely to this one chapter. The cost of the volume could have been reduced because it seems to be expensive for the information it supplies.

Readers who wish to pursue studies of HPLC should refer to other volumes [1–7]. In particular the last three are concerned with applications in various fields.

References

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A. Darbre

New Techniques in Biophysics and Cell Biology, Volume 3

Edited by R. H. Pain and B. J. Smith
John Wiley; Chichester, 1976
viii + 245 pages. £10.00

Every time a further volume of a serial publication such as 'New techniques in Biophysics and Cell Biology' appears, the reader feels rather like a child at Christmas. Is the new volume as generous a gift as last year's, even if your library had to pay £10 for it? Will the new present last as long as last year's? And, above all, there is the feeling that maybe Father Christmas does not come nearly as often as he should. So now that three volumes of this series have appeared, with a total of some 23 articles, in a period of four years I must remark that progress is slow and that the volumes appear too infrequently. The gifts inside may be good but they are a little as though Christmas came but once every other year. The total result is that, should the series continue indefinitely, it will never succeed in covering a reasonable fraction of the techniques that are current at one time. Possibly the series suffers from trying to cover too wide an area of biology. In certain ways biophysics and cell biology stand on either side of biochemistry, to be viewed either as poor relations or as the more vigorous next generation threatening father's importance. Consequently it is inevitable that the articles in the series could mostly, if not entirely, be also