

Advances in Molten Salt Chemistry, Volume 3. Edited by J. Braunstein, Gleb Mamantov and G. P. Smith. Pp. xi+458. (Plenum: New York and London, 1975.) \$46.20.

"MOLECULAR dynamics calculations of molten ionic salts", by L. V. Woodcock (chapter 1), is a comprehensive review of the methods and application of computer simulation techniques to interpreting the physical chemistry of molten salts. The author concludes that computer simulation offers the only presently viable approach to quantitative interpretation of ionic melt properties. "Gas solubility in molten salts" by P. E. Field reviews the literature up to 1972 and includes results for 14 gases in pure and mixed metal salts of seven anions. "Organic reactions in molten tetrachloroaluminate solvents" by H. L. Jones and R. A. Osteryoung concentrates on condensation-addition reactions, dehydrogenation-addition reactions and rearrangement-isomerisation reactions. The continuing importance of fluorides justifies a major review of "Experimental techniques in molten fluoride chemistry" by C. E. Bamberger. The detailed explanations will be useful to even a beginner in the field.

"The chemistry of thiocyanate melts" by D. H. Kerridge is the first review of the subject, covering thiocyanate melts in most groups of elements. The final chapter (171 pages) by R. E. Thoma describes "Phase diagrams of binary and ternary fluoride systems". This exhaustively catalogues every known phase diagram in which the liquidus is delineated. Hitherto unpublished data from Oak Ridge Laboratory are included, and the publication in English of much Russian literature is invaluable.

This book maintains the high standards of literary and technical excellence which have characterised the series.

H. C. Brookes

Halonium Ions. (Reactive Intermediates in Organic Chemistry.) By George A. Olah. Pp. xiii+190. (Wiley-Interscience: New York and London, November 1975.) \$22.75; £11.40.

THIS new book from Professor Olah is about species of the type RXR' , where R and R' may be alkyl or aryl (including cyclic forms), and X a halogen. Aromatic iodonium salts (ArI^+Ar^-) were discovered in 1894 and are described in many standard organic texts. Aliphatic halonium ions are more recent and much of the work on them has

emerged from Olah's laboratory in the last decade.

The book describes the preparations, spectroscopy (mainly nuclear magnetic resonance (NMR)) and chemical reactions (alkylation, arylation, nucleophilic attack) of the various types of halonium ion. Stability falls as the groups R change from aromatic to aliphatic and the halogen from iodine to chlorine (fluoronium ions are unknown). The wholly aliphatic RXR' ions exist only at low temperatures and there is only NMR evidence (plausible rather than rigorous) for them. Olah is perhaps too certain here; although the balance of probability lies in favour of the halonium ions, more evidence that some of them are not present mainly as carbenium ions is surely needed.

J. Burdon

Books brief

Statistical Prediction Analysis. By J. Aitchison and I. R. Dunsmore. Pp. xi+273. (Cambridge University: Cambridge, London, New York and Melbourne, September 1975.) £8.50.

ONE of the most important problems in applied statistics is that of predicting, on the basis of a number of observations, what a future observation will look like. In its simplest form, x_1, x_2, \dots, x_n are n realisations of a random variable—what can be said about x_{n+1} ? Although study of the problem goes back to Laplace and his law of succession, it does not occupy a prominent position in modern statistical thinking. This is a pity in view of the importance and frequent occurrence of the problem. The present book is a serious and successful attempt to remedy this situation. The introductory chapter contains some excellent examples and later chapters deal with applications to sampling inspection, regulation, optimisation, calibration, diagnosis and treatment allocation. Throughout the book, and particularly in these chapters, the theory is intimately related to practice and non-trivial examples are given in commendable detail. The authors have had to make an agonising decision about the mathematical level of the book. What they have chosen to do is to throw the reader in at the deep end after the gentle introductory chapter. He is sharply immersed in a whole series of distributions, and without some experience of probability distributions he will

certainly be lost. The authors ease his way by full and intelligent tabulation of the distributions and by very clear writing. Within the limits of size they could hardly have done better. The philosophy of the book is largely Bayesian, although there are some deviations in chapters 5 and 6; but I think the reader will be so convinced by the good, sound common sense and practical relevance of the examples that he will scarcely realise that a serious point is at stake. This book is an important contribution to the statistical literature.

D. V. Lindley

Chemistry, Biology, and Clinical Uses of Nucleoside Analogs. (Annals of the New York Academy of Sciences, Volume 255). Edited by A. Bloch. Pp. 610. (New York Academy of Sciences: New York, August 1975.) \$46.00.

NUCLEOSIDE analogues have been used with increasing success over the past 20 years in the treatment of cancer and of bacterial viral and parasitic infections. Add to this the clinically useful immunosuppressive properties of some analogues and it is clear that they represent a therapeutically important group of compounds. In addition, some nucleoside analogues have other, perhaps no less important, actions as cardiovascular agents, specific fungicides, radio-protective agents, insect chemosterilants and as regulators of cell function. Some analogues are even growth stimulators (cytokinins), and on a socially responsible note, could, "in the food-short world of tomorrow, conceivably take on great importance". Such is the diversity of the biological properties of the agents described in this volume, that it is now evident that new analogues once isolated or synthesised, should be widely screened, since they may have any one of a number of important properties. Tubercidin (7-deaza-adenine), for instance, was rejected as a clinically useful anti-tubercular or anti-tumour agent because of unacceptable host toxicity. Since no toxicity is encountered on local administration to the skin, however, the agent now has potential value in the treatment of basal cell carcinoma.

This elegantly edited volume is a clear, interesting, and in places fascinating, account of nucleoside analogues, their present day uses and their future. Details are given of new synthetic routes, of the properties of novel analogues and of new ways of using already well-established agents. As the final chapter emphasises, there is still a great deal to be learnt from the study of nucleoside analogues.

T. A. Connors