Allfrey et al., by L. S. Anilica, and by R. Baserga appear when tissues are stimulated to change and have a tissue specificity, for example, in immunological tests. These could be the regulatory proteins. That such a class can be isolated in crude form at least is clearly shown by the experiments reported by J. Paul and R. S. Gilmour. The expression of the haemoglobin gene in reconstituted chromatin is turned-on by including a specific set of non-histone proteins. This important result has been confirmed recently by H. Gould's group at King's College.

It is clear that one can begin, at last, to think in detailed terms about eucaryotic gene expression and chromatin structure. This book will be of great help to all who need to do this. A background to the field is provided by 'Gene Expression II. Eucaryotic Chromosomes' by B. Lewin (1974) published by Wiley in paperback. Though the work discussed is about 2–3 years out of date, Lewin's style is easy to read and the subject matter is comprehensive and clearly laid-out. These two books together with two recent reviews by the same author (Cell, 4, 11–20, 77–93, 1975) will convert the willing reader to quite an armchair expert in modern eucaryotic molecular biology.

C. J. Chesterton

Membrane-Active Complexones

BBA Library Volume 12
by Yu. A. Ovchinnikov, V. T. Ivanov and A. M. Shkrob
Elsevier Scientific Publishing Co; Amsterdam, Oxford, New York, 1974
(Published simultaneously in Russion by Nauka; Moscow)
xii + 464 pages. Dfl 135.00; $ 56.25

This book will be widely welcomed. The authors, from the Shemyakin Institute for Chemistry of Natural Products, USSR Academy of Sciences, Moscow, have brought together an immense amount of recent information about the chemistry of a somewhat diverse group of naturally-occuring, alkali metal, binding macrocyclic compounds – peptides, depsipeptides, depsides, polyethers – as well as about some non-cyclic compounds – the nigericin and gramicidin antibiotics – that also bind metal ions, the resulting complexes being folded into a pseudocyclic conformation. The biochemical properties and uses of these compounds are also dealt with. The thoroughness with which the work has been done is testified to by the 1115 references mentioned in the text and the list of 208 additional, mostly very recent ones.

The first chapter contains descriptions of the chemical structures of 340 compounds and for many of them details are given of some of their physical, physicochemical and antibiotic properties. Chapter 2 briefly describes the methods available for studying the complexing reaction. It includes accounts of the application of spectral, conductimetric, relaxation, and other techniques, the study of two-phase systems and the mass spectrometry of complexes. While the treatment is not detailed enough to serve as a laboratory handbook, it does tell the reader the sorts of information the various methods will yield and the references should lead him rapidly to more detailed descriptions.

The largest section of the book is devoted to the spatial structures and complexing properties of macrocyclic compounds. This chapter brings out very clearly how these properties are due not only to the number and nature of the groups directly interacting

with the cations but depend to a large extent on the three-dimensional structures of the whole molecules. There are numerous, mostly very clear, line-drawings of the structures and a few less successful half-tone pictures of space-filling models. The reasons for the ion-selectivity of the various compounds is discussed in some detail.

A brief chapter on the applications of macrocyclic complexones in chemistry and technology points out the possibilities of using them in the selective extraction of alkali and alkaline earth metal salts and the solubilization of these salts in weakly polar media, of interest in a number of chemical syntheses. To biochemists the most directly interesting chapters are those devoted to the actions of complexones on artificial and natural membranes and to their other biological properties. These review the large amount of experimental work that has been done with metal ion-complexing antibiotics and the insights it has given into the nature and working of mitochondrial, red-cell, bacterial and other membranes and into the energy-linked processes that occur in many of them.

The book is well written and has cohesion and perspective. The subject index is very good. It will surely prove invaluable to chemists and biochemists for a long time to come. The translation by G. Peck is felicitous.

S. P. Datta

The Phagocytic Cell in Host Resistance

Edited by J. A. Bellanti and D. H. Dayton
North-Holland Publishing Co.; Amsterdam, Raven Press; New York, 1975
xv + 348 pages. Dfl 65.00; $ 24.95

This volume represents the proceedings of a Conference held at Winter Park, Florida, in March, 1974. As befits a monograph sponsored by the National Institute of Child Health and Human Development, its central theme is the integration of current basic research findings on phagocytic cells into the clinical context of the ontogenic development of immunocompetence, and the pathogenesis of immunodeficiencies known to involve the phagocyte system. Thus, the conference included sessions on the physiology and biochemistry of mononuclear and polymorphonuclear phagocytes, the role of complement and lymphokines, and analyses of the current state of knowledge on the clinically defined defects of phagocyte function, such as chronic granulomatous disease. Appropriate attention is paid to the possible biochemical events accompanying chemotaxis, phagocytosis and intracellular destruction of microorganisms, e.g. the role of the peroxide-peroxidase-halide system, and of the superoxide anion in the microbicidal activity of polymorphs.

This is therefore a useful reference work both for research workers interested in phagocyte function, and for clinical specialists concerned with immunodeficiency states, especially since the literature on these areas is so widely spread. The emphasis of the conference inevitably leaned towards the pathophysiology of the polymorph, since most phagocyte-based immunodeficiences seem to involve granulocytes rather than macrophages. Indeed, in this light, this volume admirably complements a similar one just published, which is concerned primarily with macrophages (Mononuclear Phagocytes in Immunity, Infection and Pathology, R. van Furth, editor, Blackwell Scientific Publications, Oxford, England, 1975).

G. G. B. Klaus