

Chapter 4 by H. Denis is on nucleic acid synthesis during amphibian oogenesis and early embryonic development. The only systematic account of nucleic acid synthesis in differentiating animal tissues is in this chapter. This is unfortunate as work on insects receives only brief reference in the Introduction. For an understanding of the role of gene amplification in development, the work of Lima-de-Faria on *Acheta* deserves attention as do Ritossa's experiments with *Drosophila*. Although *Drosophila* does not demonstrate ribosomal gene amplification in the oocyte, the work (totally omitted from this volume) on the recovery of the wild phenotype from bobbed X bobbed crossed is of vital importance in throwing light on the mechanism of the insertion of amplified genes into the chromosome.

Chapter 5 by P. A. Marks, R. A. Rifkind and A. Bank is a thorough and readable account of the biology of erythropoiesis as well as the biochemistry of haemoglobin synthesis and erythroid cell differentiation.

Chapters 6 (A. R. Mearns and B. W. O'Malley),

7 (R. T. Schimke), 8 (R. C. Kafatos and R. Gelinas) and 9 (W. J. Rutter, M. I. Goldberg and J. C. Perriard) cover the hard core of the control of gene expression in animal tissues. They are logically arranged and cover oestrogen-induced differentiation, protein synthesis and degradation, mRNA stability and RNA polymerase. The authors' individual styles and emphases are refreshing. It is to be regretted that more space was not available for Moscona's work on glutamine synthase of neural retina and the deductions about transcriptional control that follow from it.

Chapter 9 on "The Role of Chromosomal Proteins as Gene Regulators" by A. J. MacGillivray and D. Rickwood goes beyond the specific confines of its title and includes a systematic review of histone fractions and sequences and the characterization of non-histone nuclear proteins. The chapter includes sections on modification of proteins and chromatin structure. It is a thorough review up to 1973 (552 references).

J. H. Parish

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Defence and Recognition

Edited by R. R. Porter

Butterworths; London: University Park Press; Baltimore, 1973

ii + 419 pages. £10.45

This volume attempts to cover the whole of immunology from ideas on the structure of antigens through to immunotolerance and immunosuppression. The progression is from well-defined chemical knowledge on antigens and antibody structure, to the more biological and medical regions of transplantation technology. Superimposed on this is the study of the genetics of the various systems which itself runs the gamut from the purely chemical to the bio-medical. Inevitably with immunology, certain parts of the subject, such as those connected with immunoglobulin and antigen structure, are readily understood by the

chemist and biochemist without any other background knowledge, while other parts such as graft rejection and the machinations of the lymphoid system are not so easily grasped. For workers at the medical end of the spectrum the reverse is no doubt true.

As one would expect with such a distinguished volume editor, the standard is high, and the chapters are laid out with frequent helpful subheadings to remind us where we are. Professor Porter himself has contributed an excellent chapter on immunoglobulin structure, and this is complemented by a section on

their biosynthesis by A. R. Williamson, and on their genetics by C. Milstein and A. J. Munro. The coverage in this area is completed by a chapter by M. J. Crumpton on antigenicity and immunogenicity. In this latter chapter extremely well-chosen examples have been used to illustrate the various points.

P. J. Lachmann has contributed a chapter on complement. Any discussion of this extremely complicated system tends to become something of a list of all the components of complement and their reactions and interactions, but the present author leads us gently through the steps. It is an absorbing topic and one which is becoming more 'biochemical' each day. Here as in the area of immunoglobulin biosynthesis, one must have sympathy for anyone trying to summarise a mass of data into some sort of scheme for presentation to the non-expert.

Other sections of the book deal with such topics as interferon and the more medical parts of immunology such as cellular immunity, tolerance and histocompatibility antigens. The chapter on interferon (the

first in the book) is adequate in its coverage, but failed to convey much excitement to this reviewer. In this field, as in the field of histocompatibility antigens, the isolation of tiny amounts of material from complicated cell extracts presents a formidable problem and the end results so far are not much for the protein chemist to get his teeth into. This is a challenge for the future, when this curious mixture of phenomena we call immunology must eventually be explained in terms of the interactions of chemical structures, that is, become a part of biochemistry.

This volume is, in summary, a useful survey for the non-expert, but one which may rapidly become out-of-date in some areas at least. Many chapters would be useful reading for undergraduates, and research students will find that particular sections will be helpful as starting points for delving into new areas.

E. J. Wood

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Plant Biochemistry

Edited by D. H. Northcote

Butterworths; London: University Park Press; Baltimore, 1974

ii + 287 pages. £10.45

One never knows what to expect under the title of *Plant Biochemistry*. The experienced reader in the field learns to expect nothing, so as not to be disappointed. The present book is a collection of seven independent reviews on specialized topics. Each chapter has a different authorship and, apart from the blanket title of plant biochemistry, there is no unity of theme or approach.

The contribution by D. A. Walker, entitled 'Chloroplast and Cell — the movement of certain key substances, etc. across the chloroplast envelope' proves that a review can be interesting, even entertaining, while retaining minutiae of detail and an

impressive list of references. We learn that the 'starch print', that classic of practical instruction in elementary botany, shows an amazing degree of resolution, approaching that of a photographic print. The reconciliation of this observation with the fact that leaves form starch in the dark when floated on sugar solution, requires an understanding of the translocation of metabolites and inorganic ions within the chloroplast, and between the chloroplast and the cytoplasm and other cell organelles. Students will be grateful for the lucid and comprehensive treatment.

Another highlight of readability is the chapter on the "Biochemistry of Photomorphogenesis", by