

studies on yeast protoplasts and isolated structures (ten papers), protoplasts of other organisms (seven papers) and studies on intact cells of yeasts and other organisms (thirteen papers). The opening lecture, a survey of trends in yeast research by J. R. Villanueva, is a particularly inspiring review of recent work on the yeast cell wall, including studies on protoplasts and regeneration of cell wall material.

The title is therefore rather misleading; although various aspects of the biochemical activities of yeast protoplasts are discussed, there is no indication of the large proportion of papers concerned mainly with the cell walls of yeasts, with protoplasts achieving only incidental mention. Electron microscopical studies, chemical structure and biosynthesis of the glucan, mannan and peptide or protein components are discussed many times, and the question of chitin—is it or is it not present?—is revived. Anyone interested in these topics need not be deterred by the specialized title; he will find the book a valuable addition to his library. There is an additional bonus—by collecting contributions from many authors whose papers are normally prepared only in Russian, Czech or in other Eastern European languages, and presenting their findings in English or German, a wider range of recent yeast research work is available to those of more limited linguistic ability.

All illustrations and tables are collected as an appendix of 135 pages. The standard of presentation of this section is excellent and the figures and tables referring to any particular paper are easily located. Apart from the index pages and editorial foreword, the text of the book has been produced by offset lithography from typescript. At approximately £5 the book is rather poor value for money in spite of the large number of photographs. Also, why must it have a soft paper cover, and why, in view of the supposedly rapid method of printing, has it taken almost two years since the symposium for the book to appear?

I. CAMPBELL

BIOCHEMISTRY OF PLATELETS

Biochemistry of Blood Platelets

Edited by E. Kowalski and S. Niewiarowski. (Colloquium held on the Occasion of the Third Meeting of the Federation of European Biochemical Societies, Warsaw, April 4-7, 1966.) Pp. vii + 191. (London: Academic Press, Inc. (London), Ltd.; New York: Academic Press, Inc.; Warsaw: PWN-Polish Scientific Publishers, 1967.) 45s.; \$8.

THIS book contains eleven papers in English and two in French, presented at a colloquium held in Warsaw in April 1966. As so often with the published versions of scientific meetings, one wonders whether the delay of more than 12 months before publication is not too high a price to pay for the eventual elegance of production. A few of the contributions are essentially review articles, but most include accounts of original work; some of this has already been published elsewhere since these papers were delivered, but workers in the field will be glad to have them collected in a compact volume. The value of the book is considerably enhanced by the inclusion of the discussion after each paper, and by a comprehensive subject index; the value of the author index is less obvious.

The contributions cover many aspects of platelet biochemistry, including nucleotide metabolism (Holmsen; Spaet and Lejnieks), clotting factors (Deutsch; Niewiarowski), aspects of the "release reaction" (Kowalski; Markwardt), and biochemical abnormalities occurring during storage (Caen) and in congenital platelet disorders (Gross). Mustard discusses the relation of platelet haemostatic function to platelet turnover, Kopeć and her colleagues the effect of fibrinogen degradation products

on platelets, and Davey and Lüscher the protein constituents of platelets. Platelet immunology and ultrastructure are the subjects of papers by Salmon and Libánská respectively. Much active research is continuing on all of these aspects, and this volume is best regarded as a progress report, rather than as a general survey of platelet biochemistry. As such, it will be of interest chiefly to those actively engaged in the field.

R. M. HARDISTY

CHROMOSOME DAMAGE IN MAN

Human Radiation Cytogenetics

Edited by H. J. Evans, W. M. Court Brown and A. S. McLean. Pp. 218. (Proceedings of an International Symposium held in Edinburgh, October 12-15, 1966.) (Amsterdam: North-Holland Publishing Company, 1967.) 70s.

THIS volume is one outcome of a technical advance which has made it possible for chromosomal damage in particular human somatic cells to be studied in considerable detail. In essence, the break-through is the use of phytohaemagglutinin (PHA) to stimulate cultured peripheral blood lymphocytes to go into mitotic division, so that the metaphase chromosomes of large numbers of cells can be scrutinized after appropriate colchicine and hypotonic pretreatments. From the contributed papers and the very short summary of unpublished discussion it is clear that there is now general agreement on methodology. In particular, it has now been realized that the previously preferred sampling time of seventy-two hours after culture initiation gives erroneously low estimates of chromosome damage; fifty hours is now favoured. This agreement is important, because divergent views on optimum fixation times have undoubtedly contributed to the markedly different results obtained in different laboratories. Unfortunately, however, large and puzzling discrepancies still remain.

The first group of papers is concerned with fundamental studies (mainly by H. J. Evans and co-workers) on the mechanics and dynamics of the leucocyte culture system and on the dose-response kinetics of exchange aberrations induced by both X-rays and fast neutrons at different dose rates. Considerable differences were found between these chromosomes and those of higher plants in their radiation response. Altogether, this group of contributions provides a very useful foundation for further work and for the interpretation of *in vivo* results.

Many subsequent papers describe such *in vivo* studies on populations exposed in one way or another to excess ionizing radiation. Although some reports are preliminary it is already obvious that this new approach is reaping rich dividends, chiefly in greatly increased knowledge of the nature, extent and persistence of chromosomal damage after both acute and chronic irradiation. Valuable new information has also been gained on the life span and immunological behaviour of the lymphocyte. The possible use of this technique for accurate biological dosimetry and for the detection of other mutagenic agents besides radiation is also discussed.

Full exploitation of this technique for population studies demands the removal of a bottleneck, namely, the time taken to detect and analyse each suitable mitotic cell. It is appropriate, therefore, that two papers should deal with possibilities of automating this process. The problems involved and the solutions advocated are dealt with lucidly and at length, making it clear that the difficulties are not insuperable and that success is only a matter of time.

To the receptive reader this volume should prove as stimulating as PHA to a lymphocyte.

A. G. SEARLE