Books and Monographs

Experiments in Microbial Genetics. Edited by R. C. Clowes and W. Hayes. (Pp. xii + 244; illustrated + tables. 42s.) Oxford and Edinburgh: Blackwell Scientific Publications. 1968.

During the summers of 1960, 1961, 1962, and 1964 the staff of Professor Hayes' Microbial Genetics Research Unit in Hammersmith organized a four-week course in practical microbial genetics. Places in these courses were eagerly sought after and, though the accommodation was never equal to the demand, the courses undoubtedly did much to disseminate the concepts and techniques of a relatively new and extremely important branch of genetics. Professor Hayes' Unit has now moved to Edinburgh and the summer courses are no longer being given, but the information given in this manual should enable any university department with reasonable facilities and some experience of handling microorganisms to reproduce the experiments. Different sections are devoted to different topics or experimental organisms (mutation, transformation, virulent bacteriophages, conjugation, *Aspergillus* genetics, and so on), and each section is preceded by a concise introduction giving a minimum amount of background information. The experimental protocols themselves include precise details on quantities and timing. All the contributors were actively concerned in the research which led to the experiments described, and several of them were largely responsible for the major discoveries which form the basis of modern microbial genetics. Furthermore, the experiments have all been tested under class conditions and been found to work, at least with reasonably sophisticated students. This manual can thus be recommended with the utmost confidence, and it should open the door to modern microbial genetics in many laboratories where it has previously been considered too difficult to attempt.

J. R. S. FINCHAM

A Laboratory Manual on Abnormal Haemoglobins, 2nd ed. Prepared under the direction of J. H. P. Jonxis and T. H. J. Huisman. (Pp. x + 126; illustrated + tables. 30s.) Oxford and Edinburgh: Blackwell Scientific Publications. 1968.

The difference between the present book, which appeared in 1968, and its first edition, which appeared in 1958, can be used as a measure of the extensive advances

that have been made in the investigation of the haemoglobinopathies. There is an introduction which explains the importance and the nature of the haemoglobinopathies which of course include both those due to abnormal haemoglobins and those arising from the different thalassaemias.

Abnormal haemoglobins are of interest both to the clinical biochemist and the pathologist. It is, therefore, important that for the former there is also some instruction in this book on basic haematological techniques with which the chemist might not be so familiar. These are comprehensive, and admirably done, though perhaps the sickle-cell test (on page 115) is not quite adequately described. It suggests that a fresh solution of sodium 'bisulfide' is prepared and that equal amounts of fresh blood and sodium 'bisulfite' are mixed on a glass slide. The difference between the two compounds may be due to a misprint but one would have expected the concentration to be given, and, in view of the confusion of the nomenclature in this group of chemicals, a statement as to which compound, e.g. $\text{Na}_2\text{S}_2\text{O}_4$ or $\text{Na}_2\text{S}_2\text{O}_5$, is actually required. In addition, if the test is only carried out for 15 minutes, there should be no need for sealing with paraffin or Vaseline. This is pointed out here merely because it could be corrected in the next edition, and it would then match the many other admirably composed instructions for simple and far more difficult procedures.

The larger part of the book deals with the identification and detailed description of abnormal haemoglobins and of the different proportions of haemoglobin A_2 and haemoglobin F, as they may be found in thalassaemia and in other haemoglobinopathies. Several electrophoretic procedures are described in detail and sometimes different techniques are given for the same type of electrophoresis, so that the reader can make his choice. There are full descriptions for the techniques for measuring foetal haemoglobin, and for the differentiation between normal and abnormal methaemoglobins by spectroscopic analysis. The chromatography of the haemoglobin variants is thoroughly dealt with, and, for those who want to go further, a considerable part of the book is devoted to the structural analysis of the haemoglobin variants. This involves high voltage electrophoresis of the tryptic peptides and further separation of these tryptic peptides by various means, their specific staining for amino acid residues such as methionine, tryptosine etc., and lastly their final analysis by determining the amino acid content and the proportion at which these amino acids are present.

Every chapter in the book contains references so that