"Yeast identification", "Dermatophyte identification", "Major monomorphic pathogenic fungi and actinomycetes" and "Dimorphic systemic pathogens". Although there are only five plates the handbook is well illustrated with simple line drawings showing the microscopic features of the fungi described. In common with some other American writers the authors use a technical jargon that I find unnecessary and at times irritating. The term dimorphic is well used to emphasise that some fungal pathogens have more than one growth form; it is in this handbook that I have first seen use of the term monomorphic. In adopting the term blastoconidia the authors appear uncritical and too respectful of the views of academic taxonomists who apply the descriptive principles of conidium ontogeny to the vegetative cells of yeasts.

There is a good index and a useful appendix giving details of stains and culture media. There are bibliographies dealing with the fungi in general, classification and medical mycology, but these are open to the criticism that too great a prominence is given to other manuals and text books that may be less readily available than original papers in established journals.

With the CDC Laboratory Manual for Medical Mycology published by the US Department of Health, Education, and Welfare Public Health Service out to print, this Medical Mycology Handbook is recommended to medical technologists as one of the best available. It is reasonably priced and is in a spiral binding with thin board covers.

R. R. Davies

Microbial testers—probing carcinogenesis


This book is designed for scientists interested in genetic toxicology, oncology, teratology, and environmental protection monitoring. It consists of four parts arranged to lead the reader from consideration of molecular and cellular mechanisms to the rationale and design of microbiological assays and their inherent problems. Finally, their application under practical conditions in the study of the role of dietary factors in human and animal cancer is described. This is covered in 10 chapters by different authors; as is common in this type of compilation, this leads to a certain amount of unevenness and repetition.

The marked increase in interest in microbiological mutagenesis tests in the last decade has arisen partly from attempts to establish them as short-term tests for carcinogens to replace tedious and expensive classical animal tests. As perhaps could have been anticipated, it is now clear that no single short-term test is likely to achieve this end. While it now appears that virtually all known carcinogens can be shown by appropriate tests to possess mutagenic, DNA-damaging, or DNA-modifying, attributes, the reverse is not generally true. Compounds that are mutagens but that have not been shown to be carcinogens in man or animals are now recognised. Also, because short-term tests can be done quickly, this has already led to the situation in which more than a few compounds have been studied extensively in short-term tests but have not been adequately tested for carcinogenicity in animal models. For this reason, the number of "false positives" is liable to decrease as animal tests are repeated and extended. The high sensitivity of most microbiological tests may mean, however, that they are in fact ultra-sensitive vis-a'-vis carcinogenesis. In animal studies it is commonly found that the latent period for the appearance of tumours is strongly dose-dependent, implying that the failure to induce tumours with a small dose of a carcinogen may simply mean that the corresponding latent period is longer than the natural lifespan of the animal. Moreover, the capacity for DNA repair has been deleted from most microbiological tester organisms to improve their efficiency in detecting mutations. From the practical point of view, "false negatives" are more serious. At least some of the substances in this category exert their effects at the chromosomal level, and therefore cannot be detected in tests with procaryotes. Much ingenuity has been used to devise tests in eucaryotes, yeasts and fungi as well as mammalian cells in culture, to overcome this problem.

This book provides a useful overview of progress in this field and considerable food for thought at the conceptual and the practical levels. Some of the methods described are already well established and enjoy widespread use in genetic toxicology testing; their use for the detection of carcinogens is still at the experimental stage, the results of which must be treated with
circumspection. The reason that batteries of short-term tests are recommended by regulatory authorities is very apparent. On the theoretical side, the close correlation between DNA damage and carcinogenesis further strengthens the case for the somatic mutation hypothesis of tumour initiation. The book is well produced and contains few errors. However, the reviewer (a chemist) takes exception to the description, on p. 97, of 4-nitro-quinoline oxide as a "water-soluble hydrocarbon".

M. M. COOMBS

The biochemistry and pharmacology of antibacterial agents

This is a modest little book, hardly more than a long article, in which the barest skeleton of an account of the biochemistry and pharmacology of antibacterial agents is laid out. Within its compass the text is clear and simple and its coverage is really the minimum of what many in medicine and paramedical subjects might be expected to know about the molecular basis of how antibacterial agents work. The subject is tackled from the point of view of the targets that antibacterial agents attack in the microbial cell. There are sections on agents active against the folic acid pathway, peptidoglycan biosynthesis, protein synthesis and nucleic acid synthesis, but one lacks a chapter on agents active on membranes. In particular, I find no consolidated account of how chemical molecules interact with enzymes. So the fundamental molecular basis of the great majority of antibacterial action is missing. As a result, the story told here is somewhat anecdotal.

Within the various sections, the coverage is patchy, with certain recent advances receiving priority over others in a rather quixotic way. Thus, in the β-lactam section, thienamycins (a wrong structure here) are mentioned but not clavulanic acid or the olivanic acids. The aminoglycosides are treated only very cursorily (gentamicin is called gentamycin), and this can hardly reflect the relative importance of these agents in clinical terms—at least when balanced against the space given to phosphonomycin, cycloserine and puromycin, to name only a few largely unused antibacterials.

Overall, one cannot escape the conclusion that anyone really interested in this topic will rather quickly move on to sterner stuff.

M. H. RICHMOND

Manual of macrophage methodology: collection, characterisation and function

Nobody disputes the burgeoning importance of macrophage function in normal host defence mechanisms and a variety of diseases. With the increasing numbers of scientific investigators working with these cells or interested in the general problem, it was clearly a good idea to produce a technical manual on the subject. The series of conferences on the macrophage organised by Van Furth have given rise to some majestically comprehensive publications but these scarcely rank as handbooks. Given that the editors set out primarily to produce a laboratory manual, this book must be rated a partial success. Some of the chapters are clear and precise descriptions of how to perform such practical tasks as preparing macrophages, assaying their function, and measuring their secretory products. After all, the real test of such a book's usefulness is whether or not a tyro can use its instructions to do a laboratory exercise without more guidance than that provided in its pages. The early chapters on collecting and purifying macrophage populations are the best in this respect and many hitherto difficult techniques such as the preparation of monocyte-macrophages of human origin are dealt with particularly successfully. However, the book suffers from two drawbacks. First, some general immunological and biological topics are included because the macrophage is to some extent involved, but by this criterion it would be possible to make a book on the macrophage or indeed any other cell type encyclopaedic in its scope. Thus, it is doubtful that a discussion of methods for assaying interleukins really comes within the scope of this book. Second, if all the possible applications