mutagenicity assays as rapid and economical tests for chemical carcinogens.

While the somatic mutation hypothesis is by no means proven and while as Heidelberger has recently pointed out (Cancer (1977) 40, 432), salmonella do not get cancer, certain bacterial mutagenesis tests do hold the greatest promise as rapid tests for the ever growing list of organic chemicals which are putative human carcinogens. A number of tests are described in the greatest detail. Simple tests involve measurement of repair of DNA damaged by chemical mutagens or tests of the ability of chemicals to cause mutations or chromosome abnormalities in yeast, bacterial, mammalian and human cell. At the other end of the scale is a description of the specific locus test first described 25 years ago which uses more than 24 000 mice and takes 18 months to complete.

Many chemicals are only mutagenic after metabolism in vivo and each in vitro technique has an inbuilt metabolising system usually a mammalian liver supernatant containing microsomes. Alternativley host mediated assays are described where the targest cells (yeast or bacteria) are injected into mammals treated with promutagens and isolated at a later time and mutants assayed. Another technique measures mutation in whole animals such as the fruit fly or parasitic wasps since they apparently activate promutagens similarly to mammals. Procedures which assess the effect of chemical mutagens by their ability to cause chromosomal or nuclear damage in peripheral lymphocytes are particularly important since they can be used for continual monitoring of workers exposed to chemical mutagens. Most of the authors are well aware of the problems that may arise in tests when one is measuring the effect of chemicals which may be both activated and deactivated by competing pathways and Green's chapter contains an appendix on:
(i) How to make every experiment a positive and
(ii) How to make every experiment a negative.
Nevertheless since this book may be used primarily by those who wish to set up routine screening tests, a chapter describing in detail the pitfalls likely to be experienced in these tests and the problems of extrapolating to man, would have been invaluable.

There are some particularly important chapters at the end on the safe handling of mutagens, and on the statistical interpretation of mutagenicity tests.

This book is not very good value for money since almost half of the chapters have already been published elsewhere but it is a very useful book. In view of the ever increasing need for safety at work I am sure it will soon appear on the bookshelves of the chemical and pharmaceutical industries.

T. A. Connors

Biochemical Methods in Cell Culture and Virology

by Robert J. Kuchler
Dowden, Hutchinson and Ross; Stroudberg, PA, 1977
ix + 331 pages. £22.50, $38.00

This book is designed for research workers who wish to learn sufficient cell biology to enable them to use cultered cells in animal virology, or for cell biologists who may wish to examine any endogenous or defective viruses the cells are carrying. The book is divided into three sections.

The first deals with cell culture and three chapters describe the culturing and handling of cells in vitro. the media used for maintenance and growth of animal cells in vitro, and some methods for manipulating cell populations in vitro (synchronisation, fusion). The methods are competently, although not critically, described and this section is basically a collection of published methods. No mention is made of two important sources of contamination; that due to mycoplasma and that due to cross-contamination

with other tissue culture cells. (A substantial number of heteroploid human cells are now known to be HeLa cells.) Nor is there mention of the different patterns of growth control exhibited by cells in culture, and the ways in which they can be studied; 3T3 cells are, for example, not discussed.

The second part of the book deals with virology, and describes in two chapters, methods used for the isolation and identification of human viruses, and virus growth and purification. These chapters provide a useful summary of methods, some of which are hard to find elsewhere. The book describes, for example, the complement fixation procedure in detail. There is a very brief, and again uncritical, account of radioimmune assay. In the next chapter, a brief survey of the major virus groups is followed by a useful collection of virus purification methods.

The third section deals with methods for analysis of DNA, RNA and proteins. The section describes for the radioactive labelling, fractionation and characterisation of these macromolecules. All the methods described have been widely used; nearly all of them are now seriously dated. The oligonucleotide mapping technique described in the book is no longer used, and cylindrical polyacrylamide gels have been completely superseded by slab gels. Part of the problem is the rapid advances that have been made in these techniques, but even so, surely a brief mention could have been made, and it is sad to find a book already fairly seriously out of date.

In summary therefore, the book provides an introduction to the techniques of cell culture and biochemical virology. It is useful to have them collected together, though each section, in itself, is no improvement on the currently available books. The book suffers from two disadvantages. First it is too uncritical of the methods it describes; this is inevitable with a single author manual that describes so many different techniques, and a multiauthor book would have been better. A description of what goes wrong with each technique and how to deal with this would have been invaluable. Second the book has dated; there are few references later than 1972.

D. C. Burke

Myocardial Failure

Edited by G. Riecker, A. Weber and J. Goodwin
Springer; Berlin, Heidelberg, New York, 1977
xiv + 374 pages. DM 48, $21.20

Symposia are valuable to the participants who benefit from the two-way exchange of ideas. It is much less clear that their subsequent publication in minimally edited form helps anyone – except perhaps publishers. So often talks which in the flesh were good, even catalatic, tend in print to become yet another version of that well worn story so familiar to other workers in the field. The undisputed value of bringing together workers from different backgrounds to mull over a particular topic is rarely captured in the published version and all the reader has is a mixed bag of rather brief papers all relevant to the topic but often giving a fragmentary and incomplete picture. Published in this form, the proceedings of a symposium neither have the detailed exposition of methods required in a primary publication nor the rounded perspective of a review. They are, therefore, ephemera that must come low on the shopping list of libraries.

All these remarks apply to 'Myocardial Failure'. As a symposium it brought together clinicians and basic scientists; but as a published volume it is very patchy containing some good papers but also a great many poor ones. There is little or no attempt at synthesis and the reader is frustrated from doing this himself by the glaring gaps – for instance on the basic electrical properties of the myocardium. Despite these criticisms most people who read 'Myocardial Failure' should find something new and if the book serves to direct them in their reading of the primary literature, it could be claimed to have served a useful purpose.

P. F. Baker

Cell culture is most widely used in diagnostic virology for cultivation and assays of viruses. The tissue culture was first applied in diagnostic virology by Steinhardt and colleagues in 1913. They maintained the vaccinia virus by culture in tissues of rabbit cornea. Subsequently, Maitland (1928) used cut tissues in nutrient media for cultivation of vaccine viruses.Â In this method, the growth of non-CPE-producing virus in cell culture can be tested by subsequent challenge with a virus known to produce CPEs. The growth of the first virus will inhibit infection by the cytopathic challenge virus by interference. For example, rubella virus usually does not produce any CPE, but prevents the replication of picornaviruses, which is inoculated as a cytopathic challenge virus. Presentation on theme: "Cell Culture and Diagnostic Virology"â€” Presentation transcript: 1 Cell Culture and Diagnostic Virology part 3.Â 6 Isolation of Viruses in Cell Culture However, most of the more common human pathogenic viruses can be cultured relatively easily provided the proper conditions are satisfied A wide variety of virus-sensitive cell lines are available either commercially or through one of the national or international cell bank collections such as ATCC & ECACC ECACC: European collection of cell culture ATCC: American Type.Â 9 Microtiter Method of Virus Isolation from Samples Using this method six cell lines are Biochemical Methods. Biotechnology Methods. Environmental Science & Engineering.Â Purpose Cell and organ cultures are used to maintain living animal cells and groups of cells outside the body (in vitro). With separate, living cell cultures, it is possible to see and study the behavior of animal cells in greater detail than when they are in the animal (in vivo). Cell culture also frees the cells from some of the controls that normally regulate their activities. Cells, or tissues, are kept alive for varying periods of time, at times undergoing repeated divisions over many generations. Cells grown and cultured for study have been taken from a wide variety of species, such as h