reproduction (which includes even typist's errors and corrections), style, nomenclature, spelling and abbreviations, some of which are indeed rather curious if not unconventional. The irritation of the reader will also be compounded by the fact that 2 years have elapsed since this interesting, informative and valuable symposium was held, and, at £21.75, the price is little short of outrageous even in these days of high inflation. It is difficult to apportion the blame between the senior editor and the publisher, but it is most unfortunate that greater attention was not devoted to making this report on an important topical subject available to the medical and scientific community before the proceedings of the symposium were overtaken by rapid progress.

A. J. ZUCKERMAN

Microbiology for clinicians

By R. N. GRÜNEBERG. 1981. MTP Press Ltd., Lancaster. Pp. 179. £11.95.

In the foreword to this little book, Dr Grüneberg identifies the clinician's two microbiological needs as a smattering of general information and a knowledge of where to turn for the detail that is occasionally necessary for the management of a particular patient. The latter is relatively straightforward; the former is not, and the author is to be commended in his attempt to meet it. The likelihood of success must hinge in part on the difference between need as perceived, on the one hand by a microbiologist and, on the other, by the clinician himself. I suspect that few would wish to spare the time to study the simple framework that Dr Grüneberg has provided. Given that I am wrong, how adequate is the framework? On the face of it, the book covers most aspects of the interrelationship between microbiologist and clinician, but in the search for simplicity much has been sacrificed. Many of the earlier chapters are more suited to the medical student or even to the interested sixth-former, with the pursuit of the non-technical resulting in an appearance of condensation over a more senior reader. Parenthetic notes of the kind "... *Neisseria gonorrhoeae* (the causative agent of gonorrhoea)..." and "... german measles (rubella)", illustrate this. Surely we must assume that a doctor does not emerge from medical school entirely unaffected by teaching in microbiology. Add the recurring theme of University College Hospital practice and the doings of great UCH men, and the, to me, annoying quotations to complete the conviction that this text has a domestic undergraduate origin.

Yet, there are many good things. I well remember a senior clinician responding to my report of an outbreak among his patients, with the remark that I had been given something *interesting* to do. Dr Grüneberg conveys at least something of the contrary view that most of what we do is interesting, and that there is much that the clinician can do to make it more so. Perhaps again Dr Grüneberg's personal views are sometimes over-emphasised. I hope that we shall not be considered negligent if we decline to monitor serum gentamicin levels in all patients treated for more than 48 hours, and that prophylactic metronidazole will not be abandoned for povidone iodine on the strength of his opinions, for example.

I fear that although the aims of the book were admirable the target will remain blissfully unaware or, if aware, largely content in its ignorance.

I. PHILLIPS

Adhesion and microorganism pathogenicity

Edited by KATHERINE ELLIOT, MAEVE O'CONNOR and JULIE WHELAN. 1981. Ciba Foundation Symposium No. 80. Pitman Medical, London. Pp. x and 346.

This volume is primarily concerned with the adhesion of micro-organisms to eukaryotic cells. Carbohydrates provide the chemical basis for many of the eukaryotic cell receptors. The reciprocal structure on the micro-organism, the adhesin (often associated with pili and fimbriae), appears in many instances to have the characteristics of lectin molecules.

The participants bring together information on a wide range of adherence phenomena, from the well known *E. coli* mannose-specific binding interactions to the binding of *Entamoeba*

histolytica, dependent on an adhesin recognising N-acetylglucosamine. The functions of surface glycoproteins in myxoviruses and paramyxoviruses and the enhanced adherence of group-B streptococci to virus-infected cells are discussed, and the invasion of erythrocytes by malaria merozoites; it is postulated that the parasite recognises particular blood-group determinants, but none of the molecules involved has yet been identified and this important field deserves further intensive study.

The volume is concerned in the main with in-vitro models, but the difficulties of interpreting in-vivo disease mechanisms in terms of these models are clearly conceded. The seemingly simple process of bacterial adherence represents a potentially very complex sequence of host-parasite interactions, involving bacterial motility in chemotactic gradients and the role of the mucus-gel coating many epithelial surfaces. The ability of certain organisms to associate with intestinal mucus-gel appears to be more important in virulence than the ability to bind to the epithelial cells themselves. Another difficulty likely to apply to many laboratory models is illustrated by studies on adherence of gonococci to buccal epithelial cells; here the ability of a given strain of the organism to attach to the cells fluctuated from day to day and varied with the individual from whom the cells were obtained.

The symposium has provided a valuable service to those concerned with host-micro-organism interactions, in bringing together the views of workers from diverse fields, in developing an acceptable terminology, in generating constructive discussion periods and at the same time identifying the difficulties of interpretation of model systems.

The chairman and editors are to be congratulated on a well organised and timely presentation of data in important and developing studies of host-parasite interaction.

D. M. WEIR