embedded *within* a protein capsid. Only in the case of Ø6 is the lipid in the form of an envelope, so that penetration may involve fusion with the host-cell plasma membrane, similar to that known to occur in the case of some animal viruses, such as the paramyxoviruses. The last chapter of the book deals with what is essentially the most important step in the infective process, namely, the penetration into the host cell of the phage nucleic acid (E. Goldberg). Although knowledge is still largely at the descriptive stage, Goldberg tries to draw the various mechanisms that have been observed into a general scheme, and he makes some interesting speculations.

To return to the question posed at the beginning of this review: is virus research moving once more towards emphasis on bacterial hosts? No!—for it is now clear that animal and bacterial viruses (and plant viruses too, for that matter) use similar mechanisms to replicate themselves at the expense of their hosts. In fact, it is precisely at the initial binding stage that differences occur, for the simple reason that bacterial cells differ from animal cells most strikingly, in molecular terms, at their surfaces. It is therefore entirely apt that this volume on bacteriophage receptors is only part 1 of a two-volume series on virus receptors; part 2 will be devoted to animal viruses. In fact, they form part of the very extensive series of books on “Receptors and recognition” that is being pioneered by P. Cuatrecasas and M. F. Greaves. Thus, for the serious virologist interested in the initial stages of viral infection, these two volumes make essential and complementary reading. Part 1 is not only a well presented, up-to-date account, but is also very reasonably priced. We look forward to the publication of part 2.

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The nature and organisation of retroviral genes in animal cells

Edited by D. R. STRAYER and D. H. GILLESPIE. 1980. Virology monographs 17. Springer-Verlag, Vienna and New York. Pp. v and 117. US\$42.50.

The main concern of this monograph is with the interactions between the virus and the host-cell chromosomes, rather than on oncogenesis *per se*, in an attempt to place the biological and biochemical characteristics of this intensively studied virus group within the context of up-to-date molecular biology. The authors stress the great value of this virus group for the study of normal as well as aberrant gene expression and the possible relationships of the viruses and their progenitor host genes in normal development and differentiation. History of the subject is reviewed and the phylogenetic evidence for the origin of the various retroviruses is discussed. The organisation of the endogenous and the infectious retrovirus genes is presented. The horizontal transmission of retroviruses among animals is considered from the point of view of the putative transmission between species 3–5 million years ago and in the light of studies that have now shown that all the naturally occurring virus-induced leukaemias are associated with horizontal transmission of exogenous virus. The fascinating details of relatedness and combination among retroviruses are presented in a clear fashion, giving the reader an easy passage through this confused field. There follows an excellent chapter reviewing the current situation of human retroviruses and their possible relatedness to leukaemia and other diseases, posing some of the major difficulties of obtaining direct evidence of involvement in human oncogenesis. The authors review succinctly the mass of knowledge gained in the last 20 years up to the start of the new era initiated by the use of sequencing techniques and the discovery of the *sarc* gene product. Because retrovirus genes almost certainly have originated from host sequences, this short book provides a mine of information for those interested in gene expression and control functions, particularly in haemopoietic cells, as well as for tumour virologists.

W. F. H. JARRETT

The experimental foundations of modern immunology

By WILLIAM R. CLARK. 1980. John Wiley & Sons, Chichester. Pp. ix and 372. £9.30.

This is an unusual textbook of immunology, distinguished from others by the author's approach to currently accepted concepts. He forms his arguments around critical experiments