Book Reviews

The Holloman Aeromedical Research Laboratory has after the Second World War developed and maintained a big chimpanzee-colony, primarily for aeromedical, such as suborbital and orbital space research. The maintenance of the colony and the training of the animals involved investigations in different fields, which made the colony an important source of information concerning the biological and psychological properties of this most important species of subhuman primates. Many investigators and laboratories participated in this research work. It is needless to say that the results have great importance for biology and medicine as a whole. Of course, this was the primary aim of all investigations. ‘Warfare’ is only indirectly, if at all, involved. The first ‘Holloman Symposium’, the Proceedings of which are presented in this volume, was devoted to work in immunology and molecular genetics. The following papers were presented:

F. P. Alepa: Antigenic factors characteristic of human immunoglobulin G, detected in the serum of non-human primates; M. Goodman: Evolution of catarrhine primates at the macromolecular level; H. Hoffman and A. J. Gottlieb: Hemoglobins of chimpanzees; A. P. Kimbal: Chemical suppression of the immune response; S. P. Masourelidis et al.: Polymorphic nature of the human R1/8 (D) antigen among the red cells of non-human primates; J. Moor-Jankowski and A. Wiener: Blood groups of non-human primates; M. D. Poulik: Immunological and structural studies of immunoglobulins of human, chimpanzee and other primates, and A. S. Wiener et al.: Implications of studies in chimpanzees for the serology of the human Rh-Hr blood types. The volume is fascinating. It is to be hoped that further volumes will soon follow. They are awaited with great expectations.

P. Kallós, Helsingborg

Immunological methods are now in use in many fields of biological research. It is very useful to have them collected in one volume. The editor has obviously realized too that it is necessary to standardize the most important procedures. If the same method is used in different laboratories it will be easier to compare results and clarify problems. The present volume fills an urgent need. The editor succeeded in securing the co-operation of eminent authorities, who very often discovered and/or actively contributed to the immunological methods they deal with. All presentations are clear and the Handbook is a reliable guide in methodology. The main parts are: Section 1. Antibodies. (A) Isolation of immunoglobulins. (B) Studies on the synthesis and properties of the immunoglobulins. Section 2. Antigens. Separation and purification of bacterial, viral and tissue antigens. Section 3. Antigen and antibody interaction. (A) Methods utilizing primary interaction. (B) Methods utilizing secondary phenomena.
Applied methods. Section 4. Study of cellular and transplantation immunity. Section 5. Study of allergic reactions. In Appendixes the statistical methods applied to immunological data and the methods for the preparation of emulsions are described. Some important fields of immunological research are omitted or only briefly discussed, for instance the use of synthetic polypeptide antigens, and the methods for production and demonstration of immune tolerance. Nevertheless, this book will be indispensable for all laboratories, which employ immunological techniques. p jćALLAŞ Helsinebore

Book Reviews
207
Handbuch der experiment ellen Pharmakologie – Handbook of Experimental Pharmacology. Vol. XIX. Springer, Berlin/Heidelberg/New York 1966. Sub-Editor: Vittorio Erspamer. The 19th volume of the Handbook of Pharmacology treats 5-hydroxytryptamine (5-IIT) and related indolealkylamines. It is an excellent piece of work by the subeditor V. Erspamer. He not only edited this volume but also wrote 4 of the 14 chapters. The 1st chapter written by Erspamer’s coworker Vialli presents an excellent review of histology of the enterochromaffin system, and is supplied with a detailed technical appendix. The chapters 2 (Hanson) and 3 (Erspamer) contain very comprehensive tables and exact details about the chemical analysis and the bioassay of indolealkylamines. The 4th chapter (Erspamer) comprehends more than 20 tables about the content of 5-HT and of related indolealkylamines in mammalian tissues, in body fluids, in amphibian skin, in the tissues of many invertebrate species, and in plants. In the 5th chapter Hagen and Cohen describe all aspects of biosynthesis and storage of indolealkylamines, especially of 5-HT, whereas Blaschko and Levine (chapter 6) treat the metabolism of these agents. More than 130 pages compose the chapters 7 and 8 by Erspamer which treat the peripheral physiological and pharmacological actions of indolealkylamines as well as the participation of 5-HT in physiopathological processes. In these chapters the gaps in our knowledge are very clearly indicated. Above all, the puzzling actions of 5-HT on the circulation of several species are far from being cleared up with regard to the intimate mechanisms involved. The same conclusion can be drawn from the 9th (Mantegazzini) and the 14th (Stacey) chapters regarding the action of indolealkylamines on the nervous system. Chapter 10 (Gyermek) gives a brief review of the drugs which antagonize indolealkylamines. It is especially valuable because of its detailed tables about methods for testing anti-5-HT-action, classes of anti-5-HT-drugs, and biological data of all 5-HT-antagonists. Chapter 11 comprehends a brilliant review on drugs which block the storage of 5-HT and related amines. Here Carls- son especially regards the interrelationships between 5-HT and catecholamines which are of particular biological interest. Chapter 12 (Pletscher and coworkers) is not only a valuable supplement to chapters 5 and 6 on metabolism of indolealkylamines, but especially an excellent article on chemical, pharmacological and clinical aspects of monoaminoxidase inhibitors. Chapter 13 (Stacey) is short, corresponding to our small knowledge that 5-HT only in huge doses and only in few distinct organs induces morphological changes. — To summarize: This volume will be for a long time the standard work for all interested in any aspect of indolealkylamine pharmacology. It has to be regretted, however, that in most chapters the literature is referred to only up to 1964. jj- Giertz Freiburg im Br.
Immunologists clearly have a special interest in the cell membrane. Those who use agglutination or haemolytic tests, who investigate the antigenic structure of the cell membrane, or the manifestations of immunological reactions in vivo will benefit from a knowledge of the structure or pharmacology of the cell membrane. A review of the structure and function of membranes will therefore be very welcome. This review does contain much that is of direct relevance to immunology.

There is one review, by Coombs and Lachmann (Immunological reactions at the cell surface) which is wholly immunological in content, and deals with such topics as the antigenic structure of the cell membrane, reactions at the cell surface involving complement, and the role of the cell membrane in antibody formation and in various allergic reactions.

Of special interest will be the articles by Cook (Chemistry of membranes), Dingle (vacuoles, vesicles and lysosomes) and Allison (some effects of pharmacologically active compounds on membranes). Each of these three articles is lucid, well-planned and critical.

Book Reviews
discussing the evidence presented, and pointing out its limitations in a way which not all writers of such reviews achieve. Cook (chemistry) describes the chemical composition of membranes, and discusses the functions of many of the constituents of the cell membrane, in particular some of the antigenic components. Allison discusses the effects of pharmacologically active compounds on the cell membrane: how such interactions can occur, and the effects of a variety of drugs on the structure and stability of the membrane, including an interesting discussion of the effects of polyelectrolytes which will be of interest because of their relevance to agglutination and pinocytosis. Dingle has written what is in effect a personal manifesto, in which he brings together the various facts that are known about the vacuoles, vesicles and lysosomes known to occur within cells, the processes by which they arise, and the way in which the membrane which limits them may help to define their properties.

There are also, side by side, articles on the bimolecular lipid leaflet hypothesis of the cell membrane (Bangham and Haydon) and the alternative hypothesis (put forward by Lucy) that the properties of the cell membrane can be best explained by an assumption that part of the cell membrane is in the form of globular micelles, and that local transformations between micellar and bimolecular leaflet structure can occur, and may be important in producing several of the properties of the cell membrane. It is a pity that Bangham and Haydon’s article does not contain any criticism of Lucy’s hypothesis, and although they conclude that there must be some form of discontinuity or pore in the bilayer, they do not discuss the nature of these pores.

On the debit side there are, of course, blemishes. The introductory review, on the structure and function of the membranes of animal cells must have been difficult to write in such a brief form, but it is extremely uneven in its emphasis. Some observations are stated baldly, without discussion of their significance. For example Whittaker reveals that ‘the synaptosome possesses a Na+-dependent, hemicholinium-sensitive, uptake system for choline similar to that described in brain slices...’ The numbers of readers who will see the general importance of this observation will probably be limited. Whittaker’s article contains probably the worst drawings (of specialization of membrane structure) ever to appear in a British Medical Bulletin. These drawings are derived from electron micrographs, and it seems a pity that the micrographs themselves were not reproduced in this review, particularly since the article by Coombs and Lachmann contains a whole page of three electron micrographs which illustrate a single point, and in any event deal with bacterial flagella, and not with the cell membrane.
There is also a tendency, shown by many of the contributors, to write about topics which interest them but which are only of marginal relevance to the subject of the review. However, parts of this number are excellent, and there is much that will be of great general interest. D. Franks, Cambridge

The Vth Immunopathology-Symposium has been held at Punta Ala (Italy) in June 1967. It is always a pleasure to read and warmly recommend these biannual volumes. In the present volume the following subjects are discussed: (1) Antibody induced tissue injury; (2) complement; (3) delayed hypersensitivity induced tissue injury; (4) use of antimetabolites in diseases associated with immune responses and (5) the biochemistry of the acute allergic reaction. The lectures and discussions are of great importance. It is impossible to review them in detail, they must be read in extenso, and I can assure that the reading is not only delightful but also truly rewarding. p KallóSj [Jelsingborg