

Book Reviews

H. L. Robinson, R. Lathe, and W. L. Staudenbauer: *Current Topics in Microbiology and Immunology*, Volume 83. Springer-Verlag, Berlin-Heidelberg-New York, 1978, 13 figures, 19 tables, 156 pages, III, cloth, \$ 37.40.

The book under review needs no introduction to those who have anything to do with molecular biology or immunology. However, the three articles of the present volume are of interest mainly to molecular biologists rather than pure immunologists. The first one by H. L. Robinson deals with the inheritance and expression of chicken genes that are related to avian Leukosis Sarcoma Virus genes. The reviewer has left nothing untouched on this particular topic. Even immunologists investigating the differentiation of B cells will also be a bit enlightened by the section in which is discussed the dependence of appearance of lymphoid leukemia on the presence of B cells in the bursa.

The second article by R. Lathe endeavours to provide a useful and concise summary of the process of transcription in *Escherichia coli*. As one who has had some acquaintance with this particular field, I can say that the author has done an excellent survey of the current literature. He has, however, consciously made some omissions in sections dealing with RNA phage replication and with structural modification of the RNA polymerase in the virus infected cell. This is understandable because, the field has become so vast that it is well nigh impossible to do equal justice to all the aspects of the problem. The reader who is interested more in a particular section will find a large number of relevant references. For the recent initiates into the field the article will be quite useful in providing a good starting background.

The third review article written by W. L. Staudenbauer is concerned with the replication of ColE1 plasmids and their derivatives in their host *E. coli*. The author has also given adequate information on the physical and genetic structure of these DNA molecules, keeping in mind that is a prerequisite for any discussion of plasmid DNA replication. Due to their simple structure, high multiplicity and capacity for stable replication in the absence of protein synthesis, these plasmids are now widely used as vectors for gene cloning and as model systems for studying bacterial DNA replication. In view of the recent excitement in both areas of DNA research this summarization of what is presently known about the replication of ColE1 and related plasmids will be very helpful to both established practitioners and those who are intending to enter the field.

Sunil Das

O. G. Bier, D. Götze, I. Mota, W. Dias da Silva: *Experimentelle und Klinische Immunologie*. Springer-Verlag, Berlin-Heidelberg-New York, 1979, 146 figures, 76 Tables, 368 pages, VI, soft cover, \$ 31.90.

This book has been translated from the English translation of the Brazilian original which must have been published around 1972, since the preface dates from the year 1972, but the German edition has been edited and does include references up to 1978. Despite these handicaps, the book turns out to be a precise overview of experimental and clinical immunology covering immunobiology, immunochemistry, immunopathology, and the experimental field of biomedical engineering. For easy reading and reference, it is divided into chapters and subchapters and includes numerous figures, tables, and pictures to clarify the contents of the text. Each chapter is concluded by a list of selected references. The book is clearly aimed at students and for them it will be a valuable help in getting to know immunology. It should also serve very well as reference work for scientists outside the field of immunology.

Dorothee Wernet

P. L. Altman and D. D. Katz (eds.): *Mouse and Rat. Inbred and Genetically Defined Strains of Laboratory Animals*, Part 1 Federation of American Societies for Experimental Biology, Bethesda, 1979, 418 pages, cloth, \$ 65.00.

This is a handbook, like the classic *Handbook of Chemistry and Physics*, largely made up of tables. That data on the mouse and rat so presented will prove useful is a tribute both to the enormous amount of research that has been done with these species and to the diligence of the editors and authors.

The work has been supervised by an Advisory Committee chaired by Thomas J. Gill, III. One hundred and six authors and reviewers have contributed. There are 223 pages and 65 sections devoted to the mouse and 130 pages and 28 sections to the rat. The index occupies 55 pages. The sections on the mouse include such material as tables on the homozygosity resulting from various degrees of inbreeding; charts showing the origin of more than 100 inbred strains and substrains; tables giving the genotype of inbred strains; lists of known loci, these being conveniently grouped under such headings as biochemical loci and mutants affecting skin and hair; and tables of the incidence of tumors in various inbred strains. There are several chromosome maps, ranging from the total map to maps of the *H-2* region of chromosome 17, and a figure of chromosome banding patterns. One section deals with the classification of the genus *Mus*. The sections on the rat cover the same general areas but with relatively less emphasis on genetics and more on morphology, physiology, and behavior.

The editors note in the "Introduction" that some inconsistencies in nomenclature occur in the tables. This is particularly true in the section on the rat, for which species a universally agreed nomenclature has not been established. Even within tables there is less consistency in gene symbols than is found in the mouse material. This volume may turn out to be an important step towards standardization. It is to be hoped that its users will be impressed with the orderliness of the rules for both inbred strains and gene nomenclature developed for the mouse, and that these will be increasingly followed in both species.

Absolute accuracy is important in a handbook of this sort, since material contained in it will be widely quoted. The high competence of the contributors is an assurance mistakes will be few. However, it is inevitable that some have crept in. Thus, in the table of name abbreviations for the designation of substrains or the holders of strains, both mouse and rat usage are given for the names of investigators using mice exclusively; e. g., the abbreviation for Bailey is given both as By (mouse usage) and BY (rat usage). This reviewer ventures to express the hope that readers will call errors to the attention of the editors, and that corrections in due course will be published in some appropriate form.

This is an important volume. Many of us will owe a debt of gratitude to the editors for making so much material so easily available.

George D. Snell

A Statistician's Life

J. Fisher Box: *R. A. Fisher — The Life of a Scientist*. John Wiley & Sons, New York-Chichester-Brisbane-Toronto, 1978, 27 illustrations, 13 figures, 4 tables, 512 pages, XII, cloth, \$ 16.00

I could understand why someone would want to write a biography of Haldane, Hirtzfeld, or Szent-Gyorgyi, for it might read like a sequel to the *Count of Monte Christo* — but Fisher? Even the most skillful writer would have a hard time making a life in which the most dramatic events are fights with journal editors and manuscript reviewers into a readable story. For although Fisher educated a whole generation of scientists by his *Statistical Methods for Research Workers* and *The Design of Experiments*, and achieved a brilliant synthesis of Darwinism and formal genetics by *The Genetical Theory of Natural Selection*, he nevertheless led the life of a most ordinary *Bürger*. To be sure, he was slightly eccentric (but what Englishman is not?), and — so we are told — there is a whole store of "Fisheriana" — an oral tradition of the master's somewhat idiosyncratic deeds, but of all that we learn very little in this book. Perhaps the author feared — probably rightfully — that most of the stories might be apocryphal. We do learn charming details about Fisher's life on the farm, but these, rather than enlivening the book turn it, on occasion, into

the diary of an adolescent country girl. The author becomes more serious when she deals with Fisher's work. She tries to explain the work to a lay reader, but manages to be only slightly more lucid than Fisher himself – and that is not enough.

Ms. Box apparently worked hard on the preparation of this book: interviewed many people, collected a lot of material and even read all of her father's papers. Had she been able to select judiciously from the large amount of material and to write a book one-third the length of the present one, she might have presented us with an interesting portrait of an "ordinary" scientist. The book that she wrote will be read with interest only by those who knew Fisher personally. The others will probably doze off after a few chapters. I did!

Jan Klein

G. Giebisch, D. C. Tosteson, and H. H. Ussing (eds.): *Membrane Transport in Biology*

- Vol. 1: *Concepts and Models* Springer-Verlag, Berlin-Heidelberg-New York, 1978, 108 figures, 36 tables, XX, 537 pages, cloth, \$ 81.40
 Vol. 2: *Transport Across Single Biological Membranes* Springer-Verlag, Berlin-Heidelberg-New York, 1979, 103 figures, 41 tables, XX, 443 pages, cloth, \$ 81.40
 Vol. 3: *Transport Across Multi-Membrane System* Springer-Verlag, Berlin-Heidelberg-New York, 1978, 97 figures, 26 tables, XVIII, 459 pages, cloth, \$ 81.40

In these three volumes the editors have brought together a selection of essays on membrane transport. Starting from introductory reports on transport models for membrane transport, the articles continue through higher levels of complexity including membrane models, selected simple biological membranes, and finally complete tissue transport systems. This logical ordering gives the appearance of allowing one to proceed from the simple to the complex in developing an appreciation and understanding of membrane phenomena. The result is only partially successful in this regard because each of the chapters is individually and independently written and there is little carry-over of the material from one chapter to another. However, each contribution is very complete and thorough in its specific subject area, and thus the collection as a whole represents a very valuable resource for membraneologists and others who have a need to obtain a quick update on the current status of membrane transport theories, a compilation of information in this area, and experimental approaches.

Although not stated explicitly by the editors, most of the articles emphasize various aspects of water and ion transport, which makes the series very complete in this particular subject area. For example, in Volume 1 E. Racker discusses ion transport and ATP formation; O. S. Anderson, G. Stark, and J. E. Hall have separate chapters on lipid films; in Volume 2 R. I. Macey, R. B. Gunn, V. L. Lew and L. Beauge, B. Sarkadi and D. C. Tosteson cover different aspects of transport across the red cell membrane. More complex systems, such as amphibian skin (D. Erlj and H. H. Ussing), gut epithelium (K. Zerahn), and sweat glands (J. Hess Thaysen), are also reviewed in volume 3.

On the other hand, transport studies on metabolites, such as amino acids and sugars, which make up an important component of the literature and interest in membrane phenomena, have not been included in this extensive series of articles.

For the geneticist there are two valuable contributions in Volume 1 which give some introduction to the use of genetic methods in membrane transport problems: C. W. Slayman discusses genetic approaches to study membrane transport with microorganisms, higher organisms, and cultured souratic cells and P. K. Lauf reviews membrane immunological reactions and transport with special emphasis on erythrocytes and lymphocytes.

Jerome S. Schultz

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Rose, N. R., Bigazzi, P., and Warner, N. L. (eds.): *Genetic Control of Autoimmune Disease*. Elsevier/North Holland, New York, 1978, 88 figures, 103 tables, XIV, 466 pages, hard cover, \$ 50.00. Rudbach, T. A. and Baker, P. T. (eds.): *Immunology of Bacterial Polysaccharides*. Elsevier/North Holland, New York, 1979, 12 figures, 41 tables, XI, 158 pages, hard cover, \$ 24.00

These two volumes begin a new series of books on immunology published by what must be one of the most expensive publishers of scientific literature. Judging from the title (*Developments in Immunology*), the series will cover just about everything related to anything in immunology. The editors of the series remain anonymous.

Both books are proceedings from meetings held in 1978, the first one in Bloomfield Hills, Michigan, and the second in – of all places – Las Vegas, Nevada. The purpose of the *Workshop on Genetic Control of Autoimmune Diseases* “was to see if recently generated information derived from human and animal investigations might suggest new approaches to the classification, diagnosis, and treatment of this important group of disorders.” If it did, indeed, suggest such new approaches, this information somehow got lost during the publication of the proceedings. There were presentations at the meeting dealing with human diseases, and those dealing with spontaneous and induced autoimmunity disease in animals. An attempt to interrelate the two is not conspicuously visible in the published record. Most of the contributions are specialized reports that could have otherwise been published in a journal. But, perhaps it is good to have all this information collected into one volume.

The purpose of the symposium on *Immunology of Bacterial Polysaccharides* was first to “re-emphasize that the science of immunology was a > child < of microbiology, a fact that has been somewhat forgotten or ignored during the past decade”, and, second, to highlight “the contributions that studies with bacterial polysaccharides have made—and are now making—to the overall field of immunology and immunochemistry.” Well, as for the first goal, perhaps it is not so bad when immunologists forget for a while where they come from, for the parent seems to have a bad influence on the grown-up offspring; and as for the second goal: are there really immunologists who are not aware of the significance of the bacterial polysaccharide studies? At any rate, the symposium was too modest in size and totally unrepresentative, to make this point (six contributions by investigators from NIH at Bethesda, Wayne State University at Detroit, University of Connecticut at Farmington, and Abott Laboratories at Chicago). These are neither places where bacterial-polysaccharide research was initiated nor where it reached its glory.

A. Lauffer

Brussard, P. F. (ed.): *Ecological Genetics: The Interface*. Springer-Verlag, Heidelberg, Berlin, New York, 1979, 39 figures, 39 tables, X, 247 pages, cloth, \$ 25.30

Although ecological genetics has existed as a *prima facie* scientific discipline for sometime, “few ecologists collect data which are of specific interest to geneticists. Likewise, population geneticists, currently preoccupied with explaining the selective significance, or insignificance, of protein polymorphism rarely incorporate much relevant ecological data—or theory—into their interpretations of observed problems.” To encourage a dialogue between ecologists and geneticists, Drs. Peter F. Brussard, Ross MacIntyre, and James Fogleman organized a symposium on *Genetics and Ecology: The Interface*, held at Ithaca College, Ithaca, New York, June, 1977.

This book represents the proceedings of this meeting. The book is divided into six sections entitled Theory; Physiology, Biochemistry, and Adaptation; *Drosophila*; other Animals; Plants; and Coda. Each section consists of two contributions, with the exception of the third and the last sections which consist of three and one contribution, respectively. The specific topics discussed are: Evolution of ecological parameters (S. A. Levin), coadaptation and equilibrium population size (J. Roughgarden), enzyme polymorphism (papers by R. K. Koehn and W. J. Schull et al.), speciation and selection in *Drosophila* (papers by H. L. Larson, W. B. Head and R. C. Richmond), speciation in field crickets (R. G. Harrison) and snails (B. Clarke), genetic demography of plant populations (papers by M. T. Clegg and D. A. Levin), and the mechanism of evolutionary differentiation. This well-balanced symposium raised some very interesting questions that both geneticists and ecologists should ponder.

The publisher introduced with this book an innovation that they may want to patent. They have used a paper of such poor quality that on my copy at least, one can read two pages at once—the face and the reverse page. This could be one way for scientists to cope with the burgeoning literature.

H. Merz