BOOK REVIEWS

ROBERT SCHWARTZ, M.D., Editor


This colloquium, unlike its predecessors which have been concerned primarily with physiological and biochemical aspects of ageing, is largely devoted to statistical studies of mortality in populations, human and animal. The populations studied consist of humans, large mammals, small mammals and birds, fish and insects.

On human populations there is a paper by B. Benjamin on "Actuarial Aspects of Human Lifespans", and one by Eva Jalavisto on "Parental Age Effects on Man", as well an appendix on "Some Mathematical Mortality Models". Benjamin's paper surveys briefly (with extensive references to the literature of the subject) efforts to find a satisfactory mathematical model for human mortality, while R. E. Beard's appendix supplements this with some valuable mathematical details, and comparisons of various models.

One difficulty in studying human mortality is that life tables are normally computed from deaths occurring in some population during a short period of time (say two years), rather than from the experience of a number of people born at approximately the same time and followed until all are dead. This latter approach is practical, however, with shorter lived animals. A. Comfort presented a paper containing life tables of English thoroughbred brood mares constructed in this way from data contained in the General Stud Book.

F. Bourlière gives life tables constructed from game management records for five species of wild deer from various parts of the world and for four species of large birds, and cites references to life tables for a great variety of small mammals and birds. This is followed by a paper on "Arteriosclerosis in Birds" and another on the "Onset of Disease and the Longevity of Rat and Man".

George A. Sacher offers a provocative paper on the "Relation of Lifespan to Brain Weight and Body Weight in Mammals" in which he relates maximum lifespan for a species of mammals to its metabolic rate and "index of cephalization".

Three papers are concerned with fish populations. R. J. H. Beverton and S. J. Hold present "A Review of the Lifespans and Mortality Rates of Fish in Nature", which includes an extensive discussion of many factors affecting the natural lifespan of various species of fish. There are also papers on "Physiological Changes Accompanying Ageing in Fishes", and "Longevity of Fishes in Captivity".

Finally, there are three papers on insects: "Factors Influencing the Lifespan of Bees", "The Biology of Ageing in Insects", and "The Rate of Ageing in Drosophilia subobscura".

Confronted with such a variety of papers, one is at a loss for what to say. Apparently the participants in the colloquium had no such difficulty. The discussions following each paper were lively, and contribute much to the value of this book. New ways of attacking problems are suggested, alternative hypotheses are advanced; in short, something of the excitement of a meeting of capable minds is conveyed.

The discussants frequently questioned the reliability of one another's data, and the authors were the first to point out the inadequacies of the data on which their papers depended. Moreover, a need was expressed for clearer definitions of such concepts as lifespan and natural death. On the other hand, it is remarkable that information of any reliability at all is available on the lifespans of so many species. It would be desirable if similar data could be obtained on some large mammals other than ungulates and some small mammals which are not rodents.

Of the many ideas discussed in this book, three which particularly interested this reviewer were the following:
Maynard Smith advanced the theory that although there are many independent processes each of which can lead to death, and even though initially for a species one of these processes would tend to produce death at an earlier age than the others, natural selection would produce greater resistance to this process so that in the end its susceptibility to all causes of death would increase with age at approximately the same rate.

George Sacher suggested that the rate of ageing is proportional to the rate of energy conversion, as if the body makes metabolic mistakes at a rate proportional to its activity level, and eventually dies of the accumulated errors.

From several participants came the idea that the organism is constantly increasing its organization and its disorganization-increasing its ability to avoid accidents and resist disease, but also increasing its load of metabolic errors and resident parasites, and that any mathematical theory of mortality should be based on this model.—II. Ronald Rouse, Department of Mathematics, Tufts University, Medford, Mass.

LIPIDS AND BLOOD PLATELETS WITH REFERENCE TO BLOOD COAGULATION AND THE HEMORRHAGIC DISEASES. John H. Ferguson. Chapel Hill, University of North Carolina Press, 1960. 297 pp., 28 figures, 65 tables, 550 references. $5.00

This book summarizes the results of 27 years of study of blood coagulation by one of the outstanding workers in this field. Its vast content is presented in three main sections with a supplement to include more recent experiments.

The early chapters deal principally with the historical background of blood clotting, including sections devoted to platelets and platelet function. The thrombin-fibrinogen reaction, the conversion of prothrombin to thrombin and the role of inhibitors are discussed in detail.

The experiments detailed are exhaustive studies on coagulation which evaluate systematically all known blood and tissue clotting factors. Protocols of 88 patients with hemorrhagic disorders of various types are presented. The author emphasizes: (A) The need and importance of platelets and platelet phospholipids and the participation of plasma components such as AHG, PTC, etc., in normal clotting; (B) The possible role of proteolytic enzymes such as trypsin in "disaggregating" the bound phospholipids, thereby rendering them "available" for thromboplastin formation; (C) The release of lipid from platelets, tissues or even plasma as the "trigger mechanism" which initiates blood clotting.

In the supplement, Dr. Ferguson reports recent experiments dealing with assays of specific clotting factors as evaluated by his two stage method. These include studies on prothrombin, factor VII, Hageman factor, and Stuart factor. In addition the test system has been modified to employ cephalin as a reagent instead of tissue thromboplastin. Although it appears that the system now resembles the thromboplastin generation test, Dr. Ferguson cites some differences.

Since the importance of lipids is stressed it is regrettable that the more recent work on the components of platelet cephalin is not included. In the studies of individual phosphatides it would appear that some materials tested were not employed in a wide concentration range, a procedure known as important in the adequate evaluation of phospholipids in clotting.

The figures, tables and illustrations are all contained in the back of the book, making referral to them at times rather cumbersome. Although the table of contents is detailed, the lack of an index is felt when seeking specific items.—Aaron J. Marcus, M.D., Department of Medicine, Veterans Administration Hospital, New York, N. Y.


This outstanding book contains 42 papers delivered at an International Symposium on Immunology held in Lucerne last year. The papers cover a wide area of biological
interest, including properdin, agammaglobulinemia, organ-specific immunopathology, inflammatory immunoreactions, rheumatoid arthritis and disseminated lupus erythematosus.

The paper by Witebsky, "Historical Roots of Present Concepts of Immunopathology," is a gem. His criteria to prove the connection of pathological changes to autoimmunization will be of great interest and should provoke discussion, pro and con. Grabar deals with the problem of the antigenisity of endogenous substances in an illuminating fashion. Good reviews his intensive investigations of agammaglobulinemia with characteristic clarity. The paper by Barandum, Cottier and Hässeg on "essential lymphocytosis" and "normogammaglobulenic antibody deficiency syndrome" is of unusual interest. I found highly interesting the papers by Cruickshank on human glomerulonephritis, Rimke on auto-antibodies against spermatozoa in sterile men, Stetson on homograft immunity, Osler on the role of complement in the mediation of tissue injury, Gell and Benacerraf on delayed hypersensitivity, Dixon on the pathogenic significance of antigen-antibody complexes, Grubb on Gm. serum groups, Robineaux on microcinematography and phase contrast microscopy of the L.E. phenomenon, and Miescher and Strassle on systemic lupus erythematosus. But there is something in this book for everyone.

Several papers seemed out of place in a volume devoted to immunological phenomena: Steuerungsreaktionen bei der Entzündung by Heilmeyer, Zur Frage einer Schutzwirkung des Eisens by Undritz and the papers on the Shwartzman phenomenon. They can, however, be read with profit.

The book itself is beautifully produced. The type is large and clear and the many illustrations are quite well done. There is a trilingual index. Highly recommended. --Robert Schwartz, New England Center Hospital, Boston, Mass.


A good many years ago, Dr. Ignacio Gonzales Guzman, the dean of Mexican hematologists, wrote the first of a projected many-volwed treatise on the nucleoli of cells. Although the other volumes have thus far not been forthcoming, Dr. Gonzales Guzman's emphasis on the nucleoli and their important metabolic functions have had their impact on hematologic thought. From the present interest in nucleoli, it is evident that his studies were long in advance of their time. The present volume, the first of a projected series dealing with the cytophysiology of immunity, is concerned with a comprehensive and authoritative study of the lymphocyte. The 16 chapters of the book deal with the cytology, motility, cytochemistry, enzymes and maturation of this cell. Microscopic and chemical studies of the nucleoli of these important cells are naturally included with a number of Gonzales Guzman's well-known water-color paintings of these cells with their prominent silver-stained nucleoli. Since none of the chapters deal with the immunologic aspects of the lymphocyte, it is presumed that these will be discussed in future volumes.

The book is well-presented and illustrated, each chapter being followed by a lengthy English summary. It is a scholarly and comprehensive work which should be a valuable reference work. --William Dameshek, New England Center Hospital, Boston, Mass.


This book is designed for the busy medical student and the equally busy practitioner. Discussions are brief and to the point. They are followed by one or two illustrative cases and a well-selected and very ample bibliography at the end of each chapter (the chapter on anemia has 352 bibliographic references). There are some excellent diagrammatic sketches illustrating concepts in the development of anemia and of hemostatic defects. Some of the final chapters, which are devoted to the neoplastic disorders of the leukocytes, are perhaps unduly brief. The last chapter consists of 50 pages dealing with hematologic...
technics. The book is well printed and bound. After reading the book, which is certainly not for hematologists, nor for trainees in that field, one has certain reservations. Is it really more useful for the busy student, whether in medical school or in practice, to read a rather simple text of this sort when he is in search of information than to consult a more comprehensive work such as that of Wintrobe? My own vote would be in favor of the latter choice. Simplification of knowledge is certainly desirable, especially in these days of reading as one runs. The value of a little knowledge may be questioned, although when one realizes the vastness of the storehouse of knowledge even in one little field, it may become difficult to distinguish between a book that is cursory and one that cuts deep into the subject. For a general single volume text on hematology, and despite its aims, one gains the impression that this book is too cursory. It will be interesting to note the degree of its acceptance by the medical profession.—William Dameshek, Blood Research Laboratory, New England Center Hospital, Boston, Mass.