BOOK REVIEWS

Robert Schwartz, M.D., Editor


In the last twenty years, Sir Macfarlane Burnet has been the principal author of four books and three theories dealing with antibody formation. During this time his views as expressed in these books have been central to any discussion of the nature of antibodies. The Clonal Selection Theory of Acquired Immunity, given as the Abraham Flexner Lectures at Vanderbilt University in 1958, promises to be no exception.

The Clonal Selection Theory of Acquired Immunity represents, superficially at least, a sharp departure from Enzyme, Antigen and Virus (Cambridge, 1956) published a scant two years earlier. The author has abandoned entirely his early theory of enzyme adaptation with its ingenious and favored "self marker" concept, and also his recently held views on DNA and RNA modification. He has also countered the strong biochemical emphasis of modern times by abandoning all efforts to explain antibody production on a molecular basis. This last is perhaps the key to the present approach. The cell is considered a self-replicating, integrated unit capable of responding to environmental stimuli according to fixed inherited patterns. Cells acquire inheritable differences through mutation. Selective cell multiplication or death produces changes in cell population similar to those occurring in bacterial cultures. The action of environmental agents such as antigens is limited to relatively permanent effects on cell population, and temporary changes in physiological state such as the rate of protein synthesis.

The author first shows how the above working hypotheses are solidly based on analogy to adaptation in microorganisms, then how these hypotheses explain the known facts of the immune response more readily than any of the other existing theories. There is a full dis-
cussion of immunological tolerance and related phenomena. The theory is discussed in relation to a wide variety of human diseases, particularly malignancy and those diseases which may involve auto-immunity. The interrelationships of mesenchymal cells also receive considerable emphasis. A rather large amount of speculation in the last few chapters serves the purpose of illustrating the wide implications of the clonal approach.

A justification for the apparent complete disregard of molecular biology may be simply a matter of placing the horse in front of the cart. In the orderly progress of biological knowledge, facts at a higher level of integration usually precede inquiry at a lower level. The discovery of Mendel’s laws antedated an investigation of the chemical structure of chromosomes. The elucidation of the role of an integrated, reproducing cell in adaptive responses of the whole organism must precede an investigation into the molecular bases of these phenomena.

A possible weakness in the present treatment is the failure to relate cell variation in the adult animal to the systematic changes in cell potential that occur in the developing embryo. While the mechanism of these changes remains one of the biggest unsolved problems in biology today, they provide an obvious analogy to variation among antibody-producing cells. At this time, the role of inducers, including antigens, in forging apparently stable changes in cell potential cannot be dismissed.

Even if the clonal selection theory is eventually shown to be partly or wholly wrong, it will have made a valuable contribution in stimulating new research and in pointing out the importance of an integrated cell in the higher integration of a multicellular organism. This reviewer looks forward to an exciting era of discovery in the field of antibody production, confident that whatever these discoveries may be, the theories of Sir Macfarlane Burnet will have played an important role in them.—David W. Talmage


This brief book is an important one. It consists of a review of the records of 5778 patients with lymphomas and leukemias, 795 of whom had neurological complications, and a broad review of the literature. The authors acknowledge the limitations inherent in a retrospective study of the records of many physicians of varying interests, but there can be little doubt that valid trends and conclusions are more likely to emerge from such a large series than from a smaller number of cases personally studied by an individual.

Spinal cord, brain, peripheral and cranial nerve involvement are discussed separately and there are chapters devoted to Herpes Zoster, Central Nervous System infection and hemorrhage and pituitary involvements. Each chapter contains a review of the literature, a comparison with the authors’ experience and a conclusion with regard to appropriate treatment. The tables are sufficient in number to illustrate the text and their contents can be absorbed at a glance.

Critical evaluation, however, demands that attention be called to certain confusing statements. In Chapter Two, entitled, “Spinal Cord Compression,” is found the statement “Manifestations of subacute combined degeneration or other degenerative processes may be associated with ischemia of the cord, secondary to the accompanying anemia more frequently in leukemia than the lymphomas.” Criticism of this may be levelled in two directions: first, that the term “subacute combined degeneration” should be reserved for a specific disease process, and, second, that the cord would be subject to ischemic damage secondary to anemia alone seems unlikely.

The discussion of the management of spinal cord compression secondary to lymphoma is also confusing for the statement is made that “intravenous nitrogen mustard followed by local radiotherapy has proved as efficacious as the procedures involving laminectomy, and probably represents the treatment of choice.” Yet, on the same page laminectomy and radiation are suggested as the treatment of choice in cord compression due to multiple myeloma.

Spinal cord compression has such tragic potential that general rules of treatment should not be evolved. Mechanical decompression of the cord could be the better course of action in any one case, whatever the cause.
Critical comment in a review is sometimes wrongly interpreted as condemnation. This must not happen here, for an enormous amount of information is compressed into 134 pages and it is presented carefully and objectively by authors well versed in their subject. The book is easily read in a short time and it would continue invaluable to its owner as a ready reference.—John F. Sullivan


This is an excellent translation of Paul Morawitz’s monograph, "Die Chemie der Blutgerinnung," which originally was published in *Ergelisse der Physiologie* 4:307–423, 1905. Those of us interested in coagulation, and not proficient in German, are truly indebted to the translators, for, as they point out in the preface, "the scientist will gain true wisdom regarding his field of interest and appreciation of its relation to the total knowledge of man and his environment only through familiarity with the development of ideas in his field." Morawitz’s monograph is not just presentation of the theories of coagulation prevalent at the time of publication (1905), but is a review of a good deal of the preceding work in coagulation. The first chapter is a review of the theories of blood coagulation held before Alexander Schmidt (1861). The second chapter deals with developments in the studies of coagulation between 1861 and 1890, arising primarily from the work of Schmidt and Hammarsten. Following these chapters are sections reviewing the literature on: (1) the role of calcium in coagulation, (2) thrombin and the clot-promoting substances in tissues, (3) fibrinogen and its conversion to fibrin, (4) the nature and action of various anticoagulants and antithrombins and (5) the changes in the morphological elements of blood during coagulation. As the translators point out, one is struck by how much of the current research on blood coagulation has its origin in the careful observations and conclusions made by various investigators in the late 19th and early 20th centuries.

Accompanying the text is a glossary explaining obsolete terminology. A few general medical terms are defined to aid biologists and biochemists. The bibliography of the original publications was checked and revised or corrected where necessary.—Robert Goldstein


Thannhauser’s book *Lipidoses* has appeared in a revised and enlarged third edition. This is an outstanding book by a foremost expert in the study of lipids and concerns itself with diseases caused by abnormal lipid metabolism. Part I deals with the chemistry, physiology and classification of lipids. Part II discusses hyperlipemia in various disorders; i.e., alimentary hyperlipemia, hyperlipemia due to overabundant mobilization of fat from depots, retention hyperlipemia and finally the neutral fat content of the serum in diseases where the intracellular lipid metabolism is disturbed. Included in this section is a critique of the electrophoretic, ultracentrifugal, gravimetric and titrimetric methods of analyzing lipid mixtures. Special reference is made here to the problems of classification and differential diagnosis of disorders of lipid metabolism.

Part III, a section nearly 400 pages long, deals with the various types of xanthomatoses. Familial hypercholesterolemic xanthomatosis is illustrated by a group of well studied cases. The tables showing blood and tissue lipid analyses, as well as photographs of the clinical and pathologic aspects of this disease are particularly good. There is an interesting account of the concept and pathogenesis of xanthomatosus biliary cirrhosis. Thannhauser believes that "pericholangiolic biliary cirrhosis with tuberous and plain skin xanthoma” is an entity distinct from xanthomatosus biliary cirrhosis.

In the section on hyperlipemia with secondary eruptive xanthomatosis two subgroups are delineated: idiopathic hyperlipemia and symptomatic hyperlipemia. In Thannhauser’s opinion, Klatkin’s suggestion that in hyperlipemia, clumped lipid particles result in pancreatitis is not substantiated by histologic data.

Part III closes with an exhaustive account of the normo-cholesterolemic xanthomatoses,
including the clinical variants of the Schüller-Christian syndrome and other rare xanthomatous lesions. Thannhauser prefers to call the Schüller-Christian syndrome “eosinophilic xanthomatous granuloma.” The etiology of this disorder is unknown. He believes that acute reticuloendotheliosis (Letterer-Siwe’s disease) is the earliest and most acute form of the disease, since “These infants die before the granulomatous and xanthomatous phase have time to develop.”

Part IV describes Gaucher’s disease (reticular and histiocytic cerebrosideosis) in its various forms. Thannhauser and co-workers assume that the abnormal metabolism resulting in the formation of cerebrosides is within the reticulum cells, which accumulate large amounts of this substance, thus forming the characteristic Gaucher cells.

Part V discusses Niemann-Pick’s disease (reticular and histiocytic sphingomyelinosis) which occurs as infantile and adult forms.

The relationship of hypercholesterolemia to atherosclerosis is briefly described and Thannhauser’s opinion is as follows: “The mechanism of the genesis of the arterial lesion in familial hypercholesterolemia in man and in the common type of atherosclerosis as observed in the higher age group seems to be clearly different, even if their end phases are, in their histology, overlapping and difficult to unravel.”

The book closes with a brief discussion of infantile amaurotic idiocy and the Hurler-Pfaundler syndrome (Cargoylisrn).

The bibliography is large, the index not. A number of misprints and occasional repetitions might be eliminated in the next edition. Thannhauser’s monograph is indispensable for the clinician interested in fat and cholesterol metabolism and the relatively rare lipid disorders. This book will certainly be sought after by physicians everywhere.—Heinz Magendantz


This book is a long, well organized review of the physiology, pathology and clinical manifestations of almost every known disorder of human arteries, veins and lymphatics. Its length and its inclusiveness are at once its strength and its weakness.

After a brief summary of the structure and function of the various components of the vascular system, over 250 pages and countless illustrations are devoted to the description of technics for evaluating vessel integrity, blood flow and neurovascular function. In the following 300 pages are listed methodically brief summaries of diseases affecting each segment of the circulatory system. Of necessity, controversial points receive little comment, and unresolved issues seem resolved by the brevity. General principles of medical and surgical therapy are discussed in a final chapter.

This book is tightly written and lucid and is most helpful in its consideration of diagnostic methods in peripheral vascular disease. The profusion of diagrams, many noncontributory and distracting, is, however, wasteful of space and effort. In his attempt to cover every disorder of the peripheral circulation, the author often discards writing for simple listing. The book should prove a useful introduction to vascular disease and a practical reference for practicing physicians.—William A. Tisdale


The author, a well known authority in the field of lipid chemistry, has undertaken the formidable task of the organization of the cholesterol literature. He has succeeded with an admirable, unified presentation.

The early chapters are devoted to basic chemical considerations, including cholesterol biosynthesis, and will prove most valuable to the reader with an organic chemistry background. The synthesis of cholesterol from acetate via squalene is considered in great detail, with particular emphasis on radioisotope technics. Physiological aspects of absorption, transport and metabolism occupy two chapters. The literature on cholesterol in erythrocytes is well discussed.

More than half the book is devoted to analytic technics for blood cholesterol estimation,
including quantitative alterations found in disease states and those induced by exogenous substances. The large volume of data on atherosclerosis is also presented. An appendix provides detailed information on the physical constants and properties of cholesterol as well as its occurrence in foods and tissues.

The book furnishes a good working knowledge of cholesterol metabolism and is a valuable reference source.—Aaron J. Marcus


This would have been a very comprehensive atlas of hematology had it contained chapters on the cellular morphology of lymph nodes and spleen. As it is, it constitutes an excellent atlas of blood and bone marrow cells only. It contains many good photomicrographs, both in color and by phase-contrast microscopy. The text is in German and consists of short, clear, but somewhat dogmatic descriptions of the various morphologic elements of the blood.

In the second part of the atlas, which really forms only an appendix, various technical methods are described. Unfortunately, more modern histochemical methods currently in use in hematology (e.g., the alkaline phosphatase stain) are omitted. Altogether, it is a good atlas, and is recommended to all students of morphologic hematology who read some German.—W. J. Mitus


When Paul Ehrlich first studied mast cells, he expressed his hope that one day their function will be clarified. Although the association of these cells with heparin and histamine is now well known, their function is still poorly understood. In this excellent monograph, Dr. Riley focuses his attention on this interesting problem, to which he and his Scottish associates have contributed so much. With the emergence of such disorders as urticaria pigmentosa, the study of mast cells is by no means academic, but is of immediate practical importance.

Riley's book is divided into two parts. The first consists of a comprehensive review of the literature with chapters on the discovery of mast cells, phylogenetic aspects of mast cells, blood mast cells (basophil or mast leukocytes), mast cells in pathological conditions and mast cells and heparin. The second part deals with the numerous investigations into the structure and function of mast cells.

This short, lucidly written monograph will be of great help to anyone interested in the mast cells, be they physiologists, zoologists, pharmacologists, pathologists, or clinicians.—W. J. Mitus
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