MISCELLANEOUS


This report presents the morphological details of the drug induced lipidosis caused by 4,4’diethylaminoethoxy hexestrol dihydrochloride. Under light microscopy most of the leukocytes had small vacuoles in their cytoplasm. The vacuoles in the neutrophils were smaller and more abundant than in the lymphocytes, plasma cells and monocytes. Eosinophils seldom showed a few vacuoles, but their specific granules were obviously irregular in shape and size. Foamy cells with or without deep blue granules were constantly found on examination of the bone marrow smears. Under phase contrast microscopy these vacuoles corresponded to dense, slightly refractile granules in the same distribution and size as in the smear preparation. Lipid was revealed in vacuoles of lymphocytes and foamy cells by histochemical procedures. On electron microscopy the vacuoles were dense and compact showing myelinated or periodical structures. Such granules in the neutrophils were distorted, larger, and denser than the specific granules, and scarcely appeared in the younger stages of the cells. Lymphocytes had large granules or rather, inclusion bodies in which a myelinated structure was frequently observed. Monocytes also showed similar structures, but they were generally smaller than those of the lymphocytes. Basophils had a few small granules with myelinated structure, and their specific granules contained uniform particles. It was peculiar that the appearance of every inclusion body in plasma cells was definitely membraneous. Foamy cells contained many large vacuoles. Almost all these granules or inclusion bodies showed reaction deposits of acid phosphatase by the electron microscopic, cytochemical technique. It seems that the disorder can be called an “acquired lysosomal disease” in contrast with the inborn lysosomal disease of Hers.—K.F.

BOOK REVIEWS


The relatively new field of thrombo-hemorrhagic disorders, encompassing the extremes of hypocoagulable and thrombotic states, has a much broader scope of interest than that confronted by the traditional coagulationist. This first volume of Progress in Hemostasis and Thrombosis fulfills the need for up-to-date, scholarly reviews in this field. The choice of subjects is appropriately divided between basic molecular biochemistry and cellular physiology and applications to clinical problems, thus spanning the natural interests of both the researcher and the clinician. The articles contain the detailed data and extensive bibliographies essential to source articles, yet are highly readable and relevant. Stand-out chapters probably reflect only the individual's subject preference, since all are written to a high standard of excellence. A particularly informative and fresh section is that by Nemerson on the extrinsic clotting pathways. This series will probably become a must for investigators and clinical hematologists, but the scope of the discussions will attract the interest of other specialties such as cardiology. It will also
serve as a useful reference source for the medical student.—Victor J. Marder, M.D.


This book contains the proceedings of an international symposium held in September 1970. Although published nearly 18 months after the symposium was held, it is still an exceptionally useful book. The participants constitute virtually a “Who’s Who” of immunologic research today. The book consists of sections on Antigen Cell Interaction and the Control of Antibody Synthesis; Control of Antibody Synthesis; Immunoglobulin Deficiency Disease; Immunoglobulin Classes, Chemistry and Function; Immune Mechanisms of Inflammation and Injury; Tissue Specific Immunopathology; and a WHO Conference on Immunopathology of Viral Diseases. As with all books of multiple authorship and proceedings of conferences, the quality of writing varies considerably—but in this instance from good to excellent. For the student, the book will be of value in outlining the status of the art and science of immunology as of mid-1970 and in providing insight into the current directions of immunologic research. The discussions of cell cooperation and B and T cells are most useful, and the section on immune deficiency syndromes is also quite valuable. The book is recommended particularly for individuals entering immunologic research and for students interested in the contemporary direction of work in this field.—E.P. Cronkite, M.D.


This book, though consisting only of 122 pages, constitutes a comprehensive treatise on the chromosomal changes in cancer and the role these karyotypic abnormalities may play in the causation, progression, and other facets of the biology of neoplasia in mammals, with major emphasis on findings in human material. For the latter, the author is to be congratulated, as well as for his lucid handling of some of the complicated aspects of cytogenetics in cancer, without resorting to the recondite expositions so common in some recent publications. Chapters are included on: chromosomal structure, karyotypic anomalies as the cause of developmental disorders, mitotic anomalies in tumors, a discussion of Boveri’s theory on the role of chromosomal changes in cancer causation, and thorough summaries of chromosomal findings in various human cancers and their metastases. The author has also presented meaningful synopses on the role of chromosomes in carcinogenesis in animals (“spontaneous” and induced), the significance of cytogenetic changes in so-called precancerous lesions and chromosomal predisposition to cancer. Even though these chapters appear to be relatively short, they do contain a wealth of informative summary material, backed by important references from the literature.

The physical format of the book is excellent, with sufficient and clear illustrative material, meaningful summary tables, and very few errors.

Since the author of the book (as well as the reviewer) is not a proponent that visibly recognizable chromosomal changes (except possibly for the Ph1 chromosome in chronic myelocytic leukemia) play a direct role in cancer causation, it is possible that some readers may find fault with this particular interpretation of the cytogenetic findings in human cancer and leukemia.

The average reader of Blood and hematologists may be disappointed with the sparse material in the book on human leukemia and other hematopoietic disorders, particularly acute leukemia. Even though the microscopic recognition of the Ph1 chromosome is relatively easy, the reviewer feels that at least one metaphase plate with this unique and characteristic cytogenetic anomaly should have been included in the book. A number of other minor areas in the book are open to question, criticism and reevaluation, but were the reviewer to go into these in detail, he would deserve the epithets “carping” and “captious.” For this little book is a welcome addition to the library on cytogenetics, and researchers, clinicians, and biologists alike will find much in it which has been critically analyzed and clearly presented.

—A. A. Sandberg, M.D.

This small soft cover manual describes the techniques currently used in the author's laboratory for assay of the various enzymes (glycolytic, hexosemonophosphate shunt, etc.) and important intermediate compounds (e.g., ATP, 2,3-DPG, GSH, lactate, etc.) in red cells. There are also brief sections on the basic techniques and equipment involved and on the intermediary metabolism of the red cell. Many hematologists, particularly those not intimately acquainted with this field, should find this a convenient laboratory manual.

—Stephen H. Robinson, M.D.


There is a sense of mystery that envelops the field of blood clotting. The numerous coagulation factors and the complicated tests by which their activity is assayed dissuade most physicians and students from attempting to come to grips with hemostasis. There is no shortage of texts devoted to the field, but with few exceptions they are highly specialized and tend to perpetuate rather than dispel confusion.

Only the rare work is presented in clear and understandable language, and Jean Thomson's guide is a fine example of what can be achieved. The author presents a terse and up-to-date summary of hemostasis. She emphasizes the diagnostic evaluation of bleeding disorders. As the title promises, her approach is practical, concentrating primarily on procedures with theoretical discussion limited to that necessary to insure clarity and continuity. Although the book is relatively short, its scope is comprehensive.

There are excellent discussions of inhibitors of blood coagulation, fibrinolysis, defibrination, and of the laboratory control of anticoagulant therapy. The single most important chapter, however, is the outstanding technical section on laboratory procedures. This is a simple, comprehensive compendium which alone makes this book a worthwhile addition to the collection of every laboratory engaged in the diagnosis of hemostatic disorders.

F. Nour-Eldin's short handbook undertakes a more ambitious task in fewer pages. Nour-Eldin presents his own views of the theoretical basis of blood clotting, as well as a review of blood clotting tests. He also includes a discussion of the management of bleeding disorders as well. Nour-Eldin's book is well written, but, necessarily, the presentation of each element is curtailed. As a result, neither the technical nor the theoretical discussions are as complete as one would have wished.

—Daniel Deykin, M.D.


More than just a well-written laboratory manual, this volume imparts considerable basic knowledge regarding blood coagulation. Thus, the hematologist or clinical pathologist can more easily select and interpret the plethora of tests which serve to characterize the hemostatic system. The first five chapters summarize the available data and theories of blood clotting. The discussion is modern and very pithy. In fact, the major criticism one might make is that too many facts are presented without development or supporting evidence. Thus, the texture is dense and frequently dogmatic. Nevertheless, except for minor errors (factor IX does not "activate" factor VIII), and occasional miscues (ATP is not reduced to ADP!), the discussion of the pathogenesis of hemorrhage is timely and accurate. On the other hand, the remarks on "hypercoagulability" give the false impression that the state can be accurately defined. Myths such as the "rebound" after stopping anticoagulants are presented as established fact. The discussion of coagulation factor chemistry is useful if a bit superficial. Again, unwarranted conclusions creep in, such as "factor IX is a lipoprotein." The discussion of platelet physiology is up-to-date, but that of fibrinolysis is inadequate.
The laboratory methods are presented in useful outline form, with appropriate charts and diagrams to clarify the text. The author strives for completeness, even to the extent of including tests of only historical interest (Hess test, fibrinogen titer, etc.). Sufficient details are presented so that it really fulfills the need for a modern but concise book of methods.

This book will probably be of use to hematologists, hematological trainees, and clinical pathologists, as well as a valuable reference for technologists. Its lack of evidence for concepts does not make it suitable for the expert. The introductory chapters could well satisfy many who quest for knowledge about hemostasis.

—Robert W. Colman, M.D., F.A.C.P.


This is a relatively complete and authoritative book that spans the major areas of importance in the field of lipoproteins and blood cell lipids. The 21 contributors to this volume represent individuals who have made primary contributions in the areas that they have reviewed. For this reason, the descriptions are largely up-to-date and the perspective is good. Because so many techniques for lipid analysis are available, it is difficult to describe all of them in sufficient detail, even in a book of this scope. However, a very fine attempt is made to present a large number of techniques of value in the analysis of blood lipids and lipoproteins. The care with which this is done in the first section of the book, devoted to analytical methods, is one of its assets. Part Two presents a well-focused analysis of lipid and protein structures of red cell membranes and serum lipoproteins. The juxtaposition of chapters forces the reader to be conscious of cell membranes and serum lipoproteins simultaneously. The relationship between cell membranes and serum lipoproteins is clearly very important and very dynamic, and this book is the best compendium of knowledge in these two areas combined to date. It is a book that investigators in these areas will find of great value and that students new to the area will be thankful for.

—Richard A. Cooper, M.D.


In this 95-page monograph, Rorth presents an up-to-date review of the biochemical and physiological factors that influence the transport of oxygen and carbon dioxide by the human red cell. In the opening section, a lucid presentation of the stereochemistry of hemoglobin is followed by a detailed description of the interaction of hemoglobin with allosteric modifiers: hydrogen ion, 2,3-diphosphoglycerate, and carbon dioxide. Fortunately, the equations dealing with linked functions are not necessary for an understanding of this section. The second part of the monograph deals with the intermediary metabolism of the red cell, focusing particularly on the control of intracellular 2,3-DPC concentration. The author has handled this rather complex area quite adroitly, providing a solid background for the consideration of alterations in red cell metabolism and hemoglobin function in various pathologic states, including hypoxia and acid-base disorders. Two short chapters are devoted to methods for measuring oxygen dissociation and glycolytic intermediates. These sections lack sufficient scope or detail to be of much use to the uninitiated investigator. This monograph makes no claim to being exhaustive, or even wholly objective. However, it does provide a clearly written and critical synopsis of an increasingly important area in biomedical research.

—H. Franklin Bunn, M.D.