
Earlier hematologists and clinical pathologists spent many hours with the light microscope learning to recognize normal and abnormal blood cells by changes in appearance, size, and shape and staining reactions which, combined with number, helped them to establish the diagnosis. As biochemistry became an increasingly more dynamic phase of hematology, students lost interest in examining blood slides in this old way. Biochemical reactions of and in blood cells became all-engrossing, and often, hematologists left study of blood films and morphologic identification to their technical assistants.

While microsomes and organelles of sub-microscopic size in various cells were known to exist, how they looked and changed with normal activity and under pathologic conditions could only be guessed. With the development of electron microscopy, its application to the study of blood cells and bone marrow structure stimulated a new interest in morphology. Minute but critical intracellular changes, magnified many thousands of times, could now be observed and interpreted as related to production, storage and reaction of many chemical substances.

This book, written by two recognized experts in the field of electron micrography who also happen to be hematologists, Y. Tanaka and J. R. Goodman, is a fine graphic and textual demonstration of the formerly invisible sites in blood cells which are now observed to show mitochondrial and other organelle changes; electron micrographs of normal cells and of cells in many hematologic conditions are depicted.

The inclusion of light microscope pictures of cells alongside the electron micrograph is particularly helpful to the hematologist-morphologist for comparison and orientation. The authors have taken pains to label all the new cellular elements that can be seen and to describe their important changes. The physiology and biochemistry of blood can now be much better understood when visualized with reference to the structures involved in various functions.

One occasionally wishes there were a glossary which might be helpful to the novice for quick reference to the terms used in this relatively new discipline.

The authors have prepared and the publishers made available a truly elegant book; the beautiful reproductions are on high quality paper, the text is lucid, the type easily readable, and the cost modest.

This volume is an important addition to the reference shelf not only of all hematologists and clinical pathologists but of any physician or scientist who is interested in blood cells and their many important functions. It is a pleasure to recommend it.

—Louis K. Diamond, M.D.


Although the primary cause of rejection of renal, hepatic, and cardiac allografts is immunologic injury, intravascular coagulation may be immediately involved in graft failure. This volume, based on an international symposium held in Munich in 1970, is a collection of 14 papers detailing the pathogenesis of the hemostatic disturbances which result from, and/or cause, rejection of transplanted organs. Possible modes of therapy including the use of anticoagulants are also explored. Four chapters deal with the coagulation changes in liver transplantation in experimental animals, while one deals with clinical results in two patients. If the liver graft is subjected to ischemic damage or rejection, localized trapping of platelets and deposition of fibrin occur. The possibility of aborting these changes with massive doses of heparin is raised by the
animal experiments and is verified in one of the patients.

In spite of the success achieved with the use of Imuran and prednisone in the early and long term management of human renal allograft recipients, these drugs fail to prevent immediate failure in the form of hyperacute rejection. The pathogenesis of this rapid rejection in presensitized recipients is delineated in six additional papers. Mechanisms include sequestration of platelets within the graft, deposition of fibrin, and vasoconstriction. Partial protection against this response is afforded by heparin. Similar results are reported in one study which deals with cardiac transplants.

The means used to detect these changes are diverse and two chapters are primarily concerned with methodology. In addition to the routine evaluation of coagulation factors and fibrinolytic parameters, these techniques include determination of A-V differences, measurement of fibrin(ogen) split products including their urinary excretion, use of 131I tagged fibrinogen, and structural studies by electron microscopy and immunofluorescent techniques.

As hematologists, we may be called on to diagnose bleeding states after organ replacement and to monitor antithrombotic drugs used in prevention of rejection. This book represents the first comprehensive treatment of these problems. In addition, these studies of the interaction of the immune and coagulation systems in transplantation have uncovered information which may apply to other hematologic problems of an immunologic nature.

—Robert W. Colman, M.D.


The reissue without revision of a scientific book published in 1948 and dealing with topics of such current interest as Hemolysis and Related Phenomena is unusual in today's rapidly moving world of medical science. It testifies, as pointed out by Robert I. Weed in an introduction, to the unusual quality of the mind and work of its author, Eric Ponder, who died in 1970. Reminders of his persistent curiosity and investigative skill as a biomathematician and quantitative biologist are present throughout this volume and its extensive footnotes. The discussion of osmotic fragility and of shape transformations of red cells as well as his analysis of the kinetics of hemolysis have stood well the test of time. Although in some other areas the text does not represent the differentiated products of the proliferation of understanding of red cell hemolysis that have evolved since 1948, the book has the basic importance of a stem cell that is now self-renewed. Viewed pragmatically the reissue of this book is a response to a continuing demand for its wisdom.—W. B. Castle, M.D.


This book is a compilation of the presentations given at a seminar on hematopoietic and gastrointestinal investigations with radionuclides. The book is divided into major sections dealing with fundamentals, radiopharmaceuticals, instrumentation, pathophysiology, pancreas, liver, bone marrow, and "work in progress." Although this division suggests a systematic approach to the subject, the individual articles each present selected and frequently limited topics so that, as a whole, the book is less comprehensive and less coherent than a textbook directed at the same subject might be. The division of the book also results in a sometimes confusing separation of articles on one subject. Thus, to learn about B12 one must search out three scattered papers each by the same author, one about B12 metabolism, another about radioisotope tests involving B12 metabolism, and the third about malabsorption due to B12 deficiency.

As is the case with most seminars, there is a wide range of scope, significance, and quality among the various papers. Some provide concise reviews such as a nice summary of polycythemia vera and its therapy with 32P which, however, is not detailed enough to instruct one in how to actually use this therapy. On the other hand, detailed data about a narrow interest is presented as in the article about the effect of possible aluminum contamination on the properties of the liver scanning agent, 99mTc-sulfur colloid. Some articles promise more than they deliver so that the title "Radiochemical Keys to the Physiology of
Erythropoiesis” is followed by little more than a short discussion of a whole body counter for $^{59}$Fe and a paper entitled “Clinical Use of Radionuclides in Determining Gastrointestinal Blood Flow” is only a superficial and theoretical but undocumented discussion of experimental techniques that might work. Another article, “Investigations in Zeta Potential,” presents a nice explanation of, and some data about, the relatively sophisticated concept of the Zeta potential of red cells but comes to the conclusion that the Zeta potential bears no relationship to the in vivo fate of chemically or physically damaged red cells.

The book is of more value to those whose primary interest is isotopes or nuclear medicine but the hematologist (and gastroenterologist) can get a nice overview of the rationale and applicability to his specialty of many isotope techniques. The student would find the book useful for information on selected topics, but this is not an introductory text. An investigator might find articles that coincided with his particular interest. Indeed, anyone might pick and choose and find some articles that appeal to his particular fancy.

—Peter B. Schneider, M.D.


Geoffrey Dean emigrated to Port Elizabeth, South Africa in 1947. He soon came upon several patients with symptoms that turned out to be due to mixed or variegate porphyria, and subsequently he became a clinical expert on this disorder. In addition, his careful investigations of genealogy have revealed that all patients with variegate porphyria in South Africa originated from a marriage that took place in 1688. From this beginning sprouted a family tree which now accounts for an estimated 0.3% prevalence of variegate porphyria in the white population of South Africa.

This small book is a pleasant, somewhat anecdotal account of Dr. Dean’s experience with porphyria and of the manner by which he traced back its origins in South Africa. The book is abundantly illustrated with clinical case histories and scattered personal and historical perspectives. Dean is not a biochemist and his description of the chemical basis and pathophysiology of the porphyrias is kept quite elementary.

The Porphyrias would be of value particularly to persons with an interest in porphyria or in medical history. It does convey an excellent feeling for the clinical course of variegate porphyria but cannot be considered a balanced comprehensive view of this disease or of the porphyrias in general. It is, however, light, interesting, and frequently informative reading.

—Stephen Robinson, M.D.


This is the most comprehensive book available today dealing with disorders of iron metabolism. The authors have left no aspect uncovered. Each subject is reviewed from a basic physiologic and biochemical, as well as clinical, point of view. Divergent opinions on controversial subjects are adequately presented along with a critical appraisal by the authors. In addition, the authors have presented an interesting and extensive historical background to the various subjects, which adds to the interest of the book. The text is extensively referenced and approximately 40% of the total articles were published following the first edition of this book in 1963. The total number of pages in the text has also been doubled. Thus this second edition truly represents a new volume. This book is highly recommended for the student, clinician, or researcher who is interested in iron metabolism.—Lewis R. Weintraub, M.D.


The past two decades have seen a steadily increasing interest develop concerning normal and abnormal cell proliferation in animals and man. In the past decade, particularly, this interest has included attempts to use the information about malignant cell proliferation in designing chemotherapeutic regimens. The state of the art indeed now seems sufficiently advanced that tumor cell cycle characteristics should regularly be
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used in considering therapy by chemicals and irradiation.

The appearance of this volume is timely and provides the necessary review and background for the physician responsible for the treatment of cancer as well as for the interested specialist for whom it will be a valuable source of material and references. Baserga has chosen well his list of topics and authors. He has provided a good balance of basic review and methodology with some references to potential application. It will be a good source of information concerning the cell cycle and its metabolic characteristics for someone new to the field.

As in all multiauthored books, there is an unevenness of style and quality. The chapters range from too simple and brief, as in a section on the proliferation and maturation of hematopoietic cells, to the overwhelmingly complex, such as in the elegant analysis of cell cycle kinetics by Mendelsohn and Takahashi. The review of cell cycles of cancer cells in man by Cavosto and Pileri is a particularly valuable reference source on the topic. Frindel and Tubiana provide a good chapter on application of cell cycle information as related to radiobiology.

The book is to be recommended to all people interested in oncology and hematology. It is generally readable and Baserga has provided a measure of continuity and commentary in a series of charming and erudite introductions to the various sections.

This book is currently the best basic reference text for this topic. It is to be hoped that the publishers can maintain the high quality of monographs as this series evolves.

—A. M. Mauer, M. D.


This book is an atlas of normal and pathologic bone and bone marrow as seen in methacrylate-embedded thin sections (1-3 µ) prepared by hard section microtomy without decalcification. The 721 color figures are of high quality and range from 6.5-1000 X magnification. Most sections are stained with Gallamine blue—Giemsa but a variety of other stains are employed to demonstrate reticulin, hemosiderin, fibrin, and other specific structures. Its primary value is to illustrate the application of the complex techniques required, rather than to serve as a reference source for the clinical hematologist or diagnostic pathologist.

The figures are selected from over 2000 myelotomies of iliac crest at Munich University clinics and hospitals. An introductory text describes and depicts the procedures and equipment necessary to obtain and process each specimen. A special electric drill inserted through an 8 mm incision is used to obtain a tissue core approximately 4 mm in diameter and 18 mm long. Tissue processing prior to microtomy requires 4-5 days and a special microtome is employed to obtain serial thin sections. Since the procedure causes disabilment of the patient for an average of 3 days, it is hardly applicable to clinical situations requiring frequent monitoring of marrow status. Some of the author's patients had 3-5 such myelotomies over a period of several years but interval examinations were provided by ordinary sternal punctures processed by conventional techniques.

For clinical or basic investigators interested in thin-section light microscopy of bone and/or bone marrow, this atlas may be a useful albeit limited reference source. The figures illustrate only a select sample of pathologic states, with several illustrations often devoted to a single condition. None of the preparations are pictorially compared to conventional paraffin sections or smears, a potentially serious defect to the clinical hematologist, student, or trainee since the histopathology of hematologic disorders frequently requires amplification by cytologic techniques. The text is a translation and, although adequate, is not eminently readable. Classification and terminology for the entities depicted are also occasionally problematic but these considerations are obviated by fact that this atlas is not a textbook of hematology.

—Costan W. Berard, M.D.


To write a precise and comprehensive summary of the human Gm allotypes, and to aim such a volume at a diverse audience
of hematologists, immunologists, geneticists, and rheumatologists, are formidable tasks. Yet this is what the author has successfully accomplished.

*Genetic Markers of Human Immunoglobulins* is a tightly written, short book (85 pages of text plus appendix and bibliography). In a no-nonsense analytical style, aided by simple explanatory tables and figures, the author summarizes equally well the basic data and the conceptual problems within this field. The grasp of the field is authoritative and incisive, and remains clear throughout.

The nature of the construction of the book imposes certain limitations. The compact writing and detailed material dealt with do not make it easy reading to a complete novice in the area, although the style is lucid. The organization is predominantly problem-oriented and a detailed description of key papers is best approached through the very complete bibliography.

This is a superior book of high quality, accuracy, and clarity. Although it deals with a limited area of investigative human biology, it is potentially of great interest to a broad group of scientists, concerned with problems in genetics and immunology.

—Stephen D. Litwin, M.D.


Since many of the recent advances in the area of glycoprotein biochemistry are intimately related to the field of hematology, this book is very timely. It represents the proceedings of the Fourth Annual American Red Cross Scientific Symposium which was held in May 1971, and contains 17 contributions which deal with many aspects of the structure and biologic function of glycoproteins. As the title indicates, the emphasis is on glycoproteins found in plasma and as membrane components of blood cells, especially erythrocytes and platelets. The articles not only describe the recent advances in the elucidation of the structure and biosynthesis of glycoproteins and how these molecules are integrated into cell membranes, but they bring out the fact that glycoproteins may be involved in a number of physiologic processes, such as the adhesion of platelets to collagen, the catabolism of serum proteins, and the altered growth patterns of malignant cells.

The book is well edited, accurate, and, for the most part, quite readable. It would seem to be most suitable for the investigative hematologist. A tribute to the editors is the fact that the book was published within 6 months of the Symposium meeting.

—S. Kornfeld, M.D.


This volume was prepared by the authors to summarize information on the physiology of hemopoiesis which has developed over the past decade. The authors note that remarkably little of this information has come to the attention of the clinical hematologist and those responsible for graduate and undergraduate curriculae. This is a fair statement even though there are a number of publications available in the field varying from multi-author books to symposia. Whether the present volume will bridge the gap between the laboratory and the clinic or whether this will await a dramatic “break through” with direct therapeutic application is, I think, an open question. Certainly Metcalf and Moore have given us a most readable book with a quite balanced presentation that should provide food for thought for everyone dealing with problems of hemopoiesis.

The book is concerned with bone marrow and lymphoid elements. The initial chapter on morphology is brief and deals mainly with structure and function rather than detailed description of the morphology of individual cells. There is a quite comprehensive chapter outlining the techniques which are currently used in studying hemopoietic and antibody producing cells. In the case of some techniques, the detail is sufficient to permit the reader to go immediately to the bench; for others, one must refer to source material which is provided. There follow excellent chapters on the stem and progenitor cells and on embryogenesis. The authors then consider the migration of cells and the role of microenvironment in hemopoiesis. The section on humoral regulation of the various components of hemopoiesis is somewhat more detailed than
are other aspects of hemopoiesis. In the final chapters the authors review neoplasia as a disorder of cellular regulation and present genetic models of abnormal hemopoiesis in animals and those syndromes seen in man including immunodeficient states.

This volume can be recommended to students and experienced investigators alike for it gives an overview of the current state of the art and its relationship to clinical diseases. It is well written and thus easy for the novice to appreciate; the bibliography is, in general, balanced although not exhaustive. It is regrettable that the volume could not have been produced at a more modest cost, for I feel that this may prevent the authors from accomplishing their stated objectives.—F. Stohlman, Jr., M.D.

BOOKS RECEIVED FOR REVIEW


