



# HEMATOLOGY

William J. Williams, Ernest Beutler, Allan J. Erslev, and R. Wayne Rundles

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**McGRAW-HILL BOOK COMPANY A Blakiston Publication**

New York      St. Louis      San Francisco      Düsseldorf      Johannesburg  
Kuala Lumpur      London      Mexico      Montreal      New Delhi  
Panama      Rio de Janeiro      Singapore      Sydney      Toronto

Library of Congress Cataloging in Publication Data  
main entry under title:

Hematology.

1. Blood—Diseases. 2. Hematology.  
I. Williams, William Joseph, 1926- ed.  
RC633.H43 616.1'5 73-38136  
ISBN 0-07-070375-2

## HEMATOLOGY

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1234567890DODO798765432

*This book was set in Palatino by Black Dot, Inc.,  
and printed and bound by R. R. Donnelley & Sons Company.  
The designer was J. E. O'Connor.  
The editors were Paul K. Schneider and Stuart D. Boynton.  
Matt Martino supervised production.*

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# Preface

The purpose of this book is to provide clinicians, in practice or in training, investigators, and students with a ready source of detailed information regarding the whole of hematology as it applies to man, with emphasis on the biochemical and physiologic approach to this field. We have attempted to present discussions of current concepts in a format which is most useful to the reader, and with that goal in mind the organization of the book was chosen because we believe it reflects the approach to hematologic problems utilized by most physicians. In practice, the patient is first studied generally by history and physical examination, and then hematologically by the so-called routine laboratory procedures. If significant abnormalities are found the hematologist then considers the blood as a whole, and looks at red cells, leukocytes, and platelets simultaneously. This examination usually defines the problem as occurring in one of several areas, and from thereon the problem is considered in the specific, more or less limited, context of the major findings from the initial studies. Thus the problem becomes one of anemia, or thrombocytopenia, or pancytopenia, or leukopenia, etc. as defined by the laboratory study.

Description of the disease in morphologic terms is only the beginning, however, and detailed analysis of the patient's problem in terms of biochemistry and physiology must be accomplished if rational therapy is to be employed. Much of the book is therefore concerned with the biochemical and physiologic concepts pertinent to present-day hematology. Certain major points are either controversial or poorly understood and this makes a presentation of this sort difficult in some areas. However, every effort has been made to provide accurate accounts of our present knowledge and to indicate the most advanced application of these facts.

Consistent with these concepts the book begins with a general discussion of the approach to the patient with a hematologic disorder, including the history and physical examination. A description of normal blood and bone marrow follows, based on the standard clinical laboratory approach, including morphology as observed with polychrome stains through the light microscope. Then, cytogenetics, radioisotope scanning, and lymphography are considered, and the hematologic characteristics of the newborn are presented. Following this general introduction the book is divided into parts concerned with special areas of hematology—the erythrocyte, the leukocyte, and hemostasis. In each section the special aspects of cell morphology are discussed first. This is followed by a detailed presentation of the biochemical and physiologic aspects of the field. Next, the disorders are presented in a classification based on dynamic concepts, and then discussed in detail in terms of altered physiology and biochemistry.

Replacement therapy is included as a separate part to avoid repetition in the text and to provide an easy reference source for this complex and widely used mode of treatment. Finally, there is an appendix devoted to laboratory techniques. Hematology is, after all, a laboratory-oriented specialty, and we expect that the appendix will be utilized as a convenient source of "know-how" in the solution of diagnostic problems. The tests included were selected because they are likely to be performed by physicians (usually those in training), are sufficiently difficult to require careful supervision by a physician, or require detailed understanding by physicians in order to be properly interpreted.



In the past two decades knowledge of hematology has expanded almost explosively, and few, if any, of us are sufficiently catholic and versatile to grasp all the new information in detail. For this reason the multiauthor approach has been utilized, and each section of the text has been supervised by an editor expert in the field. The result is a compendium of up-to-date articles which we hope are sufficiently lucid to yield useful information in proportion to the needs of the reader. To this end extensive bibliographies are included to provide a ready opportunity for more intensive exploration of a subject.

We are convinced that the future of hematology lies in the application of biochemistry and physiology to our unsolved problems to amplify and extend the morphologic approach of the past, although, on the clinical level, we expect that blood cell morphology will continue to provide the basis for the approach to the study of the patient. We have planned the book on that concept, and are confident this presentation will provide concrete support for the idea.

We are indebted to many colleagues for advice and criticism. Drs. Charles G. Craddock, James H. Jandl, and Scott N. Swisher were particularly helpful in the initial phases of the project. Editorial assistance, for which we are deeply grateful, was also provided by the following people: Richard H. Aster, Steven M. Beutler, Edward R. Burka, John L. Fahey, Thomas G. Gabuzda, Farid Haurani, Neil E. Kay, John Laszlo, Yale Nemerson, N. Raphael Shulman, J. Robert Smith, Joel Solomon, Satish Srivastava, J. Wayne Streilein, and Margaret L. Williams.

The editorial staff of McGraw-Hill have been most helpful. Mr. John M. deCarville initiated the project, and was largely responsible for the critical early planning. Paul K. Schneider provided essential editorial guidance. Stuart D. Boynton worked effectively in shepherding the manuscripts through the complex printing process.

We are grateful for the services of Mr. Carl Bishop, of the Duke University Medical Center, who made the photomicrographs for Plates 1, 2, 4 to 8, and 11.

We are also indebted to our capable secretaries for their continuing efforts, and tireless attention to tiresome details: Virginia Brunish, Barbara Drysdale, Linda Gleanor, Betty Handley, Virginia Heider, Gloria Lilly, Marianne Moss, Muriel Russato, Rosemarie Silvano, Alice Steckiewicz, Martha Wheeler, Janet Zigler.

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