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Book Review

Rowan RM, van Assendelft OW, Preston FE, editors: *Advanced Laboratory Methods in Haematology*, 452 pp, London, Arnold, 2002 (\$98.50).

A sea change has occurred in hematology over the past 40 years. Clinical laboratories have offered groups of hematology tests as a “complete blood count” (the CBC). While “can do” automation has partly defined the content of chemistry panels, multichannel hematology analyzers are committed to the CBC, in previous years based on manual methods but now requiring pneumatic systems for cell transport. Standardization and adherence to strict control procedures is required. These considerations are focal points for the recent text *Advanced Laboratory Methods in Haematology*. In just over 400 pages, this book provides a comprehensive review of hematology testing that has evolved over the past 40–50 years to the current age of automated multichannel devices.

In the preface, editor/authors RM Rowan, OW van Assendelft, and FE Preston summarize the functions of the International Council (formerly committee) for Standardization in Haematology (ICSH). While the text under review is said to be “intended for haematologists and technical staff in haematology laboratories” (and for students, teachers, and administrators), the book will be of value to additional professionals. In a sense, the title *Advanced Laboratory Methods in Haematology* is a misnomer in that the text has broader application. Clinical relevance is woven liberally into the text.

An introduction follows the preface. Here, the evolution of a number of prestigious societies and committees is followed to the emergence of the ICSH in 1966. The text under review is the latest and most comprehensive publication in a series relating to the ICSH. The authors (there are 22 contributors) are established authorities in hematology; some are members (or founders) of the ICSH.

The text consists of 18 chapters grouped into six parts titled: The Blood Count, Haemoglobinometry, Haemoglobin A2F and the Abnormal Haemoglobins, Erythrocyte Sedimentation, Haematopoietic Factors, and Coagulation Testing. Sophisticated but highly readable and thorough discussions, inclusive of some test methods, form the content of individual chapters. Specimen handling, standardization, and quality assurance are especially emphasized.

Six chapters form Part 1, The “Blood Count.” The first chapter is devoted entirely to quality assurance. The College of American Pathologists “Q-probe” studies (e.g., turnaround time) are reviewed. The subsequent chapters deal with “The Blood Cell Count,” “The Differential Cell Count,” “Instrumental Flagging and Blood Film Review,” “Reticulocyte Counting” (including clinical applications), and “Leukocyte Immunophenotyping.” Basic through advanced material is presented. Discussions include such topics as “data overload,” relation of sequential data to clinical situations, application of monoclonal antibodies to five-cell differential counts, and bone marrow study by cell analyzers. Abundant appropriate tables, charts,

and diagrams include representation of blood cell differentiation; a table of reticulocyte flow cytometer procedures; cells and particles (total of 22) that may interfere with the reticulocyte count; reference ranges for reticulocyte parameters; a table of CD (cluster of differentiation) designates (four pages inclusive of CD 1 a,b,c, through CD 166); an excellent detailed schematic diagram of flow cytometry, immunophenotyping, and classification of leukemias; and many others.

The two chapters of Part 2 deal with hemoglobinometry. The first reviews technical aspects; the second is clinically oriented. Standardization is emphasized. Included are sections on spectrophotometry, role of the ICSH, haemoglobin-cyanide standards, and standard solutions, their preparation, and stability.

Part 3 (with a single chapter) covers the important areas of hemoglobinopathy. Various electrophoretic methods (including isoelectric focusing) are presented. Procedures are detailed including methods for Hgbs F, A, the sickling, and the unstable hemoglobins. Appropriate diagrams and charts are included. Separate sections discuss the thalassemias and neonatal screening. Part 4 (also a single chapter) reviews erythrocyte sedimentation and includes discussions of theoretic and clinical aspects, as well as early and current instrumentation. There is a comment that the rapid, automated zeta sedimentation rate device is “no longer marketed.” The zeta fuge, however, is now produced in China and has been used in a study of zeta reference values published in the Chinese literature.

The two chapters of Part 5, “Haematopoietic Factors,” cover ferritin, serum B12, serum/red cell folate, and include discussions of carcino-fetal ferritins, serum homocysteine, and methylmalonic acid. The last part (6), concerns “Coagulation Testing,” and has six chapters. Monitoring of heparin and oral anticoagulant (warfarin based) therapy is thoroughly explored. Critical questions about the near universally accepted International Normalized Ratio (INR) are considered. A section is devoted to point-of-care testing. Separate chapters present the subjects of reference ranges, lupus anticoagulant testing, and familial thrombophilia.

Each chapter of this book is extensively referenced (alphabetically by author). A detailed index forms the final 15 pages of this outstanding text. *Advanced Laboratory Methods in Haematology* is an important, well-written, and informative text of hematology and coagulation. Its sophisticated clinical laboratory perspective does not detract from practical and useful clinical application. This book is highly recommended not only to clinical and laboratory practitioners of hematology but also to medical professionals, students, teachers, and administrators extending beyond the target audience.

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