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CLINICAL LABORATORY DIAGNOSIS

BY

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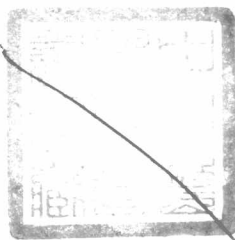
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PREFACE TO THE FIFTH EDITION

SINCE the first edition of this text on "Clinical Laboratory Diagnosis" was published in 1937, a great many advances in laboratory medicine have been made. In attempting to keep abreast with the progress in clinical pathology, important changes were made in the subsequent editions. In the preparation of this present (5th) edition, some chapters have been completely rewritten and a great many changes and revisions have been made in all of the remaining chapters.

One of the major problems confronting us in the revision of this present edition was the selection of current material and methodology of practical value. What is important and what is not important is not always an easy choice, particularly in view of the many recent advances in experimental medicine and clinical pathology. Research in the laboratory and the application of the newer procedures in the clinic and hospital ward necessitate time and wisdom before the value of any procedure can be established. Thus, at times, it becomes a problem to determine what clinical laboratory procedures will be of value to the laboratory worker and physician. To assist us in these decisions, we had the valuable guidance of our colleagues, Doctors Louis R. Limarzi, John Louis, William R. Best, Clarence W. Muehlberger, Marion Hood, Albert M. Wolf, and Miss Mary Turner. It is a pleasure to have had their advice and counsel.

It is not our intention that each chapter should represent a complete survey of the subject and contain every facet of the problem. Each chapter could easily be made into a treatise in itself, and surely volumes have already been published covering each of the subjects. It is hoped that when indicated, the reader will refer to the various monographs, texts, and articles in the various journals pertaining to the subject in question.

The objective of this book is to present to the medical student, intern, the resident physician and the practicing physician, as well as the medical technologist, a suitable review of clinical laboratory diagnosis sufficient to meet their general needs.

For the student the book provides the fundamentals in as few words as possible without sacrificing clarity or subject matter. The outline form is followed wherever suitable. The data are presented in such a manner as to afford a rapid review of the pertinent points of previous studies with an attempt to correlate the basic sciences with clinical interpretations. The techniques for obtaining and examining the various materials are given. The pathologic findings are compared with the normal, and a brief review of the clinical symptomatology and pathology is presented with these abnormal findings.

We have included where necessary a brief review of Anatomy, Physiology, Biochemistry, and other studies to assist the reader in the orientation of these subjects, as well as to benefit him in the problem of correlating the

normal and abnormal findings. For example, a student will be better able to understand pathologic alterations of the stomach if he has a clear understanding of the normal or physiologic functions of the stomach.

For the medical technologist, as well as for the physician interested in laboratory procedures, this book presents the methods which we employ in the University of Illinois Research and Educational Hospitals Laboratories and the Chicago Board of Health Laboratories. The preferred technic is given and only occasionally are other well known procedures briefly reviewed. We wish to present methodology for the usual laboratory procedures which will give reliable results in the hands of both the experienced medical technologist and the physician trained in clinical laboratory diagnosis. Wherever possible, credit has been given to the authors of the various methods with the references appended. Articles germane to the material under discussion are mentioned also.

The chapter on Hematology by Doctors L. R. Limarzi, J. Louis, and W. R. Best has been completely rewritten. The hematology in the section on Pediatrics, which appeared in the previous editions, has been incorporated with the material in the chapter on Hematology. Newer concepts and theories in hematology have been advancing rapidly. The progress made during the past years has necessitated the rewriting of this chapter. The material is arranged in a logical manner so that the medical student and physician can make a better correlation between the clinical and laboratory analyses. To assist with this correlation, many of the hematologic tests are detailed in the sections where the blood diseases to which they refer are discussed, rather than in a separate section of laboratory tests, only. The newer concepts of the various types of hemoglobin in sickle cell disease and plasmacytoma, and the importance of the electrophoretic pattern of the various hemoglobins are incorporated in this chapter. In this edition, as in the previous edition, the newer terminology in hematology as recommended by the Committee on Hematology of the American Society of Clinical Pathologists is included. Also the section on Blood Typings and Blood Bank has been completely revised by Dr. Albert M. Wolf. The terminology used is that recommended by the National Institutes of Health.

Much of the section on Toxicology has been rewritten by Dr. C. W. Muehlberger. He has introduced some newer technical procedures for the identification of poisons. These technics have been employed by him in his laboratory and are applicable in many hospital laboratories.

The chapter on Bacteriology has been rewritten. The amount of new material for presentation and illustration was so great, we felt the time had come to present this subject from a more practical standpoint. Miss Mary Turner has assisted us in rearranging the material and adding the more recent changes in diagnostic bacteriology. The procedures employed in this chapter are in daily use in the bacteriology laboratory of the Research and Educational Hospitals and Chicago Board of Health Laboratories.

Dr. Marion Hood has made important revisions in the section on Parasitology.

Among the new items added should be mentioned micro-chemical methods, additional blood chemical analyses using the spectrophotometer, a discussion on electrolyte balance studies, 17 ketosteroids, VDRL method

in serology, improved technics in water and milk analysis, clinical hemoglobinometry, spectrum analysis of hemoglobin derivatives, and many other items. The chemical methods throughout the book have been critically revised to simplify each detailed step as much as possible. Some old illustrations have been omitted and many new ones added. We wish to express our gratitude to Dr. Oscar Felsenfeld for supplying us with some illustrations in parasitology; to Dr. Esther Meyer, Department of Bacteriology and Mycology, University of Illinois College of Medicine, for suggestions and illustrations which she supplied in the section on mycology; and to Dr. Gerald L. Hoeft and Miss Lorraine Blanksma for their assistance in the section on Clinical Chemistry.

We are also indebted to many readers and physicians who were kind enough to point out some errors of omission and commission in the previous editions. Many have offered valuable suggestions concerning newer methodologies and modified technics and we express our appreciation to them.

Although this edition represents many ideas of our former and present associates and colleagues, we assume complete responsibility for the contents, statements, and errors, if any, contained herein. We wish to express our appreciation for the reception our text has received. It is hoped that the present revision will make this book of greater value to the medical student, medical technologist, pathologist, and practicing physician.

We are greatly indebted to Lea & Febiger for their patience and counsel, and for their wholehearted cooperation for what appeared a seemingly endless delay in the preparation of this revised edition. We acknowledge the prompt and efficient assistance of our publishers.

Chicago, Illinois.

S. A. L.
R. P. M.

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