

Howard & Jordan

**SURGICAL
DISEASES**

of the

PANCREAS



PITMAN MEDICAL

Surgical Diseases of the Pancreas

JOHN M. HOWARD, M.D., F.A.C.S.

Professor and Chairman, Department of Surgery, Hahnemann Medical College, and Surgeon in Chief, Hahnemann Hospital. Consultant in Surgery, Walter Reed Army Medical Center, Washington, D. C., Fitkin Memorial Hospital, Neptune, N. J., Veterans Administration Hospital, Philadelphia. Consultant in Thoracic Surgery, Veterans Administration Hospital, Wilkes-Barre and Philadelphia, Pa.; and Chief of Surgical Section (Hahnemann), Philadelphia General Hospital, Philadelphia, Pa.

AND

GEORGE L. JORDAN, JR., M.D., M.S., F.A.C.S.

Associate Professor of Surgery, Baylor University College of Medicine. Consultant in Surgery, Veterans Administration Hospital; Attending in Surgery, Methodist Hospital and Jefferson Davis Hospital, Houston, Texas.

199 ILLUSTRATIONS

Including 2 Color Plates

London

PITMAN MEDICAL PUBLISHING CO., LTD.

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Published in Great Britain by
PITMAN MEDICAL PUBLISHING CO., LIMITED
39 PARKER STREET, LONDON, W.C.2

By arrangement with
J. B. Lippincott Company, Philadelphia, Pa., U.S.A.

ASSOCIATED COMPANIES

SIR ISAAC PITMAN & SONS, LTD.

PITMAN HOUSE, PARKER STREET, KINGSWAY, LONDON, W.C.2

THE PITMAN PRESS, BATH

PITMAN HOUSE, BOUVERIE STREET, CARLTON, MELBOURNE
22-25 BECKETTS BUILDINGS, PRESIDENT STREET, JOHANNESBURG

PITMAN PUBLISHING CORPORATION

2 WEST 45TH STREET, NEW YORK

SIR ISAAC PITMAN & SONS (CANADA), LTD.

(INCORPORATING THE COMMERCIAL TEXT BOOK COMPANY)

PITMAN HOUSE, 381-383 CHURCH STREET, TORONTO

*Surgical Diseases
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Contributors

EDWIN H. ELLISON, M.D., F.A.C.S.

Professor and Chairman, Department of Surgery, Marquette University School of Medicine, Milwaukee, Wis.

GEORGE A. HALLENBECK, M.D., PH.D., F.A.C.S.

Section of Surgery, Mayo Clinic, Associate Professor of Physiology and Surgery, Mayo Foundation, Graduate School, University of Minnesota, Rochester, Minn.

JOHN M. HOWARD, M.D., F.A.C.S.

Professor and Chairman, Department of Surgery, Hahnemann Medical College and Surgeon in Chief, Hahnemann Hospital. Consultant in Surgery, Walter Reed Army Medical Center, Fitkin Memorial Hospital, Veterans Administration Hospital, Philadelphia. Consultant in Thoracic Surgery, Veterans Administration Hospital, Wilkes-Barre, Pa., and Chief of Surgical Section (Hahnemann) Philadelphia General Hospital, Philadelphia, Pa.

GEORGE L. JORDAN, JR., M.D., M.S., F.A.C.S.

Associate Professor of Surgery, Baylor University College of Medicine. Consultant in Surgery, Veterans Administration Hospital; Attending in Surgery, Methodist Hospital and Jefferson Davis Hospital, Houston, Texas.

KEITH REEMTSMA, M.D.

Assistant Professor of Surgery, Tulane University School of Medicine, New Orleans, La.

WILLIAM W. SHINGLETON, M.D., F.A.C.S.

Associate Professor of Surgery, Duke University Medical Center, Durham, N. C.

KEITH D. J. VOWLES, M.D.

Lecturer in Surgery, University of Bristol, Senior Surgical Registrar, United Bristol Hospitals, England.

N. HENRY MOSS, M.D., F.A.C.S.

Adjunct Attending Surgeon, Cancer Co-ordinator, Director of Medical Education, Albert Einstein Medical Center of Philadelphia (Northern Division); Instructor in Surgery, University of Pennsylvania, School of Medicine, Philadelphia, Pa.

JONATHAN E. RHOADS, M.D., D.SC. (med.), F.A.C.S.

John Rhea Barton Professor of Surgery, Schools of Medicine and Graduate School of Medicine, University of Pennsylvania. Provost, University of Pennsylvania, Philadelphia, Pa.

KENNETH WELCH, M.D., F.A.C.S.

Instructor in Surgery, Harvard Medical School, Visiting Surgeon and Director of Teaching, Pediatric Surgical Service, Boston City Hospital, Boston, Mass.

ALLEN O. WHIPPLE, M.D., F.A.C.S.

Valentine Mott Emeritus Professor of Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Dedicated to

I. S. Ravdin and Michael E. DeBakey

To whom we, our patients, and American Surgery owe so much

Foreword

This book was written with the purpose of concentrating in one volume the most essential knowledge concerning the diseases of the pancreas, excluding diabetes. Although the co-editors have contributed the major amount of the material, in special areas they have requested the contributions of a number of distinguished surgeons who have shown a particular interest and made specific contributions in their respective fields.

It is of special interest that Dr. Allen O. Whipple has written a chapter, for Dr. Whipple has made important contributions to the treatment of pancreatic disorders. From his vantage point, he has been able to note and appreciate the contributions made by medical students and surgical residents in the development of pancreatic surgery. Despite the important strides in medical knowledge, much remains to be known about etiology and therapy of the diseases of this organ.

The treatment of pancreatitis was based largely upon empirical grounds when I was a medical student, and it remained in this area for a considerable number of years thereafter. We knew little about the life history and the etiology of pancreatitis.

The authors have described the life history of gallstone pancreatitis, alcoholic pancreatitis, postoperative pancreatitis, and they have pointed out that these appear to be specifically different diseases and require different forms of surgical management. If, in the future, those reporting the end-results of surgical procedures will utilize this classifica-

tion, we shall be better able to evaluate the various reports that are constantly being published concerning the end-results of a heterogeneous group of disorders affecting this organ. Prior to the investigations of the authors, the failure to understand the underlying background of many of these disorders frequently had led to confusion regarding surgical management.

The contributions made by Dr. Whipple permitted a significant extension of the surgeon's effort. For the first time there was provided, as the result of his efforts, the opportunity surgically to excise major lesions of the head of the pancreas. The fact that the "cures" following his operation for carcinoma of the head of the pancreas still remain low in number is in no way due to the operation which he devised, but is due to the fact that the diagnosis of this lesion so often is made too late. The time to cure a major malignant lesion of the viscera is when the lesion is still confined to the site of its origin.

Those who read this volume will realize that the major contributions which have been made in the field of pancreatic disease during the past thirty years, with the exception of the work on insulin, have come from a study of patients rather than from a study of animals. Both Dr. Howard and Dr. Jordan developed an interest in this field while they were medical students. Both of these men were my students and one of them was among my most distinguished residents

I. S. RAVDIN, M.D.

Preface

Pancreatic diseases have been on the periphery of interest of so many—close enough to hold the interest of limited personal experiences—distant enough to shroud the answers in a mist of conflicting opinions.

This is a current report to clinicians and clinical investigators who have an interest in disease of the pancreas other than diabetes. It is designed to present the authors' observations and experiences within the broad framework of the recorded experiences accumulated in the literature. This is an area in which so much has been written with a background of hypothesis only, and in which so many statements have been written and rewritten, attributable not to clinical experiences or experimental facts but to the limited observations and deductions of

a bygone era. Except in the chapter on physiology where valid observations concerning pancreatic secretion may be made, we have not attempted to present in detail the extensive data which have been accumulated as a result of animal experimentation, for the experimentally produced pancreatitis may not be comparable to that observed in the human. Rather, as a result of our study and clinical experiences, we and our colleagues have attempted to provide a factual background, current and thoughtful, in which the opinions are based on the best observations available with emphasis on the natural course of the disease, for upon this rests the foundation for current modalities of treatment.

JOHN M. HOWARD
GEORGE L. JORDAN, JR.

Acknowledgments

No book is ever written by the authors alone. Certainly this volume is no exception. Among the many contributors, our residents are foremost; particularly Dr. Joseph Owens, who prepared much of the material on pancreatic calcification. We also wish to express our appreciation to Mrs. Ella Mae Breckenridge, Miss Marjorie Stodgell, Mr. Louis J. Sunney and their Departments of Medical Illustration and Photography.

Dr. Harry Barton of the Department of Radiology, and Dr. Béla Halpert and Dr. Ethel Erickson of the Department of Pathology generously made their respective collections available to us.

We extend our appreciation to Mrs. Evan Kerr for her assistance in preparing the bibliography and to our secretaries for their many, many hours of assistance.

Finally, as the book goes to press, we are increasingly grateful for the help and the competence of our publishers, especially Mr. J. Brooks Stewart and Mr. Stanley A. Gillet, who were ever available for counsel.

This volume would never have become a reality without the understanding and encouragement of our wives, Nina Howard and Florence Jordan.

JOHN M. HOWARD
GEORGE L. JORDAN, JR.

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of the Pancreas*

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ALLEN O. WHIPPLE, M.D.

*Valentine Mott Emeritus Professor of Surgery, Columbia University, College of Physicians
and Surgeons, New York City*

1

A Historical Sketch of the Pancreas

The first description of the anatomy of the pancreas was made by Ruphos, or Rufus,⁴⁵ of Ephesus (A.D. 100, approximately). He was an excellent anatomist for that period. In his work, *On the Names of Various Parts of the Body*, he describes, among other organs and structures, the pancreas (*πᾶνχρεας*—all flesh). Little, if any, further knowledge was contributed until the 17th century, when Reiner de Graaf¹² (1641-1673), while still a medical student, published a thesis in 1664, entitled *Disputatio medica de natura et usu succi pancreatici*. This was a treatise on the pancreatic juice, describing and illustrating his method of collecting the juice from the cannulated pancreatic duct of the dog. Unfortunately, his description of the juice obtained was meager, and in discussing its role in digestion he followed the theories of his teacher, Sylvius. He stated that "Effervescence is excited by the mixture of pancreatic juice, which abounds in acidity, with bile which abounds in volatile and fixed salt." This effervescence, Sylvius claimed, was the second stage of fermentation. It is strange that De Graaf did not find that pancreatic juice is alkaline. But he was the first to cannulize the pancreatic duct, as well as the bile duct and the parotid duct.

The first real discoverer of the function of the pancreas in digestion was Claude Bernard⁸ (1813-1878), the great French physiologist. He is the founder of experimental medicine in the artificial production of disease by means of chemical and physical manipulation. Working from 1849 to 1856 on the subject of pancreatic digestion, he showed that "gastric digestion is only a preparatory act," that pancreatic juice emulsifies fatty foods passing through the intestines, splitting them into fatty acids and glycerin. He demonstrated its power of converting starch into sugar and its solvent action upon the proteins undissolved by the stomach. He put the experimental pancreatic fistula upon a working basis.

In 1849 Bernard discovered that puncturing the 4th ventricle of the dog resulted in temporary diabetes. The disease of diabetes had been known for centuries, but the cause of it remained a mystery until the latter part of the last century, when Von Mering and Minkowski⁵² produced a fatal diabetes in dogs by removing the entire pancreas. Even then the part of the pancreas that was responsible for sugar and carbohydrate metabolism was uncertain.

In 1869, Paul Langerhans,³⁷ while still a medical student in the University of Berlin,