

CONTRIBUTORS

AARON, A. H., M.D., F.A.C.P. ALEXANDER, FRANZ, B.A., M.D., F.A.C.P. ALMY, THOMAS P., B.A., M.D. BARFIELD, WILLIAM E., B.S., M.D. BERK, J. EDWARD, B.A., M.D., M.Sc., D.Sc., F.A.C.P. BLOOMFIELD, ARTHUR J., B.A., M.D., F.A.C.P. BOLES, RUSSELL S., JR., M.D. BRALOW, S. PHILIP, B.S., M.D. M.Sc. COBB, STANLEY, B.A., M.D., F.A.C.P. COLE, WARREN H., B.S., M.D., F.A.C.S. CROHN, BURRILL B., B.A., M.D., F.A.C.P. DANIEL, WILLIAM H., M.D., F.A.C.S. DAUM, KATE, A.B., M.A., Ph.D. DEGARIS, CHARLES F., B.A., M.D., M.A., Ph.D., F.A.C.P. ELMAN, ROBERT, B.S., M.D., F.A.C.S. EUSTERMAN, GEORGE B., M.D., F.A.C.P. FAUST, ERNEST CARROLL, B.A., M.A., Ph.D. FELSEN, JOSEPH, B.A., M.D. GRAHAM, A. STEPHENS, M.D., M.S., F.A.C.S GREENBLATT, ROBERT B., B.A., M.D., C.M. GROSSMAN, MORTON I., B.A., Ph.D., M.D. GROVE, J. S., B.S., M.D. HATTON, EDWARD H., B.L., M.D. HEWITT, W. R., B.A., M.D., F.A.C.P. HWANG, KAO, M.D. PH.D. INGELFINGER, FRANZ B., B.A., M.D. ISAACS, RAPHAEL, B.A., M.A., M.D., F.A.C.P. IVY, A. C., B.A., B.Pd., B.S., M.S., Ph.D., M.D., D.Sc. JONES, CHESTER M., B.A., M.D., D.Sc., F.A.C.P. JORDAN, SARA M., B.A., PhD., M.D., D.Sc., F.A.C.P. KERR, JACK G., Ph.G., M.D., M.S. LEITER, LOUIS, Ph.D., M.D. MAJOR, RALPH, H., B.A., M.D., LL.D., D. Lett., F.A.A.P. MILZER, ALBERT, B.A., M.S., Ph.D., M.D. MURPHY, HARRY, M., A.B., M.D. NECHELES, HEINRICH, M.D., Ph.D., F.A.C.P. NUZUM, FRANKLIN R., B.S., M.D., F.A.C.P.
PALMER, WALTER LINCOLN, B.S., M.S., Ph.D., M.D., F.A.C.P.
PAULSON, MOSES, B.S., M.D., F.A.C.P. PINESS, GEORGE, M.D., F.A.C.P. PORTIS, SIDNEY A., B.S., M.D., F.A.C.P. QUIGLEY, J. P., B.S., M.S., Ph.D. RANKIN, FRED W., B.A., M.A., M.D., D.Sc., LL.D., F.A.C.S. RIGLER, LEO G., B.S., B.M., M.D., F.A.C.R., F.A.C.C.P. ROSSER, CURTICE, B.A., M.D., F.A.C.S. SARNAT, BERNARD G., B.S., M.S., M.D., D.D.S., F.A.C.S. SAWITZ, WILLIAM G., M.D. SCHIFF, LEON A., B.S., M.S., Ph.D., M.D., F.A.C.P. SCHINDLER, RUDOLF, M.D. SPELLBERG, MITCHELL A., B.S., M.S., M.D., F.A.C.P. SYDENSTRICKER, V. P., B.A., M.A., M.D., M.A.C.P. TYLER, GEORGE C., B.A., B.S. M.D., VINSON, PORTER P., B.S., M.A., M.D., D.Sc. WANGENSTEEN, OWEN, B.A., M.D., Ph.D., LL.D., F.A.C.S. WEISMAN, AVERY D., B.A., B.S., M.D. WHITE, PAUL D., B.A., M.D., D.Sc., F.A.C.P. WOLF, STEWART, A.B., M.D.

HOWEVER, STREET WE STOND FOR THE STREET, NAMED

THERE IS NOT THE STOND FOR THE STREET, NAMED

THERE IS NOT THE STOND FOR THE STOND

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STOND

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSOCIATED TO STREET

THE STREET WAS ASSOCIATED TO STREET WAS ASSO Charles And All States And All State THE THE PROPERTY OF THE PROPER

DISEASES OF THE DIGESTIVE SYSTEM

EDITED BY

SIDNEY A. PORTIS, B.S., M.D., F.A.C.P.

Associate Clinical Professor of Medicine, University of Illinois Medical School; Senior Attending Physician in the Department of Medicine, Michael Reese Hospital; Consulting Physician, Cook County Hospital; Member of Advisory Board of Institute of Psychoanalysis; Chief of the Medical Services of the Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, Chicago, Ill.

Third Edition, Thoroughly Revised, With 269 Engravings and 5 Color Plates

LONDON
HENRY KIMPTON
25 BLOOMSBURY WAY, W.C.1

HIGHER CONTROL TO THE PERSON AND THE ALTERNATION OF THE PROPERTY OF THE EXPLICATION OF AND THE TOP OF A THE TOP CORE STATES TO SEE THE STATES OF STA White Bound & By St.

ALL RIGHTS RESERVED, 1953

HEARING PHEARING

PRINTED IN AMERICA

ACTIVE STANDS OF THE STANDS OF AND THE RESIDENCE OF SECURITY SULT FROM STATES AND S

PREFACE TO THE THIRD EDITION

The enormity of the problems of gastroenterologic disturbances and the high incidence of gastrointestinal ailments among patients coming to the attention of general practitioners and the various specialists necessitate frequent re-evaluation of the scope of and advances in the field of gastroenterology. The short space of time—six years—since the second edition, has brought forth new knowledge in the handling of gastrointestinal dysfunction. A large number of the psychosomatic problems manifested among members of the Armed Forces during World War II and after their return to civilian life are related to the gastrointestinal tract. Both gastroenterologists and psychiatrists have had an opportunity to study these patients from a combined or single approach. One of the major objectives in previous editions—to a greater extent in the second edition—was to elucidate some of these problems; the third edition will attempt to clarify them further.

The psychodynamics and the psychogenesis of this pathological physiology, presenting bizarre clinical pictures which are so often erroneously classified under "nervous indigestion" and a host of similar inadequate diagnoses, are most ably considered in such chapters as those by Franz Alexander, Stewart Wolf, and Thomas P. Almy. In addition, the other contributors have taken into account the psychogenic factors of the various problems discussed in their chapters and have approached the evaluation of them with sound clinical judgment. Practically every chapter has been extensively revised, and many new authors have been added. M. I. Grossman, J. P. Quigley, Stewart Wolf, Stanley Cobb, Avery Weisman, Albert Milzer, William Sawitz, Bernard Sarnat, Edward Berk, Mitchell Spellberg, Leon Schiff, Robert Elman, William R. Hewitt, William H. Daniel, Robert Greenblatt, Leo Rigler, and A. Stephens Graham. The chapters have been rearranged especially to facilitate the teaching in gastroenterology. The physiology of the gastrointestinal tract is discussed in its entirety, as groundwork for a thorough understanding of the clinical manifestations.

The very enthusiastic reception accorded previous editions, by students, teachers, and practitioners, has been most gratifying and has stimulated me in the preparation of this new edition. It has been my desire to present the field of gastroenterology in its most modern and scientific aspects. To all contributors who have made this book possible, I am deeply grateful.

SIDNEY A. PORTIS

CHICAGO, ILLINOIS

communication and or security

And of the experience of the e

the process of the pr

The rote authors to requiring promoted production with the first of the southern will be a return of the production of the rote of the rot

Print's are the

LIST OF CONTRIBUTORS

A. H. AARON, M.D., F.A.C.P.,

Professor of Clinical Medicine, University of Buffalo Medical School; Attending Physician, Buffalo General Hospital, Buffalo, N. Y.

FRANZ ALEXANDER, B.A., M.D., F.A.C.P.,

Director, Chicago Institute for Psychoanalysis; Clinical Professor of Psychiatry, University of Illinois College of Medicine; Attending Physician, Cook County Psychopathic Hospital, Chicago, Ill.

THOMAS P. ALMY, B.A., M.D.,

Associate Professor of Neoplastic Diseases (Medicine), Cornell University Medical College, Associate Attending Physician, New York Hospital; Assistant Attending Physician, Memorial Hospital; Assistant Attending Physician, James Ewing Hospital, New York, N. Y.

WILLIAM E. BARFIELD, B.S., M.D.,

Assistant Professor of Endocrinology, Medical College of Georgia, Augusta, Ga.

J. EDWARD BERK, B.A., M.D., M.Sc., D.Sc., F.A.C.P.,

-Assistant Professor of Medicine, Temple University School of Medicine; Associate Attending Physician, Albert Einstein Medical Center; Consultant in Gastroenterology to The Surgeon General, U. S. Army, Philadelphia, Pa.

ARTHUR J. BLOOMFIELD, B.A., M.D., F.A.C.P.,

Professor of Medicine, Stanford University; Physician, Stanford Hospital, San Francisco, Calif.

RUSSELL S. BOLES, JR., M.D.,

Staff, Lahey Clinic; New England Baptist and New England Deaconess Hospitals, Boston, Mass.

S. PHILIP BRALOW, B.S., M.D., M.Sc.,

Instructor in Medicine, Temple University School of Medicine; Research Associate, Fels Research Institute, Philadelphia, Pa.

STANLEY COBB, B.A., M.D., F.A.C.P.,

Bullard Professor of Neuropathology, Harvard Medical School; Psychiatrist in Chief, Massachusetts General Hospital, Boston, Mass.

WARREN H. COLE, B.S., M.D., F.A.C.S.,

Professor and Head of Department of Surgery, University of Illinois College of Medicine; Surgeon-in-Chief, Illinois Research and Educational Hospital, Chicago, Ill.

BURRILL B. CROHN, B.A., M.D., F.A.C.P.,

Consultant in Gastroenterology, Columbia University; Consultant in Gastroenterology, Mount Sinai Hospital, New York, N. Y.

WILLIAM H. DANIEL, M.D., F.A.C.S.,

Associate Professor of Surgery, Emeritus, University of Southern California Medical School; Attending Physician, St. Vincent's Hospital, Good Samaritan Hospital, Hollywood Presbyterian Hospital, Los Angeles, Calif.

KATE DAUM, B.A., M.A., Ph.D.,

Associate Professor of Dietetics, Department of Internal Medicine, University of Iowa College of Medicine; Head, Department of Nutrition, University of Iowa College of Medicine and University Hospitals, Iowa City, Iowa.

CHARLES F. DEGARIS, M.D., B.A., M.A., Ph.D., F.A.C.P.,

Professor of Anatomy, University of Oklahoma School of Medicine, Oklahoma City, Okla

ROBERT ELMAN, B.S., M.D., F.A.C.S.,

Professor of Clinical Surgery, Washington University School of Medicine; Associate Surgeon, Barnes Hospital, Children's and Maternity Hospitals; Chief of Staff and Director of Surgical Service, Homer G. Phillips Hospital, St. Louis, Mo.

GEORGE B. EUSTERMAN, M.D., F.A.C.P.,

Emeritus Professor of Medicine, University of Minnesota, Mayo Foundation; Former Attending Physician, St. Mary's Hospital, Rochester, Minn.

ERNEST CARROLL FAUST, B.A., M.A., Ph.D.,

William Vincent Professor of Tropical Diseases and Hygiene and Head of the Division of Parasitology, Department of Tropical Medicine and Public Health, Tulane University of Louisiana; Consulting Parasitologist, Charity Hospital; Parasitologist, Hutchinson Medical Clinic, Tulane University, New Orleans, La.

JOSEPH FELSEN, B.A., M.D.,

Director of Pan-American and International Dysentery Registry; Director of Laboratories and Research, The Bronx Hospital, New York, N. Y.

A. STEPHENS GRAHAM, M.D., M.S., F.A.C.S.,

Associate Professor of Surgery, Medical College of Virginia; Surgeon, Stuart Circle Hospital; Attending Surgeon, Medical College of Virginia Hospital; Consultant Surgeon, Veterans Hospital, Richmond, Va.

ROBERT B. GREENBLATT, B.A., M.D., C.M.,

Professor of Endocrinology, Medical College of Georgia, Augusta, Ga.

MORTON I. GROSSMAN, B.A., Ph.D., M.D.,

Professor of Clinical Science, University of Illinois College of Medicine; Research Associate, Hektoen Institute for Medical Research, Cook County Hospital, Chicago, Ill.

J. S. GROVE, B.S., M.D.,

Associate Clinical Professor, Department of Urology, Chicago Medical School; Attending Surgeon, Department of Urology, Michael Reese Hospital, Chicago, Ill.

EDWARD H. HATTON, B.L., M.D.,

Professor Emeritus, Northwestern University, Chicago, Ill.

W. R. HEWITT, B.A., M.D., F.A.C.P.,

Medical Director, St. Luke's-in-the-Desert Sanitarium; Attending Staff, St. Mary's Hospital, Tucson Medical Center, Pima County General Hospital and Barfield Sanitarium, Tucson, Ariz.

KAO HWANG, M.D., Ph.D.,

Research Associate, Department of Clinical Science, University of Illinois Medical School; Senior Pharmacologist, Abbott Laboratories, North Chicago, Ill.

FRANZ B. INGELFINGER, B.A., M.D.

Associate Professor of Medicine, Boston University School of Medicine; Member, Evans Memorial; Visiting Physician, Massachusetts Memorial Hospitals, Boston, Mass.

RAPHAEL ISAACS, B.A., M.A., M.D., F.A.C.P.,

Senior Attending Physician in Hematology, Michael Reese Hospital, Chicago, Ill.

A. C. IVY, B.A., B.Pd., B.S., M.S., Ph.D., M.D., D.Sc.,

Distinguished Professor of Physiology and Head of the Department of Clinical Science! University of Illinois College of Medicine; Vice-President, in Charge of Chicago Professiona, Colleges, University of Illinois, Chicago, Ill.

CHESTER M. JONES, B.A., M.D., D.S., F.A.C.P.,

Clinical Professor of Medicine, Harvard University; Physician, Massachusetts General Hospital, Boston, Mass.

SARA M. JORDAN, B.A., Ph.D., M.D., D.Sc., F.A.C.P.,

Physician, Staff of New England Baptist Hospital; Physician, Staff of New England Deaconess Hospital, Boston, Mass.

JACK G. KERR, Ph.G., M.D., M.S.,

Associate Professor of Clinical Proctology, Southwestern Medical School of the University of Texas; Attending Staff, Baylor University Hospital, Parkland Hospital, Gaston Hospital, Medical Arts Hospital, Dallas, Tex.

LOUIS LEITER, Ph.D., M.D.,

Clinical Professor of Medicine, College of Physicians and Surgeons, Columbia University; Chief, Medical Division, Montefiore Hospital, New York, N. Y.

RALPH H. MAJOR, B.A., M.D., LL.D., F.A.A.P., D.LETT.,

Professor of Medicine and Professor of History of Medicine, University of Kansas, Kansas City, Kan.

ALBERT MILZER, B.A., M.S., Ph.D., M.D.,

Director, Department of Microbiology and Associate Attending Physician, Michael Reese Hospital; Assistant Professor of Bacteriology, Northwestern University Medical School, Chicago, Ill.

HARRY M. MURPHY, A.B., M.D.,

Associate in Medicine, University of Buffalo; Assistant Attending Physician, Buffalo General Hospital, Buffalo, N. Y.

HEINRICH NECHELES, M.D., Ph.D., F.A.C.P.,

Professorial Lecturer, University of Chicago; Attending Physician and Director, Department of Gastrointestinal Research, Michael Reese Hospital, Chicago, Ill.

FRANKLIN R. NUZUM, B.S., M.D., F.A.C.P.,

Attending Physician, Santa Barbara Cottage Hospital, Santa Barbara, Calif.

WALTER LINCOLN PALMER, B.S., M.S., Ph.D., M.D., F.A.C.P.,

Professor of Medicine, University of Chicago School of Medicine; Attending Physician, Albert Merritt Billings Hospital, Chicago, Ill.

MOSES PAULSON, B.S., M.D., F.A.C.P.,

Assistant Professor of Medicine, Johns Hopkins University School of Medicine; Physician and Consulting Gastroenterologist, Diagnostic Clinic and Private Out-Patient Service, Johns Hopkins Hospital; Consulting Gastroenterologist, U. S. Veterans Administration, Baltimore, Md.

GEORGE PINESS, M.D., F.A.C.P.,

Associate Professor of Clinical Medicine, University of Southern California; Attending Physician, Hospital of the Good Samaritan, Cedars of Lebanon Hospital, Queen of Angels Hospital, Good Hope Hospital Association, Children's Hospital Society, St. Anne's Maternity Hospital, Los Angeles, Calif.

SIDNEY A. PORTIS, B.S., M.D., F.A.C.P.,

Associate Clinical Professor of Medicine, University of Illinois Medical School; Senior Attending Physician in the Department of Medicine, Michael Reese Hospital; Consulting Physician, Cook County Hospital; Member of Advisory Board of Institute of Psychoanalysis; Chief of the Medical Services of the Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, Chicago, Ill.

J. P. QUIGLEY, B.S., M.S., Ph.D.,

Professor of Physiology and Chief of the Division of Physiology, University of Tennessee; Consultant, John Gaston Hospital, Memphis, Tenn.

FRED W. RANKIN, B.A., M.A., M.D., D.Sc., LL.D., F.A.C.S.,

Clinical Professor of Surgery, University of Louisville Medical School; Chief of Surgical Staff, St. Joseph's Hospital, Lexington, Ky.

LEO G. RIGLER, B.S., B.M., M.D., F.A.C.R., F.A.C.C.P.,

Professor and Chief, Department of Radiology, University of Minnesota Medical School; Chief of Department of Radiology, University of Minnesota Hospitals and Minneapolis General Hospital; Consultant, Veterans Administration Hospital and Mt. Sinai Hospital, Minneapolis, Minn.

CURTICE ROSSER, B.A., M.D., F.A.C.S.,

Professor and Head of the Department of Proctology, Southwestern Medical College of the University of Texas; Proctologist in Chief, Baylor and Parkland Hospitals, Dallas, Tex.

BERNARD G. SARNAT, B.S., M.S., M.D., D.D.S., F.A.C.S.,

Professor and Head of the Department of Oral and Maxillofacial Surgery, College of Dentistry; Clinical Assistant Professor of Surgery (Plastic Surgery), College of Medicine; University of Illinois; Attending Physician, Michael Reese, Woodlawn and Chicago Memorial Hospitals, Chicago, Ill.

WILLIAM G. SAWITZ, M.D.,

Associate Professor of Parasitology and Associate in Medicine, The Jefferson Medical College of Philadelphia, Philadelphia, Pa.

LEON A. SCHIFF, B.S., M.S., Ph.D., M.D., F.A.C.P.,

Associate Professor of Medicine, University of Cincinnati; Director, Gastric Laboratory, Cincinnati General Hospital; Attending Physician, Medical Service, Cincinnati General Hospital; Senior Attending Physician, Medical Service, Jewish Hospital, Cincinnati, Ohio.

RUDOLF SCHINDLER, M.D.,

Clinical Professor of Medicine (Gastroenterology), College of Medical Evangelists; Member of Consulting or Attending Staff, White Memorial Hospital, Temple Hospital, Midway Hospital, and Glendale Sanitarium; Consultant to the Veterans Administration, Long Beach Veterans Administration Hospital, Los Angeles, Calif.

MITCHELL A. SPELLBERG, B.S., M.S., M.D., F.A.C.P.,

Associate Professor of Medicine, University of Illinois; Associate Attending Physician, Michael Reese Hospital; Attending Physician, Hines Veterans Hospital and Woodlawn Hospital; Consultant in Gastroenterology, Chicago Physicians and Surgeons Hospital, Chicago, Ill.

V. P. SYDENSTRICKER, B.A., M.A., M.D., M.A.C.P.,

Professor of Medicine, Medical College of Georgia; Attending Physician, University Hospital, Veterans Administration Hospital, Milledgeville State Hospital, and Battey State Hospital,

GEORGE C. TYLER, B.A., B.S., M.D.,

Assistant Clinical Professor of Surgery (Proctology), University of Southern California School of Medicine; Los Angeles County General, St. Vincent's, Queen of Angels and Methodist Hospitals, Los Angeles, Calif.

PORTER P. VINSON, B.S., M.A., M.D., D.Sc.,

Professor of Bronchoscopy, Esophagoscopy and Gastroscopy, Medical College of Virginia; Attending Bronchoscopist, Hospital Division, Medical College of Virginia, Richmond, Va.

OWEN WANGENSTEEN, B.A., M.D., Ph.D., LL.D., F.A.C.S.,

Professor of Surgery, University of Minnesota; Director of the Department of Surgery, University of Minnesota, Minneapolis, Minn.

AVERY D. WEISMAN, B.A., B.S., M.D.,

Instructor in Psychiatry, Harvard Medical School; Special Lecturer in Social Psychiatry, Simmons College School of Social Work; Assistant Psychiatrist, Massachusetts General Hospital; Attending Neuropsychiatrist in Charge of Psychosomatic Medicine, Veterans Hospital; Consulting Neurologist, James Jackson Putnam Children's Center, Roxbury,

PAUL D. WHITE, B.A., M.D., D.Sc., F.A.C.P.,

Former Clinical Professor of Medicine, Harvard University; Consulting Physician, Massachusetts General Hospital; Executive Director, National Advisory Heart Council, Boston. Mass.

STEWART WOLF, B.A., M.D.,

Professor and Head of the Department of Medicine, University of Oklahoma School of Medicine, Oklahoma City, Okla.

CONTENTS

CHAPTER 1

THE HISTORY OF OUR KNOWLEDGE OF GASTROINTESTINAL DISEASE By RALPH MAJOR, M.D.

| | By R. | ALPH I | MAJ | OR, | M | D. | | | | | | | | | |
|--|--------------------|--------|------|------|-------|--------|------|------|----------|------|-----|-------|---------|------|------------|
| | | CHAF | тт | D ' | , | | | | | | | | 45. | | |
| True As | | | | | | va cam | **** | т. | 010 | 100 | | | | | |
| | NATOMY OF | | | | | | | | | ,1 | | | | | 20 |
| Ву | CHARLES | F. DE | GA | RIS | , IVI | .D. | , PI | 1.1) | | • | | | | | 39 |
| | | CHAF | TE | R: | 3 | | | | | | | | | | |
| | PHYSIOLO | GY OF | TH | EE | SOP | HAC | JUS | | | | | | | | |
| | By Kac | Hwa | NG. | M. | S., | M. | D. | | | | 1.3 | | | | 86 |
| | | | M, | | ní. | | | | | | | | | | |
| | | CHAI | TE | R | 4 | | | | -07 | | | | | | |
| | THE PHYS | | | | | | | H | | | | | | | |
| | By H. N | ECHEL | ES, | M. | D., | Ph | .D. | | | | | | | | |
| Cardiac Sphincter | | | | | | | | | | | | | | | 92 |
| The Fundus | | | | | | | | | | | | | | | 93 |
| The Pyloric Antrum | | | | | | 136 | 19.0 | 100 | | | | | | | 93 |
| The Pyloric Sphincter | | | | | | | 4 | | | | 100 | | 1 | 40 | 93 |
| Upper Part of the Stomach | | | | | | | | | | | 10 | | | | 93 |
| Surface of the Stomach . | | X | | | | | 1×1 | 10 | 000 | 116 | 1 | 199 | | 1 | 94 |
| Blood Supply of Stomach | | | | | | | | | | | | | | | 94 |
| Innervation of the Stomach | A | | | | | | | | | 1. | | | | | 94 |
| Gastric Motility | | | | | | | 15.3 | | | | -00 | | | | 96 |
| Gastric Secretion | | | | | | | | | | | | - * | | | 101 |
| Absorption in the Stomach | | | | | | | | | | | | | | | 114 |
| Excretion into the Stomach | | | | | | | 1 | | | | | • | | | 114 |
| Tests for Secretory Function | of the St | omach | | * | | | | 10 | | | | | | | 115 |
| Intragastric Temperature | N4 | | | - | | | | | | | 1 | 100 | 150 | 1 | 116 |
| Effects of Emotions on the S Why Does the Stomach Not | otomach Diagram | 169 | | | | | | | | | | | | 100 | 117 118 |
| why Does the Stomach Not | Digest 10 | sem | | | | | | | | | | | | jet | 110 |
| | | CHAI | PTE | CR. | 5 | | | | | | | | | | |
| Physion | OGY OF TH | | | | | ND | GAT | LBI | AD | DER | | | | | |
| | By A. | | | | | | | | | | | | | | |
| | 23 11. | 0.11 | , - | 11.1 | ., - | | | | | | | | | | |
| Liver | | | 1 | 1 | 1 | 2. | 2.7 | | | 136 | 110 | | 1. | 30:0 | 128 |
| Physiologic Anatomy | | | | | | 7. | | | | | | 1 | - | 110 | 128 |
| Structure of the Liver | 2 2 1 | | | 1 | | 1. | F 49 | | 13 | 100 | | | 1 | | 128 |
| Activities of the Liver | | | | di | ٠, | | | | ٠ | | | | - | | 129 |
| The Relation of the Liv | | | rine | Gla | and | S | | | | | | | | | 133 |
| Effects of Extirpation of | of the Live | r . i | 113 | i | | 200 | | 100 | | 1 | | | | | 133 |
| Factor of Safety and R | egeneration | n of L | iver | Ce | lls | | | | | - | | | • • • • | | 134 |
| Bile | 3 | | Tan. | | ٠ | 1 | | | | | | 20 | | | 134 |
| Quantity of Bile Secret | ea | | Dil | | | | \r:- | | vi. | 1 | | | | | 135 136 |
| Changes in Volume and | and Fund | don of | DII | e A | tte | a TZ | VIIX | ea . | Viet Con | atit | | + . | f D | ilo | 136 |
| Origin, Fate, Toxicity, | | | | | | | | | | | uen | lus (|)I D | пе | 140 |
| | and the | 100 | | 41 | | | * | * | * | | | | | | 142 |
| Gallbladder and Bile Ducts | | | | | | - | | 2 1 | | | No. | 11 | | | 142 |
| | 100 | ~~~ | - | | | | | | | | | | | | |
| | | CHA | | | 17100 | | | | | | | | | | |
| | Physion | LOGY C | FT | HE . | PAI | VCR | EAS | | | | | | | | |
| | By M. I. | GROSS | MAI | N, N | A.I |)., I | h.I |). | | | | | 1 | | 148 |
| | | | | | | | | | | | | | (1 | 3) | 1 |
| | | | | | | | | | | | | | () | 101 | |

CHAPTER 7

THE PHYSIOLOGY OF THE SMALL AND THE LARGE INTESTINE By J. P. QUIGLEY, Ph.D.

| Bile | | | | | | | | | | | 156 | | |
|--|---|------|----------|-----|-------------|-----|-------|--|-----------|--------|--|--|--|
| Pancreatic Juice Secretion | 0.0 | | | | | | | | | | 157 | | |
| Intestinal Juice | | | | | | | | | • | | 158 | | |
| Intestinal Juice Secretion of the Large Intestine Digestion in the Intestine | | | * | | | | | | | 2. | 17 TO 17 HOLD | | |
| Secretion of the Large Intestine | 40 | | | | | | | | * | | 158 | | |
| Digestion in the Intestine | | | | 18 | .3 | 7 | | | 1. | | 158 | | |
| Intestinal Absorption | 4 | | | - | | | | 100 | 9. | | 160 | | |
| Intestinal Movements | | | | | | | | | | | 166 | | |
| Maramanta of the Colon | 12.4 | | 1 | | 178 | 1 | | 1 | -,- | | 170 | | |
| Movements of the Colon | | * | VIII. | * | ** | | | | | | | | |
| Defecation | | | | w. | | | ¥ | 4 | | - 34 | 170 | | |
| Defecation | | | | | | | | | | | 174 | | |
| Gases in the Digestive Tract | | | 0.0 | | | | | | | | 175 | | |
| Cabbb III the Digestro 21000 | - | , | | | | | The s | W. Y | | | 1.0 | | |
| OVY 1 PRINTS | | | | | | | | | | | | | |
| CHAPTER 8 | | | | | | | | | | | | | |
| Physiology of the Mucous Membranes and Direct Observations on | | | | | | | | | | | | | |
| GASTRIC AND COLONIC FUNCTION IN MAN | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| By Stewart Wolf | F. M | [.D | SE | | | | | | | | | | |
| 그리고 그리다 그는 사람들은 사람이 되었다면 하는 것이 하는 것이 하는 것이 없는 것이 없는 것이 없다면 없었다. | | | | | | | | | | | | | |
| Characteristics of the Gastric Mucosa | 1 | | | | | | | | | | 183 | | |
| Castric Hypofunction | | | | | | | | | | | 186 | | |
| Gastric Hypofunction | | | | 10 | | | | | | - | - | | |
| Sustained Gastrie Hypotunetion | | | * | | | | | | | (e) L. | 187 | | |
| Gastric Hypofunction and Disease | 100 | | | | | 10. | | 400 | | 1. | 187 | | |
| Gastric Hyperfunction | Mary! | | | | | | | The same | J. Ir | | 188 | | |
| Experimental Production of Ulcer | | | | | | | | | | | 191 | | |
| Clinical Peptic Ulcer | | | | | | | | | . 67 | | 191 | | |
| Offical Teptic Older | * | * | | * | | * | | 10 | | * | | | |
| Mechanism of Gastric Hyperfunction | | | <u>.</u> | * | * | ÷ | | | | | 194 | | |
| Protective Mechanisms of the Stomach | | | | | | | | | | | 196 | | |
| Modification of the Effect of Food | | | | No. | | | -DAY | | VI J | 100 | 200 | | |
| Modification of Effects of Drugs | | | | | | 100 | | | | | 201 | | |
| Colon | Wie. | 301 | | | 2.7 | | | To. | o'ta | | 204 | | |
| Colon | | | | 1 | | | | | | | | | |
| Ulceration of the Mucous Membrane | | | | * | | | | | | | 207 | | |
| | | | | | | | | | | | | | |
| | | | | | | 1 | | | | | | | |
| CHAPTER | 1 | | | | | 1 | | | | | | | |
| CHAPTER 9 | | | | | | | - | | | | | | |
| CHAPTER 9 Neurological Aspects of Gastr | | TES | rin. | AL. | | EAS | E | | | | | | |
| NEUROLOGICAL ASPECTS OF GASTR | OIN | | - | | Dis | | 100 | | | | | | |
| NEUROLOGICAL ASPECTS OF GASTR By Avery D. Weisman, M.D., and | OIN | | - | | Dis | | 100 | | | | | | |
| NEUROLOGICAL ASPECTS OF GASTR By Avery D. Weisman, M.D., and | OIN | | - | | Dis | | 100 | | | | 209 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | がないのでは、大 | | | 209 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | No. of the last of | | | 209 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | がはないの人 | が上のでは、これ・ | | 209 212 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | | | | 209 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | | | | 209 212 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion | OIN' | ANL | EY | Co | Dis | | 100 | | | | 209 212 212 214 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer | OIN' | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon | OIN' | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon | OIN' | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 218 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease | OIN' ST. | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions | OIN ST. | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 218 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions | OIN ST. | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 218 218 218 | | |
| NEUROLOGICAL ASPECTS OF GASTR By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease | OIN ST. | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 218 218 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease | OIN' | ANL | EY | Co | Dis BB, | | 100 | | | | 209 212 212 214 215 217 218 218 218 | | |
| Neurological Aspects of Gastre By Avery D. Weisman, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease | OIN' | ANL | EY | Co | Dis BBB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 | | |
| Neurological Aspects of Gastre By Avery D. Weisman, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease | OIN' | ANL | EY | Co | Dis BBB, | M. | D | のは、日本のは、日本のは、日本のは、日本のは、日本のは、日本のは、日本のは、日本 | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin | OIN | TIN | EY | Co | Dis BBB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 | | |
| Neurological Aspects of Gastre By Avery D. Weisman, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease | OIN' | TIN | EY | Co | Dis BBB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin By Chester M. Jone | OINTES | TIN | EY | Co | Dis BBB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin | OINTES | TIN | EY | Co | Dis BBB, | M. | D | の意味のは大きというないというないのののあるのか | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin By Chester M. Jone CHAPTER 1 | e 0 mtes, 1 | ANL. | EY | Co | Dis BB, | M. | D | のの一方のの大き・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin By Chester M. Jone CHAPTER 1 Emotional Factors in Gastrointestinal | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 The Interpretation of Gastroin By Chester M. Jone CHAPTER 1 | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | の立ている。 · · · · · · · · · · · · · · · · · · · | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 THE INTERPRETATION OF GASTROIN By CHESTER M. JONE CHAPTER 1 EMOTIONAL FACTORS IN GASTROINTE By FRANZ ALEXANDE | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | のとうないの人で・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・ | | | 209 212 212 214 215 217 218 218 220 223 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 THE INTERPRETATION OF GASTROIN By CHESTER M. JONE CHAPTER 1 EMOTIONAL FACTORS IN GASTROINTE By FRANZ ALEXANDE | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | | | | 209 212 212 214 215 217 218 218 218 220 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 THE INTERPRETATION OF GASTROIN By CHESTER M. JONE CHAPTER 1 EMOTIONAL FACTORS IN GASTROINTE By FRANZ ALEXANDE | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | の 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | 209 212 212 214 215 217 218 218 220 223 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 THE INTERPRETATION OF GASTROIN By CHESTER M. JONE CHAPTER 1 EMOTIONAL FACTORS IN GASTROINTE By FRANZ ALEXANDE Disturbances of Appetite and Eating Disturbances of the Swallowing Act | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | | | | 209 212 212 214 215 217 218 218 220 223 | | |
| NEUROLOGICAL ASPECTS OF GASTER By AVERY D. WEISMAN, M.D., and The Problem of Emotion Anatomy Physiology Hypothalamus Influence of Emotions on the Gastrointestinal Tract Peptic Ulcer The Colon Ulcerative Colitis Gastrointestinal Symptoms in Neurological Disease Cerebral Lesions Neurosurgical Treatment of Gastrointestinal Disease CHAPTER 1 THE INTERPRETATION OF GASTROIN By CHESTER M. JONE CHAPTER 1 EMOTIONAL FACTORS IN GASTROINTE By FRANZ ALEXANDE | ooing of the control | ANL | AL D. | Co | Dis BB, | M. | D | | | | 209 212 212 214 215 217 218 218 220 223 | | |

| | | CON | TEN | TS | | | | | | | | | 15 |
|--|--------------|--|--------|-------------------|-------------|----------|-------|---------|-------|-------|-----------------|-------|------------|
| | | CHA | PTEI | 2 12 | | | | | | | | | |
| | HYPERIN | | | | ATTE | HITE | | | | | | | |
| | By Sir | STATE OF THE PARTY | | | Mark Street | | | | | | | | 253 |
| | | OTT 1 7 | | | | | | | | | | | |
| | | CHA | | | ĿŤ. | - m | | - N | | | | | |
| ALLER | GY OF T | | | W. 1 | | | RACT | | | | | | |
| | By G | EORGI | PIN | ess, n | 1.D | | | | | | | | |
| Etiology | | | | | | | | | | 1 | | . % | 264 |
| Etiology Identification of the Allergic I Clinical Classification of Gasti | erson | nol Al | longer | | | • | | | | | • | | 265 266 |
| Anorexia (Difficult Feeding | ng. Malr | nar A | on) | | | | 12.27 | | | | 189 | | 266 |
| Anorexia (Difficult Feedin Persistent, or Recurrent, | Vomitin | g of I | nfanc | y and | Ch | ildh | ood . | | | | | | 267 |
| Cyclic vomiting | mineral Tele | Tipe" at | | | 100 | | 2 | 1 | S | | | | 267 |
| Celiac Syndrome Pyloric Stenosis and Pylo | min Gran | | Trifor | | | Lila | hand | 1.91 | | 100 | 1 | | 267 |
| Angioneurotic Edema of | the Lins | Face | and | Tong | 10 C | mna | 11000 | | | | | | 267 268 |
| Cankers of the Mouth . | 34 | .83 | DR.A. | | | Tyre | | | 100 | 3 200 | | | 268 |
| Indigestion (Dyspepsia Si | imulatin | g Pep | tic U | lcer o | r Ga | llbla | dder | Di | sease |) | | | 268 |
| Acute Conditions Within | the A | bdom | en; A | cute | Gas | triți | s; H | eno | ch's | Pur | pur | a; | |
| Symptoms Simulating | Acute 1 | ntesti | nal U | bstru | ction | n, A | cute | Ap | pend | iciti | s ar | ıd | 269 |
| Other Acute Abdomina Chronic Abdominal Pain | : Allergi | c Syn | nton | s Sin | ulat | ting | Chr | onic | Apr | end | iciti | 8 | 209 |
| Chronic Intestinal Obs | truction. | etc. | ·pvoii | | | | | | | | | | 271 |
| Mucous Colitis; Spastic C | Colitis | | | | | | | | 4 | | | | 271 |
| Chronic Ulcerative Colitis | S | | | | | 1 | | E. a. | 3 3 | 1 | | 10 | 272 |
| Allergic Intestinal Bleedin | ng . | | | | | | | | | 100 | | | 272 272 |
| Pruritus Ani | | | | | | 317 | | | | A ST | | 1 | 272 |
| Treatment | 1 | | | | | | . 7 | | | | | | |
| | | | | | | | | | | | | | |
| | | CHA | | The second second | | 7 | | | | | | | |
| ANE | MIAS OF | GAST | ROIN' | TESTI1 | NAL | ORIG | IN | | | | | | |
| F | By RAPH | AEL I | SAACS | , M.A | L., N | I.D. | | | | | | | |
| Digestion and Absorption of I | ron . | | | 36 1 | rai in | minar! | | | | | 4 | | 279 |
| Iron-Deficiency Anemias | | | | 14. 9 | | | | | | 100 | | - | 280 |
| Macrocytic Anemia Associated | | | | | Live | r Ex | trac | t," | Vitai | nin | B ₁₂ | • | 283 287 |
| Hemolytic Anemia | | | | | 13. | | 1 | 39 | | | | 10 | 281 |
| | | CHA | ртът | 2 15 | | | | | | | | | |
| DIETETIC | | | | | magmi | TATAT | Dre | TAR | | | | | |
| DIEIEIR | | KATE | - | | | INAL | Dio | EAG. | | | | | |
| | Dy . | LLAIL | DAU | , 111 | .D. | | | | | | | | |
| Nutritive Requirements | | | | | | | | TOTAL . | | | . 3 | | 291 |
| Protein | 1 1 54 | | | | | | | | 2013 | | | • | 291 291 |
| Essential Minerals | | | | | | | | | | | | | 293 |
| Acid-Base Residues | | | | | | | | | | | | 1 | 294 |
| Residue in the Diet | | | | | | | | | | | | 0.0 | 294 |
| Vitamins | | . 18. | N TO T | | | | | | | ٠., | | • | 295 |
| The Gastrointestinal Tract The Stomach | | | | | - | | • | | 1 | 3.4 | | * | 298 298 |
| Intestinal Tract | | | | | | 7 | | | | | 16 | 000 | 305 |
| Biliary Tract | | | | | | | | - | 18.25 | | | 1-11 | 312 |
| The Liver | | | | | | | . , | | 4.3. | | | AGE S | 315 |
| Failure of Pancreatic Dig | estion | | 3.5 | | | | an li | | | | | | 315 315 |
| High Protein Diet | | | • | (det) | 600 | Pho. | 1.8% | | E IN | | 11 | | 919 |
| | | CHA | PTEI | 3 16 | | | | | | | | | 115 |
| THE ROLE OF ROENTGENOLOG | | | | | | ET A CIT | FG 01 | ם יויי | ne Th | IGER | TIVI | Tp | A CÓ |
| THE ROLE OF ROENIGENOLO | | EO D. | | | | | | | | | | | 319 |
| | Dy L | EO D | 11101 | True, T | 11.17 | | 100 | | | | 1003 | | 019 |

CONTENTS

CHAPTER 17

THE TONGUE IN HEALTH AND DISEASE By BERNARD G. SARNAT, M.D.

| Oral Diagnosis | | 7 | | | | | | | | | | | | | 338 339 |
|--|-----|--------------|--------|------|------|-------|---------|------|------|-------|-----|-------|---------|------|------------|
| The Normal Tongue | | | | • | | | or a | | | | | | • | | 344 |
| | СН | APT | EF | 2 1 | 8 | | | | | | | | | | |
| RELATION OF THE TEI | ETH | то | GAS | STR | OIN | TES | TIN | AL | Dis | EAS | ES | | | | |
| By E | . H | . H | ATT | ON, | M | D. | | | | | | | | | |
| Mastication | | | | l H | | | | | | | | | | | 371 |
| Teeth and Gums as Sources of Infection | 'n | naki | | * = | | 4 5 | | | | | | 12.6 | | | 373 |
| Disturbances of Taste and Sensation | | | 1 | | | | | | | | | | | | 376 |
| Dental Caries and Related Subjects | | | | | | | | | | | | | | | 377 |
| | | | | | | | | | | | | | | | |
| | CH | APT | PEF | 2 1 | Q | | | | | | | | | | |
| DISEAS | - | NA PROPERTY. | | | | TACT | TO | | | | | | | | |
| By Por | TEI | RP. | VII | VSC | N, | M.I |). | | | | | | | | |
| Carcinoma of the Esophagus | | JA. | | Ų. | n. | | lear. | | die. | 1,4 | | | | | 381 |
| Cicatricial Stricture of the Esophagus | | *0.89 | 1 | | Q.C | | | | 100 | | | . 127 | | | 383 |
| Congenital Stricture of the Esophagus | | | | | 499 | | EA. | | | | | | | 1 | 384 |
| Cardiospasm | | | | | | | | | | | | | | | 384 |
| Diffuse Spasm of the Esophagus . | | | | | | | | - | | 1 | | 1 3 | | | 386 387 |
| Diverticula of the Esophagus Hysterical and Functional Dysphagia | | | | | | l. | | | | | | | | | 388 |
| Injuries to the Esophagus | | - | | | | | a de la | | | | | | 761 | 1100 | 389 |
| Injuries to the Esophagus | 3. | | , | | | | | | | | | | j | | 390 |
| Actinomycosis and Blastomycosis . | | | | 200 | | - 10 | | 1 | | | 12 | | | | 391 |
| Diphtheria | 1.0 | | | | | | | | | × | | | | | 391 |
| Syphilis | 1 | 1115 | | | 0 | 100 | . *: | | 1 | | • | ٠. | • | | 391 |
| Tuberculosis | | 100 | | 43 | | | A | | | | | | | | 391 392 |
| Esophagitis Foreign Bodies in the Esophagus and | Sto | mac | h | * | | | | | | | · | • | - | | 392 |
| Fistula From the Esophagus into the | Air | Pas | sage | es | | | | | | | | | | 3 | 394 |
| Extraesophageal Lesions Causing Dys | pha | gia | | | -6. | 41 | | | 9. | | 11 | | | | 395 |
| | | | | | | | | | | | | | | | |
| | CH | AP | ГEI | R S | 20 | | | | | | | | | | |
| CLINICAL ASS | | | | | | SE | CRE | TIC | NS | | | | | | |
| By Arthu | | | | | | | | | | | | | | | |
| | | | ьос | 1411 | 1131 | , , | **** | | | | | | | | |
| Tests of Gastric Secretion | | | | | 1.0 | | | | | | | | | | 400 |
| Test for Basal Gastric Secretion The Histamine Test | | | | | | | | | 100 | TOTAL | 1.0 | 11.0 | | | 400 401 |
| Applications | | | | | | | | • | | TERS. | | | | | 402 |
| Applications | | | | • | | | | | | | nik | | 200 | | 102 |
| | CH | AP' | TEI | P · | 21 | | | | | | | | | | |
| | 7 | GAST | 5 19 N | | 21 | | | | | | | | | | |
| By Rud | | | | 1000 | | 7.7 | D | | | | | | | | |
| by Rub | OLI | G H | CHI | ND. | LER | , IVI | .D. | | | | | | | | |
| Introduction | | | | | | | | | | | | | | | 405 |
| Acute Gastritis | | | | | | | | | | 1 | in | | 4. | | 406 |
| Chronic Gastritis | | - | | | | 1 | | | 1 | 100 | | 179 | 4.5 | | 411 |
| Classification | | | | | | 1 | | | 1 | 11.00 | | | | | 411 |
| Gross Anatomy | 98 | 1 | . 0 | 8 | 1 | | * | | | (*) | * | W. | | 25. | 415 |
| Chronic Superficial Gastritis | | | 7 | | | | | 6 | | | | | 1 7 4 1 | | 415 |
| Chronic Atrophic Gastritis | | 100 | Ta. | 170 | | | | 0.00 | | | | | | | 417 |
| Chronic Hypertrophic Gastritis | | 17.5 | 1 3 3 | | Ser. | 1 | | 0.00 | | | 1 | 180 | | | 422 |
| Complications and Sequelae of C | hro | nic (| Gas | tri | tis | 15 | | | | - | | | | | 424 |