

# Textbook of SURGERY

2

THE BIOLOGICAL  
BASIS OF MODERN  
SURGICAL PRACTICE

THIRTEENTH EDITION

*Edited by*

DAVID C. SABISTON, Jr., M.D

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VOLUME 2



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7

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*Vascular Compression of the Duodenum*

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*Cardiac Catheterization*

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*Tumors of the Duodenum and Small Intestine*

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*Femoropopliteal and Femoroinfrapopliteal Bypass; Surgical Management of Renovascular Hypertension*

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*Fractures of the Pelvis, Femur, and Knee*

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*Abdominal Wall, Umbilicus, Peritoneum, Mesenteries, Omentum, and Retroperitoneum*

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*The Spleen*

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*The Liver: Anatomy and Physiology; Neoplasms; Hemobilia*

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*Ulcerative Colitis*

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*Surgical Complications*

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*Surgical Treatment of Pulmonary Tuberculosis*

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*Fat Embolism Syndrome*

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*Neurosurgical Relief of Pain*

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*Acquired Disorders of the Aortic Valve*

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*The Biliary System: Acute Cholecystitis; Chronic Cholecystitis and Cholelithiasis; Cholangitis*

**Hassan Najafi, M.D.**

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*Ebstein's Anomaly*

**John S. Najarian, M.D.**

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*Principles of Immunosuppression*

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*Renal Transplantation*

**Francis C. Nance, M.D.**

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*The Colon and Rectum: Anatomy; Physiology; Diagnostic Studies; Intestinal Antisepsis and Peritonitis; Mechanical, Inflammatory, Vascular, and Miscellaneous Benign Lesions; Precancerous and Malignant Lesions*

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*Acquired Disorders of the Aortic Valve*

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*Disorders of Pulmonary Venous Return*

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*Tendon Injury and Repair*

**Lloyd M. Nyhus, M.D.**

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*Hernias*

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*Neurosurgery: Congenital Abnormalities*

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*Surgical Management of Myasthenia Gravis*

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*The Mediastinum; Congenital Aortic Stenosis*

**Michael R. Oreskovich, M.D.**

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*Trauma: Management of the Acutely Injured Patient*

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*The Esophagus: Historical Aspects and Anatomy; Physiology; Disorders of Esophageal Motility; Diverticula and Miscellaneous Conditions; Esophagoscopy; Tumors of the Esophagus*

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*Ventricular Septal Defects; Double Outlet Right Ventricle*

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*Bronchial Adenoma*

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*The Urinary System*

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*Renal Transplantation*

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*Carotid Occlusive Disease*

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*Cardiac Catheterization*

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*Preoperative Preparation of the Surgical Patient*

**Walter J. Pories, M.D.**

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*The Surgical Approach to Morbid Obesity*

**John M. Porter, M.D.**

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*Arterial Substitutes; Raynaud's Syndrome*

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*Burns, Including Cold, Chemical, and Electrical Injuries*

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*Bites and Stings*

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*Cardiac Blood Flow and Cardiac Metabolism; Mitral and Tricuspid Valve Disease*

**Carl E. Ravin, M.D.**

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*Radiologic Techniques for Diagnosis of Surgical Disorders*

**Mark M. Ravitch, M.D.**

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*Disorders of the Chest Wall*

**Keith Reemtsma, M.D., D.M.Sci.**

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*Pancreas and Pancreatic Islet Transplantation*

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*Venous Injuries*

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*Gallstone Ileus and Fistula*



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*Hemobilia*

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*Pulmonary Embolism; Disorders of the Arterial System: Introduction; Anatomy; Aneurysms:*

*Subclavian Artery Aneurysms, Visceral Arterial Aneurysms, Aortic Abdominal Aneurysms; Thrombo-Obliterative Disease of the Aorta: Takayasu's Arteritis, Thrombotic Obliteration of the Abdominal Aorta, Iliac Arterial Occlusion, Percutaneous Transluminal Angioplasty, Arteriovenous Fistula; Carcinoma of the Lung; The Mediastinum; Tetralogy of Fallot; The Coronary Circulation; Cardiac Blood Flow and Cardiac Metabolism; Congenital Lesions of the Coronary Circulation; Cardiac Neoplasms*

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*Transplantation Mechanism and Immune Antigens; Allograft Destruction and Immunologic Testing*

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*The Pituitary and Adrenal Glands*

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*Surgical Complications*

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*The Pleura and Empyema*

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*Immunobiology and Immunotherapy of Neoplastic Disease; Melanoma*

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*The Skin: Functional, Metabolic, and Surgical Considerations*

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*Liver Homotransplantation*

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*The Spleen*

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*Malabsorption Syndromes*

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*Fluid and Electrolyte Management*

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*Cardiac and Cardiopulmonary Hemotransplants*

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*Circulatory Problems of the Upper Extremity; Thoracic Outlet Syndrome*

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*Cardiac Neoplasms*

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*Principles of Immunosuppression*

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*Ears, Nose, Paranasal Sinuses, Pharynx, and Larynx*

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*Preservation of the Kidney*

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*Surgical Disorders of the Pericardium*

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*Corrosive Strictures of the Esophagus*

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*The Stomach and Duodenum*

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*Aneurysms of the Carotid Aorta; Carotid Body Tumors*

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*The Rectum and Anal Canal*

**G. Frank O. Tyers, M.D., F.R.C.S.(C)**

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*Atrial Septal Defects, Ostium Primum Defects, and Atrioventricular Canals*

**Ross M. Ungerleider, M.D.**

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*Bronchoscopy*

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*Fractures of the Spine; Replantation of Amputated Digits and Hands*

**John A. Waldhausen, M.D.**

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*Truncus Arteriosus*

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*Erosive Gastritis*

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*Surgical Complications of Cirrhosis and Portal Hypertension*

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*Anesthesia*

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*Polypoid Lesions of the Colon and Rectum*

**Watts R. Webb, M.D.**

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*Pancreas and Pancreatic Islet Transplantation*

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*Physiology of the Arterial System; Surgical Management of Myasthenia Gravis*

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*The Male Genital System*

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*Multiple Endocrine Neoplasias; The Parathyroid Glands; The Pituitary and Adrenal Glands*

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*Thromboangiitis Obliterans*

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*Neurosurgery: Historical Aspects; Intracranial and Intraspinous Hemorrhage; Intracranial Infections; Ruptured Lumbar Intervertebral Disc; Peripheral Nerve Injuries*

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*Replantation of the Upper Extremity Proximal to the Hand*

**Gaylord S. Williams, M.D., M.S.**

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*Mouth, Jaws, Tongue, and Salivary Glands*

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*Carotid Occlusive Disease*

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*Homeostasis: Bodily Changes in Trauma and Surgery*

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*The Breast*

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*Dissecting Aneurysms of the Aorta; Traumatic Aneurysms of the Aorta; Disorders of the Lungs, Pleura, and Chest Wall: Anatomy, Evaluation of Respiratory Function*

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*Visceral Ischemic Syndromes*

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*The Pancreas*

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*Acute Arterial Occlusion*



# PREFACE

It is astonishing with how little reading a doctor can practice medicine, but it is not astonishing how badly he may do it.

SIR WILLIAM OSLER

In planning the thirteenth edition, a firm commitment has again been made to assuring a thorough and complete text in the broad field of surgery. The traditional policy of seeking the most authoritative contributors for each section has been maintained, and in the present edition there are 49 new contributors. Each of these new participants is clearly identified as a major contributor to both the clinical and the investigative aspects of the subject. Many new illustrations have been added, pursuing the firm conviction that such are essential for a thorough understanding of clinical problems and their diagnosis and management.

Since the publication of the last edition, numerous advances have been made in the field of general surgery and the surgical specialties and these have required careful and diligent updating. These new contributions have been added to each chapter, and the references have been thoroughly reviewed and made current. Emphasis has once again been placed upon beginning each section with a brief but pertinent historical survey with an orderly stepwise presentation of the anatomic, pathologic, physiologic, biochemical, immunologic, and pharmacologic aspects of each subject. In addition to the new contributors, *six new sections* have been introduced in order to remain abreast of the rapid pace of surgical progress. These include: "Surgical Complications of Cirrhosis and

Portal Hypertension" by J. Michael Henderson and W. Dean Warren; "Vascular Access Procedures for Renal Dialysis (Including Peritoneal Dialysis)" by James Cerilli and Carl Haisch; "Peritoneovenous Shunts for Intractable Ascites" by Bernard Langer and Paul D. Greig; "Extracranial-Intracranial Bypass Grafts for Cerebral Ischemia" by Allan H. Friedman; "Use of Intra-Aortic Balloon Counterpulsation Technique" by W. Randolph Chitwood; and "The Total Artificial Heart" by William C. DeVries. These new sections add much to the thoroughness of the thirteenth edition, and it is fortunate that outstanding and easily identifiable authorities in each of these endeavors have agreed to participate.

Finally, it is a privilege to emphasize the *international* impact of this TEXTBOOK OF SURGERY, since it has been published in Spanish, Japanese, Chinese, Portuguese, Italian, and Turkish editions. The fundamental goal of this effort is direct and straightforward, that is, it is designed to serve the needs of all those involved in the science of surgery, including medical students, surgical residents, practicing surgeons, and teachers of surgery in medical schools and hospitals throughout the world.

DAVID C. SABISTON, JR.