

# Mastery of Surgery

Volume 1

# Mastery of Surgery



Second Edition  
Volume I

Edited by

Lloyd M. Nyhus, M.D.

Warren H. Cole Professor and Head Emeritus, Department of Surgery,  
University of Illinois College of Medicine at Chicago; Surgeon-in-Chief  
Emeritus, University of Illinois Hospital, Chicago

Robert J. Baker, M.D.

Professor and Vice Chairman, Department of Surgery, Jefferson Medical  
College of Thomas Jefferson University, Philadelphia; Chairman, Department  
of Surgery, Medical Center of Delaware, Wilmington, Delaware

Foreword by

David C. Sabiston, Jr., M.D.

James B. Duke Professor of Surgery and Chairman, Department of Surgery,  
Duke University Medical Center, Durham, North Carolina

*In conjunction with*

Consultant on Anatomy  
Harry Monsen, Ph.D.

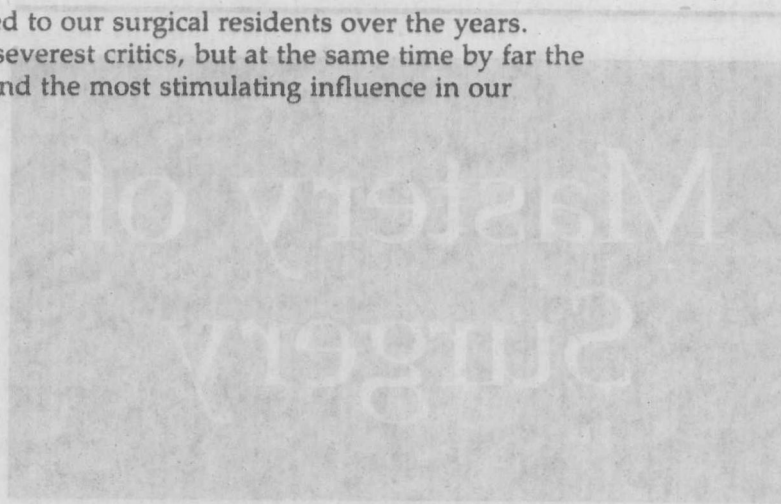
Professor of Anatomy, University of Illinois  
College of Medicine at Chicago, Chicago

Editorial Consultant  
Catherine Judge, M.A.

Publications Editor, Department of Surgery,  
University of Illinois College of Medicine  
at Chicago, Chicago

Little, Brown and Company  
Boston/Toronto/London

This work is dedicated to our surgical residents over the years.  
They have been our severest critics, but at the same time by far the  
greatest inspiration and the most stimulating influence in our  
professional lives.



Copyright © 1992 by Lloyd M. Nyhus and Robert J. Baker

Second Edition

Previous edition copyright © 1984 by Lloyd M. Nyhus and Robert J. Baker

All rights reserved. No part of this book may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher, except by a reviewer who may quote brief passages in a review.

#### Library of Congress Cataloging-in-Publication Data

Mastery of surgery / edited by Lloyd M. Nyhus, Robert J. Baker.—2nd ed.

p. cm.

Includes bibliographical references and index.

ISBN 0-316-61755-5 (set).—ISBN 0-316-61745-8 (v. 1)

1. Surgery. I. Nyhus, Lloyd M. (Lloyd Milton), 1923–

II. Baker, Robert J., 1927–

[DNLM: 1. Surgery. WO 100 M423]

RD11.M29 1992

617—dc20

DNLM/DLC

for Library of Congress

91-46716  
CIP

Printed in the United States of America

EB/M

Second Printing

---

## Foreword

---

The second edition of *Mastery of Surgery* is brilliantly edited by Lloyd M. Nyhus and Robert J. Baker and maintains the impressive profile of the first edition. This is a very thorough text, easily read and commendably comprehensive.

Throughout the text the editors have been selective in their choice of contributors, linking the subject with clearly identifiable authorities in the field. The illustrations are well chosen, with special emphasis on the important points. The *Editor's Comment* at the end of the chapters will be much appreciated by readers because they represent sound, cogent, and fascinating appraisals of each subject. The anatomic features of each dis-

order are reviewed with appropriate emphasis on the significant *surgical* features. Each bibliography is highly selective, with inclusion of the recognized classic references as well as more recent reports in the literature.

As one reviews this text it becomes obvious that it has been edited and written by those thoroughly familiar with the subjects who are both surgical scientists as well as experienced clinicians. This combination makes it a work of particular importance to students and residents as well as practicing surgeons. Moreover, the chapters are thoroughly updated and provide a complete analysis of each of the disorders discussed. To individualize

each subject, the editors have divided the text into 194 thoughtfully considered chapters.

In this second edition of *Mastery of Surgery* the editors have produced a spectacular achievement, creating a text of notable thoroughness and reliability. It is easy to predict that it will maintain, and indeed surpass, the record of its predecessor. It will be well received by those in the surgical and allied health professions who will find it to be an invaluable reference source.

David C. Sabiston, Jr., M.D.

---

## Preface

---

The popularity of the first edition of this text ensured the need for further editions. Naturally we were gratified to learn that our first effort was of such technical excellence that it won the American Association of Publishers' R. R. Hawkins Award, an annual prize for the best professional or scholarly book.

It was from this base that we undertook the task of updating and modifying our prior work. Many chapters remain, but all have been brought into the current mode of accepted practice. New subjects have been interspersed throughout the text. They include resection and reconstruction of the trachea, modern concepts in operations on the breast, management of thoracic injuries, stapling techniques, endoscopy, a new operation for gastroduodenal disease, a range of new procedures on the biliary tract and

pancreas, new approaches to the problem of hernia, and a new section on surgical approaches to the peripheral venous system.

We have again emphasized certain points made by our contributing authors in the editorial comments on their chapters. In no instance are these comments intended to, nor should they be construed to, criticize or refute the author's approach. They are meant to add a second view of possible strategies for a successful approach to a surgical problem.

The contributing authors are acknowledged national or international authorities in the areas in which they have written. Equally important, they are skilled, experienced teachers of surgery. We are deeply indebted to each of them for producing a worthy contribution.

We must express our deep appreciation to our colleague, Dr. Harry Monsen, who reviewed every manuscript for anatomic accuracy and continuity. Similarly, our editorial colleague, Catherine Judge, has kept us conceptually and grammatically honest.

Our friends at Little, Brown and Company, Lynne Herndon, Michael A. Granger, and Karen Feeney, have contributed greatly, not only in editing and publishing expertise but also in encouragement, patience, and general good humor.

We sincerely hope our readers derive as much pleasure and benefit from reading this book as we have from compiling and editing it.

L.M.N.  
R.J.B.

# Contributing Authors

- Herand Abcarian, M.D.** Professor, Department of Surgery, University of Illinois College of Medicine at Chicago; Chairman, Division of Colon and Rectal Surgery, Cook County Hospital, Chicago
- Joaquin S. Aldrete, M.D.** Professor and Vice Chairman, Department of Surgery, University of Alabama School of Medicine; Attending Surgeon and Chief of Gastrointestinal and Hepatic Surgery, University of Alabama Hospitals and Veterans Administration Hospital, Birmingham, Alabama
- John Alexander-Williams, M.D.** Professor of Surgery, University of Birmingham; Consultant Surgeon, General Hospital, Birmingham, England
- William C. Allen, M.D.** Clinical Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago; Assistant Program Director, Department of Surgery, Mercy Hospital and Medical Center, Chicago
- Joseph Alpert, M.D.** Clinical Professor of Surgery, University of Medicine and Dentistry of New Jersey-New Jersey Medical School; Attending Surgeon and Former Chief of Vascular Surgery, Newark Beth Israel Medical Center, Newark, New Jersey
- Nasser Altorki, M.D.** Assistant Professor of Cardiothoracic Surgery, Cornell University Medical College; Assistant Attending Surgeon, The New York Hospital, New York
- Dean G. Assimos, M.D.** Assistant Professor of Surgery (Urology), Bowman Gray School of Medicine of Wake Forest University and North Carolina Baptist Hospitals, Inc., Winston-Salem, North Carolina
- Hervy E. Averette, M.D.** Professor of Obstetrics and Gynecology, University of Miami School of Medicine; Attending Surgeon and Director of Gynecologic Oncology, Jackson Memorial Hospital, Miami
- Ronald J. Baird, M.D., M.S.** Professor of Surgery, University of Toronto Faculty of Medicine; Head of Cardiovascular Surgery, Toronto General Hospital, Toronto
- Robert J. Baker, M.D.** Professor and Vice Chairman, Department of Surgery, Jefferson Medical College of Thomas Jefferson University, Philadelphia; Chairman, Department of Surgery, Medical Center of Delaware, Wilmington, Delaware
- William H. Baker, M.D.** Professor of Surgery, Loyola University of Chicago Stritch School of Medicine, Maywood, Illinois
- Walter L. Barker, M.D.** Clinical Professor of Surgery, University of Illinois College of Medicine at Chicago; Attending Thoracic Surgeon and Chairman, Department of Surgery, St. Joseph Hospital, Chicago

Hendrick B. Barner, M.D.	Chief, Cardiothoracic Surgery, Long Island Jewish Medical Center, New Hyde Park, New York
Louis Barraya, M.D.	Professor of Surgery, University of Nice, Nice, France
Fernando Luiz Barroso, M.D.	Professor of General Surgery, Escola de Medicina e Cirurgia do Rio de Janeiro; Surgeon, Hospital de Ipanema (INAMPS), Rio de Janeiro, Brazil
Oliver H. Beahrs, M.D.	Professor of Surgery Emeritus, Mayo Medical School, Rochester, Minnesota
Sandra L. Beal, M.D.	Assistant Professor of Surgery, University of California, Davis, School of Medicine and University of California, Davis, Medical Center, Sacramento, California
Arthur C. Beall, Jr., M.D.	Professor of Surgery, Baylor College of Medicine; Chief of Surgery, Veterans Administration Medical Center, Houston
Sunmolu Beckley, M.D.	Consultant Urologist, Cofadell Clinic Foundation, Surulere, Lagos, Nigeria
Robert Bendavid, M.D.	Attending Surgeon, Shouldice Hospital, Thornhill, Ontario
John J. Bergan, M.D.	Clinical Professor of Surgery, University of California, San Diego, School of Medicine, and Hospital of the Scripps Clinic, La Jolla, California
Yacov Berlatzky, M.D.	Associate Professor of Surgery, Hebrew University-Hadassah University Medical School; Chief of Vascular Surgery, Hadassah University Medical Center, Jerusalem
Thomas V. Berne, M.D.	Professor of Surgery, University of Southern California School of Medicine; Senior Staff Physician, Department of Surgery, LAC-USC Medical Center, Los Angeles
Victor M. Bernhard, M.D.	Professor of Surgery, University of Arizona College of Medicine; Chief, Section of Vascular Surgery, Arizona Health Sciences Center, Tucson, Arizona
Harry C. Bishop, M.D.	Professor of Pediatric Surgery, University of Pennsylvania School of Medicine; Senior Surgeon, Children's Hospital of Philadelphia, Philadelphia
Henri Bismuth, M.D.	Professor of Surgery, Faculty of Medicine of South Paris, Kremlin-Bicetre; Head, Department of Digestive Surgery, Hospital Paul Brousse, Villejuif, France
Sidney Black, M.D.	Clinical Professor of Surgery Emeritus, University of Illinois College of Medicine at Chicago; Attending Surgeon, Highland Park Hospital, Highland Park, and Rush North Shore Hospital, Skokie, Illinois
Kirby I. Bland, M.D.	Professor and Associate Chairman, Department of Surgery, University of Florida College of Medicine, Gainesville, Florida
George E. Block, M.D.	Thomas D. Jones Professor and Chairman, Department of Surgery, University of Chicago Pritzker School of Medicine, Chicago
Melvin A. Block, M.D.	Clinical Professor, Department of Surgery, University of California, San Diego, School of Medicine; Senior Consultant, Division of General Surgery, Hospital of the Scripps Clinic, La Jolla, California
L. H. Blumgart, M.D.	Professor of Surgery, University of Berne; Director, Department of Visceral and Transplant Surgery, Inselspital, Berne, Switzerland
William H. Boyce, M.D.	Professor of Surgery (Urology), Bowman Gray School of Medicine of Wake Forest University and North Carolina Baptist Hospitals, Inc., Winston-Salem, North Carolina

- Gwendolyn Boyd, M.D. Professor of Anesthesiology, University of Alabama School of Medicine at Birmingham; Faculty, Department of Anesthesiology, University of Alabama Hospitals, Birmingham, Alabama
- John W. Braasch, M.D., Ph.D. Assistant Clinical Professor of Surgery, Harvard Medical School, Boston; Senior Consultant, Department of General Surgery, Lahey Clinic Medical Center, Burlington, Massachusetts
- David C. Brewster, M.D. Associate Clinical Professor of Surgery, Harvard Medical School; Visiting Surgeon, General Surgical Services, Massachusetts General Hospital, Boston
- Donald K. Brief, M.D. Clinical Professor of Surgery, University of Medicine and Dentistry of New Jersey-New Jersey Medical School; Attending Surgeon and Chief of General Surgery, Newark Beth Israel Medical Center, Newark, New Jersey
- James W. Brooks, M.D. Professor of Surgery, Virginia Commonwealth University Medical College of Virginia School of Medicine; Attending Physician, Division of Cardiac and Thoracic Surgery, Medical College of Virginia Hospitals, Richmond, Virginia
- Thomas A. Broughan, M.D. Staff, Department of General Surgery, Cleveland Clinic Foundation, Cleveland
- Henry Buchwald, M.D., Ph.D. Professor of Surgery, University of Minnesota Medical School—Minneapolis; Attending Surgeon, University of Minnesota Hospital and Clinic of the University of Minnesota Health Sciences Center, Minneapolis
- Timothy E. Bucknall, M.S., F.R.C.S. Consultant Surgeon, Burton-upon-Trent Hospitals, Staffordshire, England
- John L. Cameron, M.D. Professor and Chairman, Department of Surgery, Johns Hopkins University School of Medicine; Chief of Surgery, Johns Hopkins Hospital, Baltimore
- Vlastimil Capek, M.D. Professor of Radiology, University of Illinois College of Medicine at Chicago, and University of Illinois Hospital, Chicago
- Larry C. Carey, M.D. Professor and Chairman, Department of Surgery, University of South Florida College of Medicine; Attending Surgeon, Tampa General Hospital, Tampa, Florida
- P. Chan, M.B.B.S. Clinical Lecturer in Surgery, University of Queensland; Professorial Surgical Registrar, Royal Brisbane Hospital, Brisbane, Queensland, Australia
- Jameson L. Chassin, M.D. Professor of Clinical Surgery, New York University School of Medicine, New York; Director of Surgery, Booth Memorial Hospital, Flushing, New York
- Albert K. Chin, M.D. Staff, Cardiovascular Surgery, Sequoia Hospital, Redwood City, California
- Orlo H. Clark, M.D. Chief of Surgery, Mount Zion Medical Center, San Francisco
- Mimis Cohen, M.D. Associate Professor of Surgery, University of Illinois College of Medicine at Chicago; Chief, Divisions of Plastic Surgery, University of Illinois Hospital, Cook County Hospital, and Michael Reese Hospital and Medical Center, Chicago
- Gene L. Colborn, Ph.D. Professor of Anatomy and Director, Center for Clinical Anatomy, Medical College of Georgia School of Medicine, Augusta, Georgia
- Robert E. Condon, M.D., M.S. Ausman Foundation Professor and Chairman, Department of Surgery, Medical College of Wisconsin; Chief of Surgical Services, Froedtert Memorial Lutheran Hospital, Milwaukee
- Edward M. Copeland III, M.D. Professor and Chairman, Department of Surgery, University of Florida College of Medicine; Attending Surgeon, Shands Teaching Hospital and Clinics, Inc., Gainesville, Florida

- Joseph S. Coselli, M.D. Assistant Professor of Surgery, Baylor College of Medicine; Attending Surgeon, The Methodist Hospital, Houston
- Jonathan F. Critchlow, M.D. Instructor in Surgery, Harvard Medical School; Director, Respiratory-Surgical Intensive Care Unit, Beth Israel Hospital, Boston
- Myles P. Cunningham, M.D. Clinical Associate Professor of Surgery, University of Illinois College of Medicine at Chicago and Northwestern University Medical School, Chicago, and St. Francis Medical Center, Evanston, Illinois
- A. Czerniak, M.D. Senior Lecturer in Surgery, The Chaim Sheba Medical Center, Tel Hanshomer, Israel
- James W. Daly, M.D. Professor and Chairman, Department of Obstetrics and Gynecology, University of Missouri—Columbia Health Sciences Center, Columbia, Missouri
- John M. Daly, M.D. Jonathon E. Rhoads Professor of Surgery, University of Pennsylvania School of Medicine; Chief, Division of Surgical Oncology, Hospital of the University of Pennsylvania, Philadelphia
- Thomas L. Dao, M.D. Professor of Surgery Emeritus, State University of New York at Buffalo School of Medicine and Biomedical Sciences; Chief of Breast Surgery Emeritus, Roswell Park Memorial Institute, Buffalo, New York
- Herbert Dardik, M.D. Clinical Associate Professor of Surgery, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark; Chief, General and Vascular Surgery, Englewood Hospital, Englewood, New Jersey
- R. Clement Darling, Jr., M.D. Associate Clinical Professor of Surgery, Harvard Medical School; Senior Vascular Surgeon and Chief, Vascular Clinic, Massachusetts General Hospital, Boston
- R. Clement Darling III, M.D. Assistant Professor of Surgery, Division of Vascular Surgery, Albany Medical College; Attending Surgeon, Albany Medical Center Hospital, Albany, New York
- Robert P. Davis, M.D. Associate Professor of Clinical Surgery, Northwestern University Medical School; Chairman, Department of Medical Education, Columbus-Cuneo-Cabrini Medical Center, Chicago
- Richard H. Dean, M.D. Director of Surgical Sciences, Bowman Gray School of Medicine of Wake Forest University; Chief of Surgery, North Carolina Baptist Hospitals, Inc., Winston-Salem, North Carolina
- Tom R. DeMeester, M.D. Professor and Chairman, Department of Surgery, University of Southern California School of Medicine; Chief of Surgery, LAC-USC Medical Center, Los Angeles
- Ralph G. DePalma, M.D. Professor and Chairman, Department of Surgery, George Washington University School of Medicine and Health Sciences, Washington, D.C.
- Lawrence W. DeSanto, M.D. Professor of Otolaryngology, Head and Neck Surgery, Mayo Medical School and Mayo Clinic, Scottsdale, Arizona
- James A. DeWeese, M.D. Professor and Chairman, Division of Cardiothoracic Surgery, University of Rochester School of Medicine and Dentistry; Chairman, Division of Cardiothoracic Surgery, The Strong Memorial Hospital, Rochester, New York
- Rudolph F. Dolezal, M.D. Clinical Associate Professor of Surgery, University of Illinois College of Medicine at Chicago; Attending Plastic Surgeon, University of Illinois Hospital, Chicago

- Philip E. Donahue, M.D. Attending Surgeon, University of Illinois College of Medicine at Chicago; Chairman, Division of General Surgery, Cook County Hospital, Chicago
- Daniel M. Donato, M.D. Assistant Professor, University of Miami School of Medicine; Attending Surgeon, Jackson Memorial Hospital, Miami
- Arthur J. Donovan, M.D. Professor and Chairman, Department of Surgery, University of Southern California School of Medicine; Director, Department of Surgery, LAC-USC Medical Center, Los Angeles
- Stanley J. Dudrick, M.D. Clinical Professor of Surgery, University of Texas Medical School at Houston; Attending Surgeon, The Hermann Hospital, Houston
- Joseph R. Durham, M.D. Assistant Professor of Surgery, Ohio State University College of Medicine; Attending Surgeon, The Ohio State University Hospitals, Columbus, Ohio
- Jens Eldrup-Jorgensen, M.D. Vascular Surgeon, Maine Medical Center, Portland, Maine
- E. Christopher Ellison, M.D. Director, Ohio Digestive Disease Institute, Ohio State University College of Medicine; Attending Surgeon, Grant Hospital, Columbus, Ohio
- Kenneth Eng, M.D. Professor of Surgery, New York University School of Medicine; Attending Surgeon, Department of Surgery, New York University Medical Center, New York
- Calvin B. Ernst, M.D. Clinical Professor of Surgery, University of Michigan Medical School, Ann Arbor; Head of Vascular Surgery, Henry Ford Hospital, Detroit
- Caldwell B. Esselstyn, Jr., M.D. Staff, Department of General Surgery, The Cleveland Clinic Hospital, Cleveland
- Victor W. Fazio, M.B., F.R.A.C.S. Chairman, Department of Colorectal Surgery, The Cleveland Clinic Hospital, Cleveland
- J. W. L. Fielding, M.D., F.R.C.S. Senior Clinical Lecturer, University of Birmingham; Consultant Surgeon, Queen Elizabeth Hospital, Edgbaston, Birmingham, England
- Joseph G. Fine, M.D. Instructor of Surgery, University of Kentucky Medical Center; Attending Surgeon, Department of Surgery, Veterans Administration Medical Centers and University of Kentucky College of Medicine A. B. Chandler Medical Center, Lexington, Kentucky
- Josef E. Fischer, M.D. Christian R. Holmes Professor and Chairman, University of Cincinnati College of Medicine; Surgeon-in-Chief, University Hospital, Cincinnati
- D. Preston Flanigan, M.D. Visiting Professor of Surgery, University of Illinois College of Medicine at Chicago, Chicago
- William R. Flinn, M.D. Associate Professor of Surgery, Northwestern University Medical School; Attending Vascular Surgeon, Northwestern Memorial Hospital/Columbus Hospital, Chicago
- Lewis Flint, M.D. Regents Professor and Chair, Department of Surgery, Tulane University School of Medicine; Attending Surgeon, Tulane University Hospital, New Orleans
- Thomas J. Fogarty, M.D. Chief, Cardiac Surgery Section, Sequoia Hospital, Redwood City, California
- Manson Fok, F.R.C.S.E. Lecturer in Surgery, University of Hong Kong and Queen Mary Hospital, Hong Kong

- James H. Foster, M.D. Professor of Surgery, University of Connecticut School of Medicine; Attending Surgeon, Department of Surgery, University of Connecticut Hospital, Farmington, Connecticut
- Jackson E. Fowler, Jr., M.D. Professor and Chairman, Division of Urology, University of Mississippi Medical Center, Jackson, Mississippi
- Herbert R. Freund, M.D. Professor of Surgery, Hebrew University-Hadassah Medical School; Chief of Surgery, Hadassah University Hospital Mount Scopus, Jerusalem
- Charles F. Frey, M.D. Professor and Vice Chairman, Department of Surgery, University of California, Davis, School of Medicine, Sacramento, California
- William J. Fry, M.D. Clinical Professor, Department of Surgery, University of Michigan Medical School; Head, Department of General Surgery, St. Joseph Mercy Hospital, Ann Arbor
- William E. Fuller, M.D. Associate Professor of Obstetrics and Gynecology, The University of Colorado Health Sciences Center—B. F. Stolinsky Laboratories; Director, Department of Obstetrics and Gynecology, AMI-St. Luke's Hospital, Denver
- O. James Garden, M.D., F.R.C.S. Senior Lecturer in Surgery, University of Edinburgh; Honorary Consultant Surgeon, Royal Infirmary, Edinburgh, Scotland
- Bernard Gardner, M.D. Professor of Surgery, University of Medicine and Dentistry of New Jersey-New Jersey Medical School, Newark, New Jersey
- Clare R. Giegerich, M.D. Clinical Assistant Professor of Orthopedic Surgery, Northwestern University Medical School; Attending Physician, Northwestern Memorial Hospital, Chicago
- Robert E. Girtanner, M.D. Associate Professor, Division of Gynecologic Oncology, Baylor College of Medicine, Houston
- Marvin L. Gliedman, M.D. Professor and Chairman, Department of Surgery, Albert Einstein College of Medicine of Yeshiva University; Surgeon-in-Chief, Department of Surgery, Montefiore Medical Center, Bronx, New York
- Philip H. Gordon, M.D., F.R.C.S.(C.) Professor of Surgery, McGill University Faculty of Medicine; Director of Colon and Rectal Surgery, Sir Mortimer B. Davis-Jewish General Hospital, Montreal
- Stephen W. Gray, Ph.D. Professor of Anatomy Emeritus and Associate Director, The Thalia and Michael Carlos Center for Surgical Anatomy and Technique, Emory University School of Medicine, Atlanta
- Herbert B. Greenlee, M.D. Professor and Vice Chairman, Department of Surgery, Loyola University of Chicago Stritch School of Medicine, Maywood; Chief, Surgical Service, Veterans Administration Hospital, Hines, Illinois
- Charles A. Griffith, M.D. Clinical Associate Professor of Surgery, University of Washington School of Medicine, Seattle
- Hermes Grillo, M.D. Professor of Surgery, Harvard Medical School; Visiting Surgeon and Chief, General Thoracic Surgical Unit, Massachusetts General Hospital, Boston
- Jay L. Grosfeld, M.D. Lafayette F. Page Professor and Chairman of Surgery, Indiana University School of Medicine; Surgeon-in-Chief, James Whitcomb Riley Hospital for Children, Indianapolis

Frank Gump, M.D.	Chief of Surgery, Orange Veterans Administration Hospital, Orange, New Jersey
James D. Hardy, M.D.	Professor of Surgery Emeritus, University of Mississippi School of Medicine, Jackson, Mississippi
Toni Hau, M.D., Ph.D.	Associate Professor of Surgery, Medizinische Hochschule Hannover, Hannover; Chief of General Surgery, Nordwest-Krankenhaus Sanderbusch, Sande, Germany
Henry J. Heimlich, M.D.	Professor of Advanced Clinical Sciences, Xavier University; President, The Heimlich Institute, Cincinnati
Robert E. Hermann, M.D.	Department of General Surgery, Cleveland Clinic Foundation, Cleveland
J. Lynwood Herrington, Jr., M.D.	Clinical Professor of Surgery, Vanderbilt University Medical Center; Attending Surgeon, Vanderbilt University and St. Thomas Hospitals, Nashville, Tennessee
Lucius D. Hill, M.D.	Clinical Professor of Surgery, University of Washington School of Medicine; Surgeon, Virginia Mason Hospital, Swedish Hospital Medical Center, Seattle
Frank Hinman, Jr., M.D., F.R.C.S. Eng. (Hon.)	Clinical Professor of Urology, University of California, San Francisco, School of Medicine, San Francisco
Arnulf H. Hoelscher, M.D.	Assistant Professor of Surgery, Technical University of Munich; Oberarzt, Klinikum rechts der Isar, Munich, Germany
Dennis J. Hoelzer, M.D.	Clinical Associate Professor of Surgery, Jefferson Medical College of Thomas Jefferson University, Philadelphia; Attending Physician, Department of Surgery, Medical Center of Delaware and Alfred I. duPont Institute, Wilmington, Delaware
†Stanley O. Hoerr, M.D.	Staff, Cleveland Clinic Foundation, Cleveland
James W. Holcroft, M.D.	Professor of Surgery, University of California, Davis, School of Medicine; Attending Surgeon, University of California, Davis, Medical Center, Sacramento, California
Gordon L. Hyde, M.D.	Professor of Surgery and Attending Surgeon, University of Kentucky A. B. Chandler Medical Center, Lexington, Kentucky
Hushang Javid, M.D., Ph.D.	Professor of Surgery Emeritus, Rush Medical College of Rush University, Chicago
Jerry M. Jessep, M.D.	Clinical Assistant Professor of Surgery and Anatomy, Indiana University School of Medicine, Indianapolis, and Bloomington Hospital, Bloomington, Indiana
A. Jewkes, F.R.C.S.	Surgical Registrar, University of Birmingham, Birmingham, England
†S. Austin Jones, M.D.	Clinical Professor of Surgery, University of California, Irvine, College of Medicine, Irvine; Staff, Memorial Hospital of Glendale, Glendale, California
Morio Kasai, M.D.	Professor Emeritus, Tohoku University School of Medicine; Director, Tohoku Teishin Hospital, Sendai, Japan
Alfred S. Ketcham, M.D.	Professor of Surgery and Chief, Division of Oncology, University of Miami School of Medicine; Attending Surgeon, Jackson Memorial Hospital, Miami
John M. Kinney, M.D.	Professor of Surgery, St. Luke's-Roosevelt Hospital, New York

† Deceased

- Nils G. Kock, M.D. Professor and Chairman, Department of Surgery, University of Göteborg and Sahlgren's Hospital, Göteborg, Sweden
- Kevin Kopesky, M.D. Clinical Instructor, University of Missouri—Columbia School of Medicine, Columbia; Staff Physician, St. Luke's Hospital, Cedar Rapids, Iowa
- Stefan J. M. Kraemer, M.D. Department of Surgery, Klinikum rechts der Isar, Technical University of Munich; Department of Surgery, Virginia Mason Hospital Medical Center, Seattle
- Hiram T. Langston, M.D., M.S. (Surg.) Clinical Professor of Surgery Emeritus, Northwestern University Medical School; Honorary Surgeon, St. Joseph Hospital, Chicago
- Robert P. Leather, M.D. Professor of Surgery and Chief, Vascular Surgery Service, Albany Medical College; Attending Surgeon, Albany Medical Center Hospital, Albany, New York
- Anna M. Ledgerwood, M.D. Professor of Surgery, Wayne State University School of Medicine; Attending Physician, Department of Surgery, Detroit Receiving Hospital, Detroit
- Raymond A. Lee, M.D. Professor and Chairman, Department of Gynecology and Gynecologic Surgery, Mayo Medical School and Mayo Clinic, Rochester, Minnesota
- Eric G. LeVeen, M.D. Research Associate, Medical University of South Carolina College of Medicine; Active Staff, Coronary and Vascular Surgery, Roper and St. Francis Xavier Hospitals, Charleston, South Carolina
- Harry H. LeVeen, M.D. Professor of Surgery Emeritus, Medical University of South Carolina College of Medicine, Charleston, South Carolina
- Sidney Levitsky, M.D. David W. and David Cheever Professor of Surgery, Harvard Medical School; Chief, Division of Cardiothoracic Surgery, New England Deaconess Hospital, Boston
- Dorothea Liebermann-Meffert, M.D. Associate Professor of Surgery, Universitätsklinik, Basel, Switzerland; Surgeon, Klinikum rechts der Isar, Munich, Germany
- Alex G. Little, M.D. Associate Professor and Chairman, Department of Surgery, University of Nevada School of Medicine, Las Vegas
- Fred N. Littooy, M.D. Associate Professor of Surgery, Loyola University of Chicago Stritch School of Medicine, Maywood; Staff Physician and Chief, Peripheral Vascular Surgery, Veterans Administration Hospital, Hines, Illinois
- S. Arthur Localio, M.D. Professor of Surgery, New York University School of Medicine; Attending Surgeon, New York University Medical Center, New York
- Donald E. Low, M.D. Attending Surgeon, Department of Thoracic and General Surgery, Virginia Mason Clinic, Seattle
- Charles E. Lucas, M.D. Professor of Surgery, Wayne State University School of Medicine; Senior Attending Surgeon, Detroit Receiving Hospital and University Health Center, Detroit
- Nicolas J. Lygidakis, M.D. Senior Surgeon, Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands
- Junji Machi, M.D., Ph.D. Research Assistant Professor, Department of Surgery, Medical College of Pennsylvania, Philadelphia

- Willis P. Maier, M.D. Professor and Chief, Section of General Surgery, Temple University Health Sciences Center, Philadelphia
- Lester W. Martin, M.D. Professor of Surgery and Pediatrics, University of Cincinnati College of Medicine; Director of Pediatric Surgery, Children's Hospital Medical Center, Cincinnati
- Edward E. Mason, M.D. Professor of Surgery, University of Iowa College of Medicine; Chairman, Division of General Surgery, University of Iowa Hospitals and Clinics, Iowa City, Iowa
- G. Robert Mason, M.D., Ph.D. Professor of Surgery, Loyola University of Chicago Stritch School of Medicine, Maywood; Chief of Surgery, Veterans Administration Hospital, Hines, Illinois
- Douglas J. Mathisen, M.D. Associate Professor of Surgery, Harvard Medical School; Associate Visiting Surgeon, General Thoracic Surgical Unit, Massachusetts General Hospital, Boston
- Kenneth L. Mattox, M.D. Professor of Surgery, Baylor College of Medicine; Deputy Surgeon-in-Chief, Ben Taub General Hospital, Houston
- Ivan A. May, M.D. Chief of Cardiac and Thoracic Surgery Emeritus, Highland General Hospital; Chairman Emeritus, Department of Surgery, Samuel Merritt Hospital, Oakland, California
- Rodolfo M. Mazzariello, M.D. Professor of Surgery, Facultad of Medicine, Buenos Aires University; Head, Department of Surgery, Hospital Rivadavia, Buenos Aires, Argentina
- J. F. McCaffrey, M.S., F.R.C.S. Chairman, Department of Surgery, University of Queensland; Attending Surgeon, Royal Brisbane Hospital, Brisbane, Queensland, Australia
- Donald G. McQuarrie, M.D., Ph.D. Professor of Surgery, University of Minnesota Medical School—Minneapolis; Assistant Chief of Surgery, Veterans Administration Medical Center, Minneapolis
- Janet L. Meller, M.D. Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago; Attending Pediatric Surgeon, Cook County Hospital and University of Illinois Hospital, Chicago
- Eli K. Michaels, M.D. Assistant Professor of Surgery, Division of Urology, University of Illinois College of Medicine at Chicago; Attending Surgeon, University of Illinois Hospital, Chicago
- Robert M. Moldwin, M.D. Resident, Department of Urology, State University of New York at Stony Brook Health Sciences Center School of Medicine, Stony Brook, and Long Island Jewish Medical Center, New Hyde Park, New York
- Harry Monsen, Ph.D. Professor of Anatomy, University of Illinois College of Medicine at Chicago, Chicago
- Ernest E. Moore, M.D. Professor and Vice Chairman of Surgery, The University of Colorado Health Sciences Center—B. F. Stolinsky Laboratories; Chief of Surgery, Denver General Hospital, Denver
- A. R. Moossa, M.D., F.R.C.S. Professor and Chairman, Department of Surgery, University of California, San Diego, School of Medicine; Surgeon-in-Chief, UCSD Medical Center, San Diego
- Leon Morgenstern, M.D. Professor of Surgery, University of California, Los Angeles, UCLA School of Medicine; Director of Surgery, Cedars-Sinai Medical Center, Los Angeles
- Gerald P. Murphy, M.D. Group Vice President and Chief Medical Officer, American Cancer Society, Atlanta

- Richard L. Nelson, M.D. Associate Professor of Surgery, University of Illinois College of Medicine at Chicago; Attending Surgeon and Chief, Section of Gastrointestinal Surgery, University of Illinois Hospital, Chicago
- William E. Neville, M.D. Professor of Surgery Emeritus, University of Medicine and Dentistry of New Jersey-New Jersey Medical School; Attending Surgeon, Department of Cardiothoracic Surgery, UMDNJ-University Hospital, Newark, New Jersey
- Kurt D. Newman, M.D. Assistant Professor of Surgery, George Washington University School of Medicine and Health Sciences; Attending Surgeon, Children's Hospital National Medical Center, Washington, D.C.
- David H. Nichols, M.D. Director, Reconstructive Pelvic Surgery, Department of Gynecology, Brown University Program in Medicine, Providence; Harvard Medical School and Tufts University School of Medicine, Boston; Director, Reconstructive Pelvic Surgery, Gynecology Department, Massachusetts General Hospital, Boston
- Ronald Lee Nichols, M.D., M.S. Henderson Professor and Vice Chairman of Surgery, Professor of Microbiology, Tulane University School of Medicine; Attending Surgeon, Tulane University Hospital and Charity Hospital at New Orleans, New Orleans
- Paul F. Nora, M.D., Ph.D. Professor of Clinical Surgery, Northwestern University Medical School; Chairman, Department of Surgery, Columbus-Cuneo-Cabrini Medical Center, Chicago
- Lawrence W. Norton, M.D. Professor and Vice Chairman, Department of Surgery, University of Colorado School of Medicine; Chief, Surgical Service, Veterans Administration Medical Center, Denver
- Morris Notelovitz, M.D., Ph.D. Medical Director, Midlife Centers of America and the Climacteric Clinic, Gainesville, Florida
- Lloyd M. Nyhus, M.D. Warren H. Cole Professor and Head Emeritus, Department of Surgery, University of Illinois College of Medicine at Chicago; Surgeon-in-Chief Emeritus, University of Illinois Hospital, Chicago
- Theodore K. Oates, M.D. Clinical Assistant Professor of Surgery, University of Rochester School of Medicine and Dentistry; Attending Surgeon, Rochester General Hospital, Rochester, New York
- Paul H. O'Brien, M.D. Professor and Vice Chairman, Department of Surgery, Medical University of South Carolina College of Medicine; Attending Surgeon, Charleston Memorial Hospital and Veterans Administration Medical Center, Charleston, South Carolina
- J. Patrick O'Leary, M.D. Isidore Cohn, Jr., Professor and Chairman, Department of Surgery, Louisiana State University School of Medicine in New Orleans, New Orleans
- Kerry D. Olsen, M.D. Assistant Professor of Otolaryngology, Head and Neck Surgery, Mayo Medical School and Mayo Clinic, Rochester, Minnesota
- Eduardo Orihuela, M.D. Assistant Professor of Urology, Department of Surgery, State University of New York at Stony Brook Health Sciences Center School of Medicine, Stony Brook, and Long Island Jewish Medical Center, New Hyde Park, New York
- Mark B. Orringer, M.D. Professor and Head, Section of Thoracic Surgery, University of Michigan Medical School, Ann Arbor, Michigan

- William J. Orrom, M.D., M.Sc.,  
F.R.C.S.C. Clinical Instructor, University of Alberta Faculty of Medicine, Edmonton; Attending Surgeon, Royal Alexandra Hospital, Edmonton, Alberta
- Charles P. Orsay, M.D., M.S. Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago; Director, Surgical Gastrointestinal Endoscopy, Cook County Hospital, Chicago
- Edward Paloyan, M.D. Professor of Surgery, Loyola University of Chicago Stritch School of Medicine, Maywood; Associate Chief of Staff for Research and Chief, Endocrine Surgery, Veterans Administration Hospital, Hines, Illinois
- Jashbhai K. Patel, M.D. Attending Surgeon, Holmes Regional Medical Center, Melbourne, Florida
- W. S. Payne, M.D. Professor of Surgery Emeritus, Mayo Medical School; Former Head, Section of General Thoracic Surgery, Mayo Clinic, Rochester, Minnesota
- Russell K. Pearl, M.D., M.S. (Surg.) Associate Professor of Clinical Surgery and Assistant Professor of Biomedical Visualization, University of Illinois College of Medicine at Chicago; Attending Surgeon, Section of Colon and Rectal Surgery, Cook County Hospital, Chicago
- Manuel Penalver, M.D. Assistant Professor, University of Miami School of Medicine; Attending Surgeon, Obstetrics and Gynecology, Jackson Memorial Hospital, Miami
- E. Earl Pennington, M.D. Attending Surgeon, Northside Hospital, Atlanta
- †John F. Perry, Jr., M.D., Ph.D. Professor of Surgery, University of Minnesota Medical School—Minneapolis, Minneapolis
- Richard M. Peters, M.D. Professor of Surgery and Bioengineering, University of California, San Diego, School of Medicine; Thoracic Surgeon and Director, Surgery Research and Education, UCSD Medical Center, San Diego
- Gary J. Peterson, M.D. Assistant Professor of Surgery, Saint Louis University School of Medicine; Director, Vascular Division, Department of Surgery, The University Hospital, St. Louis
- Laurens R. Pickard, M.D. Assistant Professor of Surgery, Baylor College of Medicine; Attending Surgeon, The Methodist Hospital, Houston
- Yosef H. Pilch, M.D. Professor of Surgery, University of Illinois College of Medicine at Chicago; Chairman, Department of Surgery, Illinois Masonic Medical Center, Chicago
- Hiram C. Polk, Jr., M.D. Professor and Chairman, Department of Surgery, University of Louisville School of Medicine, Louisville, Kentucky
- Raymond Pollak, M.B., F.R.C.S. (Edin.) Associate Professor of Surgery, University of Illinois College of Medicine at Chicago; Chief, Division of Transplantation Surgery, University of Illinois Hospital, Chicago
- Stephen F. Ponchak, M.D. Attending Physician, Department of Obstetrics and Gynecology, Salem Hospital, Salem, Massachusetts
- Joseph L. Ponka, M.D. Clinical Professor of Surgery, University of Michigan Medical School, Ann Arbor; Senior Staff Surgeon and Associate Medical Director, Henry Ford Hospital, Detroit
- M. Leela Prasad, M.D. Clinical Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago; Director, Anal Incontinence Center, Lutheran General Hospital, Park Ridge, Illinois

† Deceased

- Judson G. Randolph, M.D. Professor of Surgery, George Washington University School of Medicine and Health Sciences; Surgeon-in-Chief, Children's Hospital National Medical Center, Washington, D.C.
- Hernan M. Reyes, M.D. Professor of Surgery, University of Illinois College of Medicine at Chicago; Chairman, Department of Surgery, Cook County Hospital, Chicago
- Francis Robicsek, M.D. Clinical Professor of Surgery, University of North Carolina at Chapel Hill School of Medicine; Chairman, Department of Thoracic and Cardiovascular Surgery, Charlotte Memorial Hospital, Charlotte, North Carolina
- Jorge L. Rodriguez, M.D. Assistant Professor, University of Michigan Medical School, Ann Arbor, Michigan
- Glorianne V. Ropchan, M.D. Assistant Professor, Department of Surgery, Queen's University Faculty of Medicine, Staff Cardiothoracic Surgeon, Kingston General and Hotel Dieu Hospitals, Kingston, Ontario
- George P. Rosemond, M.D. Chairman Emeritus, Department of Surgery, Temple University Health Sciences Center, Philadelphia
- Arthur J. Ross III, M.D. Assistant Professor of Pediatric Surgery, University of Pennsylvania School of Medicine; Attending Surgeon, Children's Hospital of Philadelphia, Philadelphia
- Mario E. Rossetti, M.D. Professor and Chairman, Department of Surgery, University of Basel, Kantonsspital Liestal, Switzerland
- David A. Rothenberger, M.D. Clinical Associate Professor of Surgery, Division of Colon and Rectal Surgery, University of Minnesota Medical School—Minneapolis, Minnesota
- Joseph S. Rowe, Jr., M.D. Assistant Professor of Surgery (Surgical Anatomy), Emory University School of Medicine, Atlanta
- Robb H. Rutledge, M.D. Clinical Associate Professor of Surgery, University of Texas Southwestern Medical Center at Dallas; Attending Surgeon, Harris Methodist Hospital, Fort Worth, Texas
- Farrokh Saidi, M.D., F.R.C.S. Director of General Surgical Services, Modarres Hospital, Tehran; Professor of Surgery, Behesti University of Medical Sciences, Tehran, Iran
- †Paul C. Samson, M.D. Clinical Professor of Surgery, Stanford University School of Medicine, Stanford, California
- Nobuaki Sato Attending Surgeon, St. Luke's—Roosevelt Hospital, New York
- John L. Sawyers, M.D. Professor of Surgery, Vanderbilt University School of Medicine; Surgeon-in-Chief, Vanderbilt University Hospital, Nashville, Tennessee
- Robert L. Schmitz, M.D. Professor of Surgery, University of Illinois College of Medicine at Chicago; Chairman, Department of Surgery, Mercy Hospital and Medical Center, Chicago
- James J. Schuler, M.D. Associate Professor of Surgery, University of Illinois College of Medicine at Chicago; Chief, Division of Peripheral Vascular Surgery, University of Illinois Hospital, Chicago
- H. William Scott, Jr., M.D. Professor of Surgery Emeritus, Vanderbilt University School of Medicine; Former Surgeon-in-Chief, Vanderbilt University Hospital, Nashville, Tennessee

† Deceased