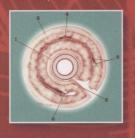
GRABB'S

ENCYCLOPEDIA
OF FLAPS

TORSO, PELVIS, AND LOWER EXTREMITIES

THIRD EDITION









BERISH STRAUCH, MD LUIS O. VASCONEZ, MD ELIZABETH J. HALL-FINDLAY, MD BERNARD T. LEE, MD



Wolters Kluwer Lippincott Williams & Wilkins

# TORSO, PELVIS, AND LOWER EXTREMITIES Grabb's Encyclopedia of Flaps

#### THIRD EDITION

**Editors** 

# Berish Strauch, MD

Professor of Plastic Surgery Albert Einstein College of Medicine Bronx, New York

# Luis O. Vasconez, MD Professor of Surgery and Director

Professor of Surgery and Director Division of Plastic Surgery University of Alabama Medical Center, Birmingham Chief Plastic Surgeon University of Alabama Hospital Birmingham, Alabama

# Elizabeth J. Hall-Findlay, MD

Plastic Surgeon Banff Mineral Springs Hospital Banff, Alberta, Canada

# Bernard T. Lee, MD

Instructor in Surgery
Harvard Medical School
Division of Plastic and Reconstructive Surgery
Beth Israel Deaconess Medical Center
Boston, Massachusetts

Wolters Kluwer | Lippincott Williams & Wilkins

Philadelphia • Baltimore • New York • London Buenos Aires • Hong Kong • Sydney • Tokyo Acquisitions Editor: Brian Brown Managing Editor: Michelle La Plante Marketing Manager: Lisa Parry Project Manager: Bridgett Dougherty

Senior Manufacturing Manager: Benjamin Rivera

Creative Director: Doug Smock

Production Service: Nesbitt Graphics, Inc.

© 2009 by LIPPINCOTT WILLIAMS & WILKINS, a WOLTERS KLUWER business 530 Walnut Street Philadelphia, PA 19106 USA LWW.com

All rights reserved. This book is protected by copyright. No part of this book may be reproduced in any form by any means, including photocopying, or utilized by any information storage and retrieval system without written permission from the copyright owner, except for brief quotations embodied in critical articles and reviews. Materials appearing in this book prepared by individuals as part of their official duties as U.S. government employees are not covered by the above-mentioned copyright. Printed in the USA

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

Grabb's encyclopedia of flaps / editors, Berish Strauch ... [et al.]. -- 3rd ed.

p.; cm.

Includes bibliographical references and index.

ISBN 978-0-7817-6432-2

ISBN 978-0-7817-7492-5

1. Flaps (Surgery) I. Grabb, William C. II. Strauch, Berish, 1933- III.

Title: Encylopedia of flaps.

[DNLM: 1. Surgical Flaps. 2. Reconstructive Surgical Procedures. WO 610G727 2009]

RD120.8.G78 2009

617.9'5--dc22

2008024234

Care has been taken to confirm the accuracy of the information presented and to describe generally accepted practices. However, the authors, editors, and publisher are not responsible for errors or omissions or for any consequences from application of the information in this book and make no warranty, expressed or implied, with respect to the currency, completeness, or accuracy of the contents of the publication. Application of the information in a particular situation remains the professional responsibility of the practitioner.

The authors, editors, and publisher have exerted every effort to ensure that drug selection and dosage set forth in this text are in accordance with current recommendations and practice at the time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package insert for each drug for any change in indications and dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new or infrequently employed drug.

Some drugs and medical devices presented in the publication have Food and Drug Administration (FDA) clearance for limited use in restricted research settings. It is the responsibility of the health care provider to ascertain the FDA status of each drug or device planned for use in their clinical practice.

To purchase additional copies of this book, call our customer service department at (800) 638-3030 or fax orders to (301) 223-2320. International customers should call (301) 223-2300.

Visit Lippincott Williams & Wilkins on the Internet: at LWW.com. Lippincott Williams & Wilkins customer service representatives are available from 8:30 am to 6 pm, EST.

Volume III

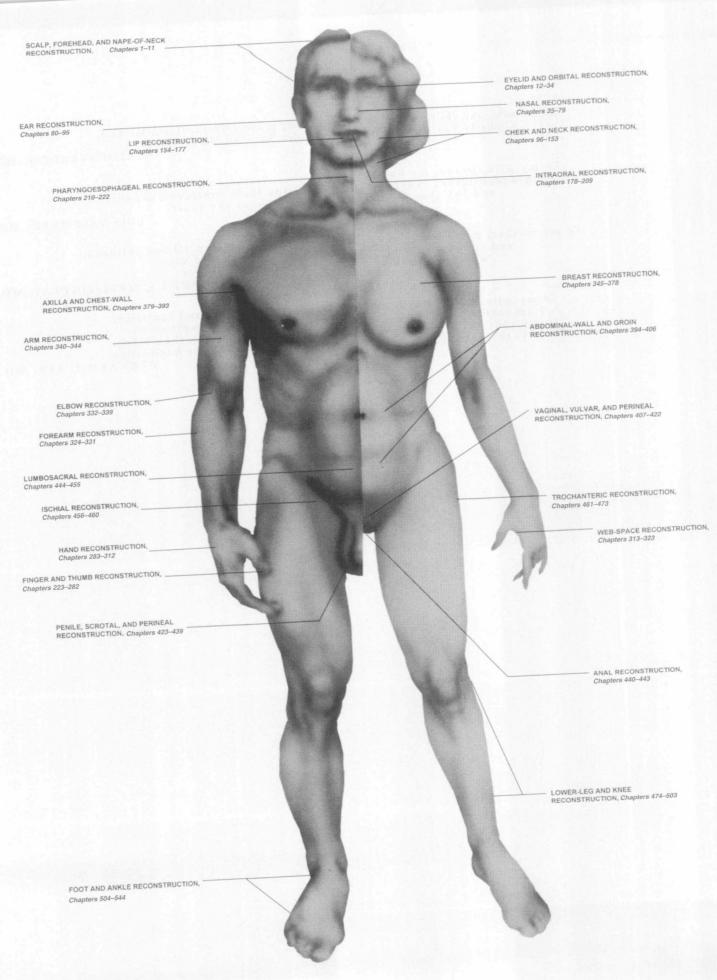
# TORSO, PELVIS, AND LOWER EXTREMITIES

Grabb's Encyclopedia of Flaps

THIRD EDITION







此內以供,而要元整PDF请访问: www.ertonghook.com

To my wife, and children, and especially to my grandchildren, David Michael,
Kimberly Ann, Carolyn Beth, Alexandra Rae, and Matthew Jost.

BERISH STRAUCH, MD

To my wife, Diane, my daughters, Cristina, Nessa and Rachel, and to my grandchildren, Francesca and Elisa, for their continued support and joy they have given me throughout the years.

LUIS VASCONEZ, MD

To my mother, Betty Hall, who has been an inspiration to all her children; and to my own three children, Jamie, David and Elise, who have become very enjoyable young adults.

ELIZABETH J. HALL-FINDLAY, MD

To my wife, Britt, for her unwavering love, support, and sacrifice.

I am truly fortunate to be married to such an amazing woman.

To my sons, Brodie and Teddy, for the never-ending joy they bring.

Finally, to my parents, who share a contagious thirst for knowledge.

BERNARD T. LEE, MD

### CONTRIBUTING AUTHORS

#### D. L. Abramson, MD

42A East 74th Street, New York, New York 10021

#### W. P. Adams, Jr., MD

Children's Medical Center Parkland Memorial Hospital Veteran's Administration Medical Center Zale Lipshy University Hospital Baylor Medical Center 5323 Harry Hines Boulevard Dallas, Texas 75235-9132

#### J. E. Adamson, MD, FACS (Retired)

P. O. Box 695 Linville, North Carolina 28646

#### J. Aftimos, MD

Centre Hospitalier D'Agen Rue des Héros de la Résistance F-47000 Agen, France

#### Galip Agaoglu, MD

Department of Plastic Surgery The Cleveland Clinic Foundation Cleveland, Ohio

# F. C. Akpuaka, MBBS (Ibadan), FRCS (Ed), FRCS (Glasgow), FWACS, FICS

Professor of Plastic Surgery, College of Medicine, Abia State University, Uturu, Nigeria Director of Plastic Surgery Plastic Surgery Unit St. Francis Hospital 2 Richard Street Asata-Enugu, Nigeria

#### R. S. Ali, MD

Department of Plastic and Reconstructive Surgery Castle Hill Hospital Castle Road Cottingham, United Kingdom

#### R. J. Allen, MD

Division of Plastic Surgery Medical University of South Carolina Charleston, South Carolina

#### E. C. Almaguer, MD

Chief of Plastic Surgery, Santa Rosa Medical Center, San Antonio Baptist Hospital System 343 West Houston, #211 San Antonio, Texas 78205

#### C. Angrigiani

Posadas 1528 PB Buenos Aires Argentina

#### P. Andrades, MD

Assistant Professor Division of Plastic Surgery and Division of Maxillofacial Surgery University of Chile Clinical Hospital Hospital del Trabajador Santiago, Chile

#### N. H. Antia, FRCSEng, FACSHon (Deceased)

#### S. Arena, MD (Retired)

125 Greenwood Road Fox Chapel Pittsburgh, Pennsylvania 15238

#### R. V. Argamaso, MD, FACS (Deceased)

#### L. C. Argenta, MD

North Carolina Baptist Hospital Bowman-Gray Plastic Surgery Medical Center Boulevard Winston-Salem, North Carolina 27157

#### S. Ariyan, FACS

Yale-New Haven Hospital Connecticut Center for Plastic Surgery 60 Temple Street, Suite 7C New Haven, Connecticut 06510

#### D. P. Armstrong, MD, FACS

Community Memorial Hospital of San Buenaventura Clinical Faculty, UCLA, Division of Plastic Surgery 168 North Brent Street, Suite 403 Ventura, California 93003

#### C. Arrunátegui, MD

Department of Plastic Surgery Hospital da Santa Casa de Misericordia Belo Horizonte, Brazil

#### H. Asato, MD

Assistant Professor Department of Plastic and Reconstructive Surgery University of Tokyo Hospital 7–3-1 Hongo Bunkyo-ku Tokyo 113, Japan

#### E. Atasov, MD

University of Louisville Christine M. Kleinert Institute for Hand and Microsurgery 225 Abraham Flexner Way, Suite 700 Louisville, Kentucky 40202–1817

#### C. Augustin, MD

Centre Hospitalier D'Agen 29, Bd. de la République F-47000 Agen, France

#### J. M. Avelar, MD

Albert Einstein Hospital, São Paulo Al Gabriel Monteiro Da Silva 620 01442–000 São Paulo-SP, Brazil

#### K. Azari, MD

Assistant Professor Division of Plastic Surgery University of Pittsburgh Medical Center Pittsburgh, Pennsylvania

#### H. A. Badran, MB, BCh, FRCS, FRCSEd

Head, Department of Plastic Surgery Ain Shams University 98 Mohamed Farid Street Cairo 11111, Egypt

#### G. J. Baibak, FACS

3634 West Bancroft Street Toledo, Ohio 43606

#### B. N. Bailey, MD, FRCS

Oxford Regional Health Authority Stoke Mandeville Hospital Mandeville Road Aylesbury, Buckinghamshire, HP21 8AL United Kingdom

#### V. Y. Bakamjian, MD (Retired)

Roswell Park Cancer Institute Department of Head and Neck Surgery Elm and Carlton Streets Buffalo, New York 14263

#### C. R. Balch, MD

Naples Community Hospital 201 Eight Street, South, Suite 102 Naples, Florida 34102

#### T. Barfred, MD, PhD

Assistant Professor of Surgery, Odense University
Head of Hand Surgery, Department of Orthopaedic Surgery,
Odense University Hospital, Odense, Sweden
Head of Hand Surgery
Section of Orthopaedic Surgery
Odense University Hospital
500 Odense, Denmark

#### Marguerite P. Barnett, FACS

530 South Nokomis Avenue, Suite 6 Venice, Florida 34285

#### R. L. Baroudi, MD

Rua Bahia 969 São Paulo, SP 01244–001 Brazil

#### J. N. Barron, MS, FRCSEd, FRCSEng (Deceased)

#### F. E. Barton, Jr., MD

Baylor University Medical Center Parkland Hospital Presbyterian Hospital Mary Shiels Hospital 411 North Washington Avenue, #6000 LB 13 Dallas, Texas 75246–1774

#### R. M. Barton, FACS

Vanderbilt University Hospital Nashville Virginia Hospital Baptist Hospital Vanderbilt University Hospital Medical Center South, Room 230 Nashville, Tennessee 37232

#### J. Baudet, MD

Professor of Plastic and Reconstructive Surgery University of Bordeaux Chief of Department of Plastic and Reconstructive Surgery C.H.U.-Hôpital du Tondu Groupe Pellegrin-Tondu Place Amélie Raba-Léon F-33076 Bordeaux, France

#### C. Beard, MD (Retired)

University of California, San Francisco 400 Parnassus Avenue, Suite 750-A San Francisco, California 94143

#### R. W. Beasly, MD

Professor at NYU Medical Center Director of Hand Surgery at Bellevue Hospital Center Hand Surgery Associates 310 East 30th Street New York, New York 10016–8303

#### Col. D. W. Becker, Jr., MD

Wilford Hall USAF Medical Center, San Antonio, Texas 2200 Bergquist Drive, Suite 1 Lackland AFB, Texas 78236–5300

#### H. Becker, MD, FACS

Boca Raton Community Hospital 5458 Town Center Road Boca Raton, Florida 33486–1009

#### Professeur T. Bégué, MD

Chirurgie Orthopédique-Traumatologique et Réparatrice de l'Appareil Locomoteur Hôpital Avicenne 125, route de Stalingrad F-93009 Bobigny Cedex, France

#### F. C. Behan, FRACS, FRCS

91 Royal Parade Parkville 3052 Melbourne, Victoria Australia

#### M. S. G. Bell, MD

Suite 306 340 McLeod Street, South Ottawa, Ontario, Canada, K2P 1A4

#### T. Benacquista, MD

Einstein Weiler Hospital Department of Plastic and Reconstructive Surgery Albert Einstein College of Medicine and Montefiore Medical Center 3331 Bainbridge Avenue Bronx, New York 10467

#### M. Ben-Bassat, MD

Deputy-Chief Department of Plastic Surgery Beilinson Hospital Tel Aviv, Israel

#### S. P. Bhagia, MD

Baugh Farzana Plastic Surgery Centre, Agra, India 4/14 Baugh Farzana Agra 282 002, India

#### S. K. Bhatnagar, MD

Professor in Plastic Surgery Department of Plastic Surgery King George's Medical College Lucknow 226 003, India

#### S. Bhattacharya, MS, MCh, FICS

Awadh Hospital, Lucknow Neera Hospital, Lucknow Star Hospital, Gorahpur Consultant Plastic Surgeon and Oncologist C-907 Mahanagar Lucknow 226 006, India

#### S. L. Biddulph, MD

Chief Hand Surgeon, Johannesburg Hospital Houghton 2050, South Africa

#### E. Biemer, MD

Department of Plastic Surgery Technical University of München Ismaningerstrasse 22 D-81675 München, Germany

#### J. H. Binns, MD

Wayne State University 540 East Canfield Detroit, Michigan 48201

#### R. J. Bloch, MD

R. Sampaio Viana 628 Paraiso-São Paulo 04004–002 Brazil

#### J. G. Boorman, MD

Queen Victoria Hospital East Grinstead West Sussex, RH19 3DZ United Kingdom

#### L.J. Borud, MD

Instructor in Surgery
Department of Surgery
Harvard Medical School
110 Francis Street, Suite 5A
Boston, Massachusetts 02215

#### J.-L. Bovet, MD

Unité de Chirurgie de la Main Clinique Jean-Villar F-33520 Burges, France

#### J. B. Boyd, MD, FRCS, FRCS(C), FACS

Cleveland Clinic Hospital, Ft. Lauderdale Broward General Hospital, Ft. Lauderdale Holy Cross Hospital, Ft. Lauderdale Imperial Point Hospital, Ft. Lauderdale North Ridge Hospital, Ft. Lauderdale Department of Plastic and Reconstructive Surgery Cleveland Clinic Florida 3000 West Cypress Creek Road Ft. Lauderdale, Florida 33309

#### R. J. Brauer, MD

Greenwich Hospital, Connecticut 49 Lake Avenue Greenwich, Connecticut 06830–4519

#### N. K. Breach, MB, FRCS, FDSRCS

Department of Surgery Royal Marsden Hospital Downs Road Sutton SM2 5PT, United Kingdom

#### T. D. R. Briant, MD, FRCS(C), FACS

Honorary Consultant, St. Michael's Hospital 32 Dale Avenue Toronto, Ontario, Canada, M4W 1K5

#### T. R. Broadbent, MD (Retired)

2635 St. Mary's Way Salt Lake City, Utah 84108

#### M. Brones, MD, FACS

Grossman Burn Center at Sherman Oaks Hospital, California Suite 102 4849 Van Nuys Boulevard Sherman Oaks, California 91403

#### M. D. Brough, MD

University College London Hospitals Royal Free Hospital The Consulting Suite 82 Portland Place London W1N 3DH, United Kingdom

#### E. Z. Browne, Jr., MD, FACS

Cleveland Clinic Department of Plastic and Reconstructive Surgery Cleveland Clinic Foundation 9500 Euclid Avenue Cleveland, Ohio 44195

#### C. D. Bucko, MD, FACS

Scripps Memorial Hospital, La Jolla, California Panerodo Hospital University of San Diego Medical Center Sheerp Memorial Hospital Mission Bay, Columbia Suite B 9900 Genesee Avenue La Jolla, California 92037

#### J. Bunkis, MD, FACS

4165 Blackhawk Plaza Circle, Suite 150 Danville, California 94506–4691

#### G. C. Burget, MD, FACS

Clinical Assistant Professor, Section of Plastic Surgery, The University of Chicago Hospitals 2913 North Commonwealth Avenue, Suite 400 Chicago, Illinois 60657

#### J. A. Butler, MD, FACS

Wausau Hospital Saint Michael's Hospital, Stevens Point, WI North Central Wisconsin Plastic Surgery, SC 425 Pine Ridge Boulevard, Suite 202 Wausau, Wisconsin 54401

#### H. S. Byrd, MD, FACS

Baylor University Medical Center Children's Medical Center Zale Lipshy University Medical Center Suite 6000 LB 13 411 North Washington Avenue Dallas, Texas 75246

#### D. Calderón, MD

Hospital del Trabajador Ramon Carnicer, 185-5 Piso Providencia Santiago, Chile

#### W. Calderón, MD

Professor of Surgery University of Chile Chief of Plastic Surgery Service Hospital del Trabajador Santiago, Chile

#### M. A. Callahan, MD, FACS

Eye Foundation Hospital St. Vincent's Hospital Medical Center East Outpatient Surgery 700 South 18th Street, Suite 511 Birmingham, Alabama 35233

#### R. R. Cameron, MD (Retired)

38330 Sweetwater Drive Palm Desert, California 92211–7048

#### G. W. Carlson, MD

Wadley R. Glenn Professor of Surgery Department of Surgery Associate Program Director Division of Plastic Surgery Emory University School of Medicine Atlanta, Georgia

#### C. E. Carriquiry, MD

Associate Professor, Plastic Surgery, School of Medicine, Universidad de la República Montevideo-Uruguay 21 de Setiembre 2353 Ap. 201 Montevideo 11200, Uruguay

#### N. Carver, MS, FRCS, FRCS(Plast)

Department of Plastic and Reconstructive Surgery Royal London Hospital St. Bartholomew's Hospital London, E1 1BB United Kingdom

#### V. M. Casoli, MD

Department of Plastic and Reconstructive Surgery C.H.U.-Hôpital Du Tondu Groupe Pellegrin-Tondu Place Amélie Raba-Léon F-33076 Bordeaux, France

#### P. C. Cavadas, MD, PhD

Head of the Reconstructive Surgery and Microsurgery Unit Hospital Vírgen del Consuelo Hand Transplant Surgery Unit "La Fe" University Hospital Valencia, Spain

#### A. Cerejo, MD

Consultant Neurosurgeon Hospital S. Joao Medical School Oporto, Portugal Avenida Vasco Da Gama Ed. Silva porto, BL.C, 9B 4490 Povoa de Varzim, Portugal

#### L. A. Chait, MD

Johannesburg Group of Teaching Hospitals 211 Parkland Clinic Junction Avenue Park Johannesburg, South Africa

#### R. Chandra, MS, MCh

Professor, Plastic Surgery King George's Medical College Lucknow 226 003, India

#### R. A. Chase, MD

Professor, Stanford University School of Medicine Department of Surgery Stanford, CA 94305

#### P. Chhajlani, MD

"Ganga Jamuna Apartments" South Tukoganj, Near Nath Mandir Indore 452 001, India

#### D. R. H. Christie, MBChB, FRACR

John Flynn Hopital, Tugun, Australia Eastcoast Cancer Centre Inland Drive Tugun, QLD 4224, Australia

#### Y. K. Chung, MD

Yonsei University Wonju College of Medicine Wonju Christian Hospital Ilsandong Wonju, Korea

#### M. E. Ciaravino, MD

Attending Plastic Surgeon St. Joseph's Hospital Houston, Texas 3805 West Alabama, #3105 Houston, Texas 77027

#### B. E. Cohen, MD, FACS

Academic Chief and Director, Plastic Surgery Residency Program, Cohen and Cronin Clinic Director, Microsurgical Research and Training Laboratory, St. Joseph Hospital, Houston Plastic and Reconstructive Surgery Cohen and Cronin Clinic 1315 Calhoun, Suite 920 Houston, Texas 77002

#### C. C. Coleman, Jr., MD, FACS (Retired)

Consultant Plastic Surgeon, Clinical Professor of Surgery, University of Virginia, Charlottesville, Virginia Visiting Professor, University of Virginia P. O. Box 558 Irvington, Virginia 22480–0558

#### J. J. Coleman III, MD, FACS

University Hospital
Riley Hospital
Wishad Hospital
VA Medical Center
Professor of Surgery
Director, Division of Plastic Surgery
Indiana University
Emerson Hall 235, 545 Barnhill Drive
Indianapolis, Indiana 46202

#### P. Colson, MD

Head Surgeon Burn Unit Saint Luke's Hospital 34, Place Bellecour F-69002 Lyons, France

#### M. B. Constantian, MD, FACS

Adjunct Assistant Professor of Surgery, Dartmouth Medical School Active Staff, Department of Surgery (Plastic Surgery), St. Joseph Hospital and Southern New Hampshire Regional Medical Center Nashua, New Hampshire 19 Tyler Street, Suite 302 Nashua, New Hampshire 03060

#### L. M. Cordero, MD (Deceased)

#### R. J. Corlett, MD

Royal Melbourne Hospital Preston and North Gate Community Hospital 766 Elizabeth Street Melbourne 3000, Australia

#### H. Monteiro Da Costa, MD

Professor and Consultant Plastic Surgeon,
Plastic and Reconstructive Unit, S. Joao Hospital,
Medical School, Oporto
Consultant Plastic Surgeon, Matosinhos and Vila Nova Eaia
Hospitals, Oporto
Professor in Plastic Surgery
Rua do Corvo, 323
Pr. da Granja
4405 Arcozelo VNG, Portugal

#### E. D. Cronin, MD, FACS

Chief of Plastic Surgery Section, St. Joseph Hospital Plastic and Reconstructive Surgery Cohen and Cronin Clinic 1315 Calhoun, Suite 920 Houston, Texas 77002

#### T. D. Cronin, MD (Deceased)

#### J. W. Curtin, MD

Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois 1180 Hill Road Winnetka, Illinois 60093

#### R. K. Daniel, MD, FACS

Hoag Memorial Hospital/Presbyterian Hospital, California 1441 Avocado Avenue, Suite 308 Newport Beach, California 92660–7704

#### S. K. Das, MD, FACS, FRCS

St. Dominic's Hospital River Oaks Hospital River Oaks East Hospital University of Mississippi Medical Center Mississippi Methodist Medical Center Parkview Hospital, Vicksburg Division of Plastic Surgery University of Mississippi Medical Center 2500 North State Street Jackson, Mississippi 39211

#### J. E. Davis, MD

Matricula No. 7101 Vincente Lopez 2653, Argentina

#### R. De la Plaza, MD

Director, Plastic Surgery Department, La Luz Clinic, Madrid Clínica de Cirugía Plástica y Estética Salou, 28 E-28034 Madrid, Spain

#### A. L. Dellon, MD, FACS

Professor, Plastic and Neurosurgery, The Johns Hopkins University School of Medicine 2328 West Joppa Road, Suite 325 Lutherville, Maryland 21093

#### G. H. Derman, MD

Attending Staff, Rush-Presbyterian-St. Luke's Medical Center Attending Staff, Evanston Hospital Assistant Professor, Rush Medical College, Chicago, Illinois 4709 Golf Road, Suite 806 Skokie, Illinois 60076–1258

#### B. Devauchelle, MD, PhD

Department of Maxillofacial Surgery Centre Hospitalier Universitaire Amiens, France

#### C. J. Devine, Jr., MD

400 West Brambleton Avenue, Suite 100 Norfolk, Virginia 23510–1115

#### I. K. Dhawan, MD

Department of Surgery Al Mafraq Hospital Abu Dhabi, India

#### Dr. A. D. Dias, MS

Professor Emeritus, L.T.M.G. Hospital, Sion, Mumbai St. Thereza Hospital, Agashi, Virar "Shanti Sadan" 157-B Perry Road Bandra, Mumbai 400 050, India

#### R. O. Dingman, MD (Deceased)

#### T. A. Dinh, MD

Division of Plastic Surgery Baylor College of Medicine 6560 Fannin, Suite 1034 Houston, Texas 77030

#### M. I. Dinner, MD, FACS

Meridia Hillcrest Hospital Assistant Clinical Professor Case Western Reserve Medical School 3755 Orange Plaza Cleveland, Ohio 44122–4455

#### B. H. Dolich, MD

Albert Einstein College Hospital and Montefiore Medical Center New York Eye & Ear Hospital 1578 Williamsbridge Road Bronx, New York 10461

#### R. V. Dowden, MD, FACS

Meridia Hillcrest, Mt. Sinai, University Hospital 6770 Mayfield Road, Suite 410 Mayfield Heights, Ohio 44124

#### G. A. Drabyn, MD, FACS

Riverside Methodist Hospital 3545 Olentangy River Road, Suite 130 Columbus, Ohio 43214

#### J. M. Drever, MD, FRCS

Etobicoke General Hospital Cosmetic Surgery Hospital 135 Queens Plate Drive, Fifth Floor Toronto, Ontario, Canada, M9W 6V1

#### J.-L. Ducours, MD

Centre Hospitalier D'Agen Service de Chirurgie Maxillo-faciale Centre Hospitalier 86 boulevard Sylvain Dumon F-47000 Agen, France

#### G. M. Duncan, MChB, FRACS

Plastic Surgical Unit Hutt Hospital Private Bag Lower Hutt, New Zealand

#### E. C. Duus, MD

Comanche County Memorial Hospital Southwest Medical Center 5604 Southwest Lee Boulevard, Suite 310 Lawton, Oklahoma 73505–9663

#### W. Dzwierzynski, MD

Professor of Plastic Surgery Medical College of Wisconsin Milwaukee, Wisconsin

#### A. S. Earle, MD, FACS

Professor (Emeritus) of Plastic Surgery Case Western University School of Medicine 1656 Emerald Green Court Deltona, Florida 32725

#### D. S. Eastwood, MD (Retired)

St. Kames's University Hospital, Leeds, United Kingdom Leeds University Hospital 11, North Park Road Roundhay Leeds LS8 1JD, United Kingdom

#### B. W. Edgerton, MD

Kaiser Permanente, West Los Angeles Plastic Surgery Department 6041 Cadillac Avenue Los Angeles, California 90034

#### M. T. Edgerton, MD

University of Virginia Health Sciences Center Department of Plastic Surgery Charlottesville, Virginia 22908

#### P. Egyedi, MD, DMD, PhD

Department of Oral and Maxillofacial Surgery Utrecht University Hospital P.O. Box 85500 NL-3508 GA Utrecht, The Netherlands

#### L. Eisenbaum, MD, PC

Colorado Medical Center of Aurora Longmont United Hospital Plastic and Reconstructive Surgery Esthetic and Hand Surgery Presbyterian Aurora Medical Center 750 Potomac Street, Suite 201 Aurora, Colorado 80011

#### M. M. El-Saadi, MD

Assistant Professor of Plastic Surgery Zagazig University Hospital Zagazig, Egypt

#### D. Elliot, MA

Woodlands Woodham Walter Essex United Kingdom

#### R. A. Elliott, Jr., MD, FACS

P.O. Box 39 Slingerlands, New York 12159

#### L. F. Elliott, MD

Northside Hospital St. Joseph's Hospital Piedmont Hospital Scottish-Rite Children's Hospital 975 Jonson Ferry, Suite 500 Atlanta, Georgia 30342

#### N. I. Elsahy, MD, PC, FRCS(C), FACS, FICS

Southern Regional Medical Center, Riverdale, Georgia 6524 Professional Place, Suite A P.O. Box 1318 Riverdale, Georgia 30274

#### A. J. J. Emmett, MB, BS, FRCS, FRACS

Honorary Consultant, Princess Alexandra Hospital, Brisbane, Australia Woodgreen 128 Osborne Road Bowral NSW 2576, Australia

#### D. N. F. Fairbanks, MD

Clinical Professor of Otolaryngology, George Washington University School of Medicine, Washington, DC Sibley Memorial Hospital, Washington, DC 3 Washington Circle, Northwest, Suite 305 Washington, DC 20037–2356

#### G. R. Fairbanks, MD

St. Mark's Hospital Cottonwood Hospital, Primary Children's Medical Center Bonneville Surgical Center 1151 East 3900 South, B110 Salt Lake City, Utah 84124

R. S. Feingold, MD

Assistant Clinical Professor in Plastic and Reconstructive Surgery, Albert Einstein College of Medicine Long Island Jewish Medical Center Montefiore Medical Center New York Hospital Medical Center of Queens North Shore University Hospital Winthrop-University Hospital 900 Northern Boulevard Great Neck, New York 11021

#### M. Feldman, MD, FACS

Shore Memorial, Somers Point, New Jersey Feldman Plastic Surgery, P. A. 222 New Road, Suite 6 Linwood, New Jersey 08221

#### A.-M. Feller, Prof. Dr. med.

Chairman, Department of Plastic Surgery Behandlungszentrum Vogtareuth Krankenhausstrasse 20 D-83569 Vogtareuth, Germany

#### R. J. Fix, MD, FACS

University of Alabama at Birmingham The Children's Hospital of Alabama Veterans Administration Medical Center University of Alabama, Plastic Surgery MEB 524 1813 Sixth Avenue, South Birmingham, Alabama 35294

#### A. E. Flatt, MD, FRCS

Baylor University Medical Center, Dallas, Texas Clinical Professor, SW Medical School, Dallas, Texas Consultant Emeritus in Hand Surgery, U.S. Air Force Director of Education George Truett James Orthopaedic Institute Baylor University Medical Center 3500 Gaston Avenue Dallas, Texas 75246-9990

#### L. Fonseca Dos Santos, MD

Service d'Orthopedie Hôpital Trousseau 26 Avenue de Dr. A Netter F-75012 Paris, France

#### G. Foucher, MD

Head of SOS Main, Strasbourg 4 Bd. du President F-67000 Strasbourg, France

#### M. Fox, MD, FACS

4001 Kresge Way, Suite 320 Louisville, Kentucky 40207–4640

#### J. D. Franklin, MD, FACS

Erlanger Health System, Memorial Hospital Hutcheson Medical Center Plaza Ambulatory Care Center 979 East Third Street, Suite 4002 Chattanooga, Tennessee 37403

#### A. Freiberg, MD, FRCS(C), FACS

Division of Plastic Surgery Toronto Western Hospital 399 Bathurst Street Edith Cavell Wing, 4-304 Toronto, Ontario MST 288, Canada

#### R. Fujimori, MD

Department of Plastic Surgery Kyoto University 465 Kajii-cho Kawar Kyoto 602, Japan

#### T. Fujino, MD, FACS, DrMedSci

Professor and Chairman Department of Plastic Surgery Keio University School of Medicine 35 Shinanomachi Shinjukuku Tokyo 160, Japan

#### L. T. Furlow, Jr., MD, FACS

Clinical Professor, University of Florida College of Medicine, Gainesville, Florida 3001 Northwest 28th Terrace Gainesville, Florida 32605

#### D. W. Furnas, MD, FACS

University of California, Irvine Medical Center St. Joseph Hospital, Orange Childrens Hospital of Orange County VA Hospital, Long Beach University of California Irvine Medical Center Division of Plastic Surgery 101 City Drive Orange, California 92868–2901

#### F. N. Gahhos, MD

Venice Hospital 135 San Marco Drive Venice, Florida 34285

#### A. Gardetto, MD

Professor of Plastic and Reconstructive Surgery General Hospital of Brixen Brixen, Italy

#### P. M. Gardner, MD

Assistant Professor, Department of Surgery, Division of Plastic Surgery University of Alabama at Birmingham 1600 7th Avenue South, ACC 322 Birmingham, Alabama 35233

#### N. W. Garrigues, MD

Scripps Memorial Hospital Assistant Professor, University of California, San Diego 3405 Kenyon Street, Ste. 401 San Diego, California 92110–5007

#### J. S. Gaul, MD (Retired)

Charlotte, North Carolina

#### K. E. Georgeson, MD

University of Alabama Hospitals The Children's Hospital of Alabama 1600 7th Avenue, South, ACC 300 Birmingham, Alabama 35233

#### G. S. Georgiade, MD

Duke University Medical Center—Surgery P.O. Box 3960 Durham, North Carolina 27710

#### R. Ger, MD, FRCS

Albert Einstein College of Medicine 1300 Morris Park Avenue Bronx, New York 10461

#### V. C. Giampapa, MD, FACS

89 Valley Road Montclair, New Jersey 07042–2212

#### A. Gilbert, MD

15 rue Franklin F-75016 Paris, France

#### D. A. Gilbert, MD, FRCS(C), FACS

Norfolk General Hospital Children's Hospital of the King's Daughters De Paul Hospital Maryview Hospital Plastic Surgery Associates, Inc. 400 West Brambleton Avenue, Suite 300 Norfolk, Virginia 23510

#### R. P. Gingrass, MD, SC

Elmbrook Hospital, Brokfield, Wisconsin St. Joseph's Hospital, Milwaukee, Wisconsin Plastic and Reconstructive Surgery 9800 West Bluemound Milwaukee, Wisconsin 53226

#### F. Giraldo, MD, PhD

Plastic and Reconstructive Unit, University of Málaga Regional Hospital "Harlos Haya," Málaga, Spain Plastic and Reconstructive Unit Regional Hospital "Carlos Haya" E-29010 Málaga, Spain

#### D. W. Glasson, MD, FRACS

Wellington Hospital, Wellington, NZ Hutt Hospital, Lower Hutt, NZ Bowen Hospital, Wellington, NZ Plastic Surgery Specialists 140 Ghuznee Street Wellington 1, New Zealand

#### A. M. Godfrey, MB, BCh

Consultant Plastic Surgeon Nuffield Acland Hospital and Nuffield Orthopaedic Centre, Oxford The Paddocks Hospital, Bucks, and The Ridgeway Hospital, Wilts Felstead House 23 Banbury Road Oxford OX2 6NX, United Kingdom

#### R. D. Goldstein, MD, FACS

Assistant Clinical Professor Albert Einstein College of Medicine Montefiore Medical Center Bronx, New York 10461

#### R. M. Goldwyn, MD, FACS

Clinical Professor of Surgery, Harvard Medical School Division of Plastic Surgery, Beth Israel Deaconess Medical Center, Boston, MA 1101 Beacon Street Brookline, Massachusetts 02146

#### D. J. Goodkind, MD

Yale-New Haven Hospital Clinical Instructor of Surgery, Yale University 136 Sherman Avenue, South, Suite 205 New Haven, Connecticut 06511–5236

#### B. Gorowitz, MD

Department of Plastic and Reconstructive Surgery C.H.U.-Hôpital Du Tondu Groupe Pellegrin-Tondu Place Amélie Raba-Léon F-33076 Bordeaux, France

#### L. J. Gottlieb, MD, FACS

Professor of Clinical Surgery, Plastic and Reconstructive Surgery Department of Surgery University of Chicago, Illinois 5841 South Maryland Avenue, MC 6035 Chicago, Illinois 60637

#### D. P. Green, MD

9150 Huebner Road, Suite 290 San Antonio, Texas 78229

#### B. M. Greenberg, MD, FACS

833 Northern Boulevard, Suite 115 Great Neck, New York 11021

#### J. M. Griffin, MD, FACS

Piedmont Hospital Associate Clinical Professor, Department of Surgery Emory University School of Medicine Northside Hospital Scottish Rite Children's Medical Center Center for Plastic Surgery 365 East Paces Ferry Road Atlanta, Georgia 30305–2351

#### B. H. Griffith, MD, FACS

Northwestern Memorial Hospital Children's Memorial Hospital Rehabilitation Institute of Chicago Chief of Plastic Surgery, Shriners Hospital for Crippled Children Northwestern University Medical Center 251 East Chicago Avenue, Suite 1026 Chicago, Illinois 6061–2641

#### A. R. Grossman, MD, FACS

The Grossman Burn Center Sherman Oaks Hospital, California 4910 Van Nuys Boulevard, Suite 306 Sherman Oaks, California 91403–1728

#### P. H. Grossman, MD

Grossman Burn Center Sherman Oaks Hospital, California 4910 Van Nuys Boulevard, Suite 306 Sherman Oaks, California 91403

#### J. C. Grotting, MD, FACS

Children's Hospital of Alabama
Baptist Medical Center-Montclair
The Eye Foundation
Baptist Medical Center-Princeton
Health South Medical Center
Brookwood Medical Center
Outpatient CareCenter
McCollough, Grotting & Associates Plastic Surgery
Clinic P. C.
1600 20th Street, South
Birmingham, Alabama 35205

#### B. K. Grunert, PhD

Medical College of Wisconsin Froedtert Memorial Lutheran Hospital Children's Hospital of Wisconsin 9200 W. Wisconsin Avenue Milwaukee, Wisconsin 53226

#### C. R. Gschwind, MD

The Centre for Bone and Joint Diseases Royal North Shore Hospital, St. Leonards Department of Hand Surgery Hand and Microsurgery Unit Royal North Shore Hospital St. Leonards, NSW 2065, Australia

#### J. Guerrerosantos, MD

Chairman and Plastic Surgeon-In-Charge Jalisco Institute for Reconstructive Surgery Chairman and Professor, Division of Plastic and Reconstructive Surgery, University of Guadalajara, Mexico Garibaldi 1793 Col. L de Guevara Guadalajara, Jalisco, 44680, Mexico

#### P. J. Gullane, MD

Otolaryngologist-in-Chief, Toronto Hospital, Toronto Site Leader, Head and Neck Surgery, Princess Margaret Hospital and Toronto Hospital Staff Otolaryngologist, Mount Sinai Hospital, Toronto Consultant Otolaryngologist North York General Hospital, Toronto 200 Elizabeth Street, East Toronto, Ontario, Canada, M5G 2C4

#### J. P. Gunter, MD, FACS

Presbyterian Hospital of Dallas Parkland Memorial Hospital Baylor University Medical Center 8315 Walnut Hill Lane, Suite 125 Dallas, Texas 75231–4211

#### B. Guyuron, MD, FACS

Medical Director of Zeeba Clinic Clinical Professor of Plastic Surgery Case Western Reserve University 29017 Cedar Road Lyndhurst, Ohio 44124

#### K. F. Hagan, MD, FACS

Vanderbilt University Hospital, Baptist Hospital, Columbia Centennial, The Atrium Nashville Surgery Center Vanderbilt University Medical Center 2100 Pierce Avenue 230, MCS Nashville, Tennessee 37232–3631

#### E. J. Hall-Findlay, MD, FRCS

Plastic Surgeon Banff Mineral Springs Hospital Suite 340, Cascade Plaza 317 Banff Avenue Banff, AT TOL 0C0, Canada

#### G. G. Hallock, MD, FACS

Consultant in Plastic Surgery, The Lehigh Valley and Sacred Heart Hospitals, Allentown, Pennsylvania St. Luke's Hospital, Bethlehem, Pennsylvania 1230 South Cedar Crest Boulevard, Suite 306 Allentown, Pennsylvania 18103

#### S. K. Han, MD, PhD

Professor of Plastic Surgery Korea University College of Medicine Seoul, Korea

#### R. Happle, MD

Department of Dermatology University of Münster Schlossplatz 2 D-4400 Münster, Germany

#### K. Harii, MD

Graduate School of Medicine, The University of Tokyo Department of Plastic and Reconstructive Surgery University of Tokyo Hospital 7–3-1 Hongo Bunkyo-ku Tokyo 113, Japan

#### D. H. Harrison, MD

Regional Plastic Surgery Centre, Mount Vernon, Northwood, UK Flat 33, Harmont House 20 Harley Street London WIN 1AA, United Kingdom

#### S. H. Harrison, MD, FCRS (Retired)

The Plastic Surgery Mount Vernon Hospital Rickmansworth Road Northwood HA6 2RN, United Kingdom

#### C. R. Hartrampf, Jr., MD, FACS

St. Joseph's Hospital Atlanta Plastic Surgery Suite 500, 975 Johnson Ferry Atlanta, Georgia 30342–1619

#### S. W. Hartwell, Jr., MD

Emeritus Staff, The Cleveland Clinic Foundation 9500 Euclid Avenue, E48 Cleveland, Ohio 44195–5257

#### A. Hayashi, MD

Assistant Professor, Department of Plastic and Reconstructive Surgery, Toho University Hospital Department of Plastic and Reconstructive Surgery Toho University School of Medicine 6–11–1 Ohmorinishi, Ohta-ku Tokyo 143, Japan

#### F. R. Heckler, MD, FACS

Director, Division of Plastic Surgery Allegheny General Hospital, Pittsburgh, Pennsylvania Clinical Associate Professor of Plastic Surgery, University of Pittsburgh, School of Medicine, Allegheny General Hospital 320 East North Avenue Pittsburgh, Pennsylvania 15212

#### T. R. Heinz, MD

University of Alabama Hospitals The Children's Hospital of Alabama Veteran's Administration Medical Center University of Alabama at Birmingham Plastic Surgery 1813 6th Avenue, South (MEB-524) Birmingham, Alabama 35294–3295

#### C. Heitmann, MD, PhD

Department of Plastic, Reconstructive and Hand Surgery Markuskrankenhaus Frankfurt am Main Germany

#### V. R. Hentz, MD

Stanford University Hospital 900 Welch Road, Suite 15 Palo Alto, California 94304

#### C. K. Herman, MD

Medical Director of Plastic Surgery
Pocono Health Systems
100 Plaza Court, Suite C
East Stroudsburg, PA 18301
Assistant Clinical Professor of Surgery (Plastic Surgery)
Albert Einstein College of Medicine, New York, NY 10467
Private practice, 988 Fifth Avenue, New York, NY 10021

#### H. L. Hill, Jr., MD

Tallahassee Memorial Medical Center, Florida Tallahassee Single Day Surgical Hospital Tallahassee Plastic Surgery 1704 Riggins Road Tallahassee, Florida 32308

#### B. Hirshowitz, FRCS

Emeritus Professor of Plastic and Reconstructive Surgery Faculty of Medicine Technion-Israel Institute of Technology, Haifa 55 Margalit Street Mount Carmel Haifa 34464, Israel

#### J. G. Hoehn, MD, FACS

St. Peter's Hospital
Samuel Straton Veterans Administration
Albany Medical Center
The Child's Hospital
Albany Memorial Hospital
Albany Plastic and Reconstructive Surgery Center
Four Executive Park Drive
Albany, New York 12203

#### W. Y. Hoffman, MD, FACS

University of California, San Francisco Medical Center Associate Professor of Plastic Surgery University of California, San Francisco 350 Parnassus, Suite 509 San Francisco, California 94117–3608

#### J. Holle, MD

Institute of Anatomy
Medical University of Vienna
Department of Plastic and Reconstructive Surgery
Wilhelminen Hospital
Vienna, Austria
Krapfenwald G 9
Vienna, A1190, Austria

#### T. Honda, MD

Department of Plastic and Reconstructive Surgery Tokyo Women's Medical University 8-1 Kawada-cho, Shinjuku-ku, 162-0054 Tokyo, Japan

#### C. E. Horton, MD

Sentara Norfolk General Hospital Bon Secours DePaul Hospital Children's Hospital of The King's Daughters 229 West Bute Street, Suite 900 Norfolk, Virginia 23510

#### A. S. Hoschander, MD

Resident
Department of Surgery
Long Island Jewish Medical Center/North Shore University
Hospital
Manhasset, New York

#### W. Hu, MD

Centre Hopitalier Universitaire de Brest Hôpital de la Cavale Blanche F-29200 Brest, France

#### T. Huang, MD

Clinical Professor of Surgery University of Texas Medical Branch 326 Market Street Galveston, Texas 77550-5664

#### D. J. Hurwitz, MD

University of Pittsburgh Medical Center Children's Hospital of Pittsburgh Plastic and Reconstructive Surgery Aesthetic and Craniofacial Surgery University of Pittsburgh Medical Center 3471 Fifth Avenue Pittsburgh, Pennsylvania 15213

#### J. J. Hurwitz, MD, FRCS(C)

Ophthalmological Executive Committee, University of Toronto Opthalmologist-in-Chief, Mount Sinai Hospital Professor of Ophthalmology, University of Toronto Director of Oculoplastics Programme University of Toronto 600 University Avenue, Suite 408 Toronto, Ontario, Canada, M5G 1X5

#### Y. Ikuta, MD

Department of Orthopedic Surgery Hiroshima School of Medicine Kasumi 1–2-3 Hiroshima 734, Japan

#### O. Iribarren, MD

Department of Surgery
Surgery Service and Office of Nosocomial Infections Control
Saint Paul Hospital, School of Medicine
Universidad Catolica del Norte
Larrondo 1080
Videla s/n
Coquimbo. IV Region, Chile

#### F. Iselin, MD

Director of Hand Service Department of Surgery, Centre de Chirugie de la Main-Urgences Mains Hôpital Nanterre Paris, France

#### T. I. A. Ismail, MD

29 Nawal Street Aguiza-Giza Cairo, Egypt

#### Y. Itoh, MD, PhD

National Defense Medical College Division of Plastic and Reconstructive Surgery Department of Dermatology 3–2 Namiki Tokorozawa, Saitama 359, Japan

#### Y. Iwahira, MD

Department of Plastic Surgery Toho University Hospital 6–11–1 Ohmorinishi, Ohta-ku Tokyo 143, Japan

#### H. Izawa, MD

Associate Professor Department of Plastic and Reconstructive Surgery St. Marianna University School of Medicine 2–16–1 Sugao Myamae-ku, Kawasaki 216, Japan

#### Z. H. Jabourian, MD

Clinch Valley Medical Center, #2300 Richlands, Virginia 24641

# I. T. Jackson, MD, DSc(Hon), FACS, FRCS, FRACS(Hon)

Institute for Craniofacial and Reconstructive Surgery
Diplomate of the American Board of Plastic Surgery
Institute for Craniofacial and Reconstructive Surgery
3rd Floor, Fisher Center
16001 West 9 Mile Road
Southfield, Michigan 48075

#### R. V. Janevicius, MD, PC

Elmhurst Memorial Hospital, Elmhurst, Illinois Plastic and Reconstructive Surgery 360 West Butterfield Road, Suite 230 Elmhurst, Illinois 60126

#### H. Janvier, MD

St. Luke's Hospital 34, Place Bellecour 69002 Lyons, France

# V.T. Joseph, MBBS, FRCSEd, FRACS, MMED(Surgery), FAMS

Chairman, Division of Pediatric Surgery KK Woman's & Children's Hospital 100 Bukit Timah Road Singapore 229899

#### B. B. Joshi, MS

Mahatma Gandhi Hospital Parel Mumbai 400 012, India

#### J. Juri, MD

National University Calle Viamonte 430 Buenos Aires, Argentina 1053

#### M. J. Jurkiewicz, MD, FACS, FRCS

Emory Affiliated Hospitals 25 Prescott Street, Northeast Atlanta, Georgia 30308

#### J. B. Kahl, MD, FACS

Director of Plastic Surgery Residency & Department Head, Christ Hospital
Head of Department of Plastic Surgery, Mercy Hospital
Active Staff, Bethesda Hospitals
Children's Hospital of Cincinnati
Jewish Hospital and
Deaconess Hospital
President, Montgomery North Plastic Surgery Center
Staffs of Providence, St. Luke, Good Samaritan
Clinical Instructor, University of Cincinnati
10545 Montgomery Rd., #100
Cincinnati, Ohio 45242

#### W. J. Kane, MD

Mayo Clinic 905 14th Avenue, Southwest 200 1st Street, Southwest Rochester, Minnesota 55905

#### E. N. Kaplan, MD

1515 El Camino Real, Suite D Palo Alto, California 94306

#### I. Kaplan, MB, ChB

Professor of Surgery and Incumbent of Chilewich Chair of Plastic Surgery University of Tel Aviv Head, Department of Plastic Surgery Belinson Medical Center Petah-Tiqva 76 100, Israel

#### I. B. Kaplan, MD

Plastic Surgery Associates, Inc. 400 West Brambleton Avenue, Suite 300 Norfolk, Virginia 23510–1115

#### M. R. Karapandžić, MD

Belgrade University Studenski Trg 1 1101 Belgrade 6, Yugoslavia

#### A. Karev, MD

Head, Department of Hand Surgery, Kaplan Hospital Rehovot POBA 76100 Israel

#### R. B. Karp, MD

Courtesy Staff, Suburban Hospital, Bethesda, MD 11510 Old Georgetown Road Rockville, Maryland 20852

#### R. G. Katz, MD

3500 Fifth Avenue Pittsburgh, Pennsylvania 15213

#### J. C. Kelleher, MD, FACS

Microsurgery Fellow Division of Plastic Surgery Department of Surgery University of Mississippi Medical Center Jackson, Missouri

#### A. F. Kells, MD, PhD

Microsurgery Fellow Division of Plastic Surgery Department of Surgery University of Mississippi Medical Center Jackson, Mississippi