

OPERATIVE SURGERY

Fundamental International Techniques

Head and Neck
Part I

Edited by

J. S. P. Wilson

OPERATIVE SURGERY

Fundamental International Techniques

Head and Neck Part I

Edited by

J. S. P. Wilson

F.R.C.S.(Ed.), Hon.F.R.C.S.

Consultant Plastic Surgeon, St. George's Hospital,
Royal Marsden Hospital and Westminster Hospital, London
and Queen Mary's Hospital, Roehampton



BUTTERWORTHS

LONDON - BOSTON

Sydney - Wellington - Durban - Toronto

THE BUTTERWORTH GROUP

ENGLAND

Butterworth & Co (Publishers) Ltd
London: 88 Kingsway, WC2B 6AB

AUSTRALIA

Butterworths Pty Ltd
Sydney: 271-273 Lane Cove Road, North Ryde,
NSW 2113, PO Box 345
Also at Melbourne, Brisbane, Adelaide and Perth

SOUTH AFRICA

Butterworth & Co (South Africa) (Pty) Ltd
Durban: 152-154 Gale Street

NEW ZEALAND

Butterworths of New Zealand Ltd
Wellington: 33-35 Cumberland Place,
PO Box 472

CANADA

Butterworth & Co (Canada) Ltd
Toronto: 2265 Midland Avenue, Scarborough, Ontario M1P 4S1

USA

Butterworths (Publishers) Inc
Boston: 10 Tower Office Park, Woburn, Mass. 01801

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, without the written permission of the copyright holder, application for which should be addressed to the Publishers. Such written permission must also be obtained before any part of this publication is stored in a retrieval system of any nature.

This book is sold subject to the Standard Conditions of Sale of Net Books and may not be re-sold in the UK below the net price given by the Publishers in their current price list.

First Edition Published in Eight Volumes, 1956-1958
Second Edition Published in Fourteen Volumes, 1968-1971
Third Edition published in Nineteen Volumes, 1976-1981

©
Butterworth & Co (Publishers) Ltd
1981

Part I: ISEN 0 407 00622 2
Part II: ISBN 0 407 00623 0
Set: ISBN 0 407 00624 9

British Library Cataloguing in Publication Data

Operative surgery. - 3rd ed.

Head and neck

1. Surgery, Operative

I. Rob, Charles II. Smith, Rodney Smith,
Baron III. Dudley, Hugh IV. Wilson, J. S. P.
671'.91 RD32

ISBN 0-407-00624-9

ISBN 0-407-00622-2 (Vol. 1)

ISBN 0-407-00623-0 (Vol. 2)

Typeset by Butterworths Litho Preparation Department
Printed in England by The Whitefriars Press Ltd., London and Tonbridge
Bound by the Newdigate Press Ltd., Dorking, Surrey

OPERATIVE SURGERY

Volumes and Editors

ABDOMEN

Hugh Dudley, Ch.M., F.R.C.S., F.R.C.S.(Ed.), F.R.A.C.S.
Charles Rob, M.C., M.D., M.Chir., F.R.C.S.
Rodney Smith (Lord Smith of Marlow), K.B.E., M.S., F.R.C.S.

ACCIDENT SURGERY

P. S. London, M.B.E., F.R.C.S.

CARDIOTHORACIC SURGERY

John W. Jackson, M.Ch., F.R.C.S.

COLON, RECTUM AND ANUS

Ian P. Todd, M.S., M.D.(Tor.), F.R.C.S.

EAR

John Ballantyne, F.R.C.S., Hon.F.R.C.S.(I.)

EYES

Stephen J. H. Miller, M.D., F.R.C.S.

GENERAL PRINCIPLES, BREAST AND HERNIA

Hugh Dudley, Ch.M., F.R.C.S., F.R.C.S.(Ed.), F.R.A.C.S.
Charles Rob, M.C., M.D., M.Chir., F.R.C.S.
Rodney Smith (Lord Smith of Marlow), K.B.E., M.S., F.R.C.S.

GYNAECOLOGY AND OBSTETRICS

D. W. T. Roberts, M.Chir., F.R.C.S., F.R.C.O.G.

VOLUMES AND EDITORS

THE HAND

R. Guy Pulvertaft, C.B.E., Hon.M.D., M.Chir., F.R.C.S.

HEAD AND NECK

[in 2 volumes]

J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.

NEUROSURGERY

Lindsay Symon, T.D., F.R.C.S.

NOSE AND THROAT

John Ballantyne, F.R.C.S., Hon.F.R.C.S.(I.)

ORTHOPAEDICS

[in 2 volumes]

George Bentley, Ch.M., F.R.C.S.

PAEDIATRIC SURGERY

H. H. Nixon, F.R.C.S., Hon.F.A.A.P.

PLASTIC SURGERY

**Robert M. McCormack, M.D.
John Watson, F.R.C.S.**

UROLOGY

D. Innes Williams, M.D., M.Chir., F.R.C.S.

VASCULAR SURGERY

Charles Rob, M.C., M.D., M.Chir., F.R.C.S.

OPERATIVE SURGERY

Contributors to these Volumes

GLENN ALLISON
M.D.

*Assistant Clinical Professor of Surgery, University of California, Irvine;
Attending Surgeon, Orange County Regional Head and Neck Institute*

JAMES AMBROSE
M.B. Ch.B., F.R.C.P., F.F.R.,
D.M.R.D.

Consultant Radiologist, Atkinson Morley's Hospital, London

H. ANDERL

*Associate Professor, University Clinic for Plastic and Reconstructive Surgery,
Innsbruck*

VAHRAM Y. BAKAMJIAN
M.D.

Professor of Plastic Surgery, Roswell Park Memorial Institute, New York

JOHN BALLANTYNE
F.R.C.S., Hon.F.R.C.S.(I.)

*Consultant Ear, Nose and Throat Surgeon,
Royal Free Hospital and King Edward VII Hospital for Officers, London;
Honorary Civilian Consultant in Otolaryngology to the Army*

A. K. BASU
M.S., F.R.C.S., F.A.C.S.

*Director and Professor of Surgery,
Institute of Post Graduate Medical Education and Research, Calcutta*

R. L. B. BEARE
F.R.C.S.

*Honorary Plastic Surgeon, St. Mary's Hospital, London
and The Queen Victoria Hospital, East Grinstead*

E. P. BERWICK
F.F.A.R.C.S.

Consultant Anaesthetist, St. George's Hospital, London

E. BOCCA
M.D.

*Professor of Otolaryngology and Chief,
First Ear, Nose and Throat Clinic, University of Milan*

D. C. BODENHAM
F.R.C.S., F.R.C.S.(Ed.)

*Consultant Plastic Surgeon, Frenchay Hospital
and United Bristol Hospitals, Bristol*

JOHN BOWERMAN
M.B. Ch.B., B.D.S.,
F.D.S.R.C.S.

*Consultant Oral and Maxillofacial Surgeon,
Westminster Hospital, London, Queen Mary's Hospital, Roehampton
and The Royal Dental Hospital of London*

NICHOLAS M. BREACH
M.B.B.S., L.R.C.P., F.R.C.S.,
F.D.S.R.C.S.

*Consultant Plastic Surgeon, The Queen Victoria Hospital, East Grinstead
and Brighton District Hospitals*

M. D. BROUGH
M.A., M.B. B.Chir., F.R.C.S.

*Consultant Plastic Surgeon, North East Thames Regional Plastic
Surgery Centre, St. Andrew's Hospital, Billericay, Essex;
Queen Elizabeth Hospital for Children and Whipp's Cross Hospital, London*

GLENN R. CARWELL
M.D.

Instructor, Department of Plastic Surgery, Eastern Virginia Medical School

HYUN CHO
M.D.

*Assisting Attending Surgeon, Beth Israel Medical Center, New York;
Senior Instructor of Surgery, Mount Sinai School of Medicine,
City University of New York*

CONTRIBUTORS TO THESE VOLUMES

PETER CLIFFORD
M.D., M.Ch., F.R.C.S.,
D.L.O., M.D. (h.c. Karolinska
Institutet)

I. KELMAN COHEN
M.D., F.A.C.S.

BRIAN CONROY
M.B.E., F.I.M.F.T.

H. PETER COOK
M.B.B.S., M.D.S.,
F.D.S.R.C.S.

DAVID F. CORT
M.A., F.R.C.S.

J. C. M. CURRIE
T.D., M.Chir., F.R.C.S.

P. K. B. DAVIS
M.S., F.R.C.S.

IVOR DONALDSON
F.R.C.S.

D. S. EASTWOOD
F.R.C.S.(Ed.)

HAROLD ELLIS
M.Ch., D.M., F.R.C.S.

A. J. EVANS
M.B.B.S., F.R.C.S.

DAVID M. EVANS
F.R.C.S.

HOLLON WOODHULL
FARR
M.D., F.A.C.S.

S. A. FELDMAN
B.Sc., F.F.A.R.C.S., D.A.

*Consultant Surgeon, Kings College Hospital, London
and Royal Marsden Hospital, London*

*Professor of Surgery, Division of Plastic and Reconstructive Surgery,
Medical College of Virginia, Richmond*

*Chief Maxillofacial Technologist,
Department of Oral and Maxillofacial Surgery,
Queen Mary's Hospital, Roehampton*

*Consultant in Oral and Dental Surgery,
Middlesex Hospital and The Royal Dental Hospital of London*

*Consultant Plastic Surgeon, Queen Elizabeth Hospital, Birmingham
and West Midlands Regional Plastic Surgery Centre, Wordsley Hospital,
Stourbridge*

*Consultant Neurosurgeon, St. Bartholomew's Hospital, London
and Regional Centre for Neurology and Neurosurgery, Oldchurch Hospital,
Romford*

*Consultant Plastic Surgeon,
St. Thomas' Hospital and Westminster Hospital, London
and Southwest Metropolitan Regional Health Board*

Consultant Otolaryngologist, Selly Oak Hospital, Birmingham

*Consultant Plastic Surgeon, St. James's University Hospital
and United Leeds Hospitals, Leeds*

Professor of Surgery, Westminster Medical School, London

*Consultant Plastic Surgeon, Westminster Hospital, London;
Queen Mary's Hospital, Roehampton and Croydon General Hospital*

Consultant Plastic Surgeon, Wexham Park Hospital, Slough

*Attending Surgeon, Head and Neck Service,
Memorial Sloan-Kettering Cancer Center, New York;
Associate Attending Surgeon, New York Hospital, New York;
Associate Professor of Surgery, Cornell University Medical College*

Consultant Anaesthetist, Westminster Hospital, London

O. M. FENTON
M.B. B.S., F.R.C.S.

Registrar in Plastic Surgery, Mount Vernon Hospital, Northwood

B. W. FICKLING
C.B.E., F.R.C.S., F.D.S.

*Formerly Senior Dental Surgeon, St. George's Hospital,
The Royal Dental Hospital of London, School of Dental Surgery
and The Mount Vernon Centre for Plastic and Jaw Surgery, Northwood*

JEREMY L. FREEMAN
M.D., F.R.C.S. (C.)

*Assistant Professor of Otolaryngology, University of Toronto;
Staff Otolaryngologist, Mount Sinai Hospital;
Consultant Otolaryngologist, Princess Margaret Hospital
(Ontario Cancer Institute), Toronto, Ontario, Canada*

MARIO S. L. GALVAO
M.D.

*Plastic Surgeon, Instituto Nacional de Cancer, Rio de Janeiro;
Formerly Senior Registrar in Plastic Surgery, St. George's Hospital, London
and Honorary Lecturer in Surgery, Westminster Medical School, London*

E. NEVILLE GLEAVE
M.S. B.S., F.R.C.S. (Ed.),
F.R.C.S.

*Senior Lecturer in Surgery, University of Manchester;
Honorary Consultant Surgeon, University Hospital of South Manchester*

J. A. GLEESON
F.R.C.P., D.M.R.D., F.R.C.R.

Sub-Dean, Westminster Medical School, London

JACK L. GLUCKMAN
M.D., F.C.S. (S.A.)

*Department of Otolaryngology and Maxillofacial Surgery,
University of Cincinnati Medical Center, Ohio*

PHILIP H.
GOLDING-WOOD
B.Sc., F.R.C.S., D.L.O.

*Consultant Ear, Nose and Throat Surgeon,
Kent County Ophthalmic and Aural Hospital, Maidstone;
Member of Council, European Rhinologic Society;
Honorary Member, American Rhinologic Society*

CERI M. GRIFFITHS
M.B. B.S., F.R.C.S. (C.),
F.A.C.S.

*Former Professor and Deputy Chairman, Department of Otolaryngology,
University of Texas Medical Branch, Galveston*

J. D. GRIFFITHS
M.S., F.R.C.S.

*Consultant Surgeon, St. Bartholomew's Hospital,
Royal Marsden Hospital and Chester Beatty Cancer Institute, London*

I. W. F. HANHAM
M.R.C.P., F.R.C.R.

*Consultant Radiotherapist and Oncologist,
Westminster Hospital, London*

KIYONORI HARI
M.D.

Associate Professor, Plastic Surgery, University of Tokyo Hospital

D. F. N. HARRISON
M.D., M.S., F.R.C.S.

*Director of the Professorial Unit,
Institute of Laryngology and Otology;
and Royal National Throat, Nose and Ear Hospital, London*

KENNETH HARRISON
M.D., F.R.C.S.

*Retired Director, Department of Otolaryngology, University of Manchester;
Senior Consultant Otolaryngologist, Manchester Royal Infirmary
and Christie Hospital, Manchester*

CONTRIBUTORS TO THESE VOLUMES

IAN H. HESLOP
M.B. B.S., B.D.S., F.D.S. R.C.S.

CHRISTOPHER
HOLBOROW
T.D., M.A., M.D., F.R.C.S.,
F.R.C.S.(Ed.)

CHARLES E. HORTON
M.D., F.A.C.S.

G. L. HOWE
T.D., M.D.S., F.D.S. R.C.S.,
F.F.D. R.C.S.(I.), M.R.C.S.,
L.R.C.P.

R. G. HUGHES
M.B., B.Ch., F.R.C.S.(Ed.)

F. L. F. INNES
F.R.C.S.(Ed.)

J. V. JEFFS
F.R.C.S.

H. BERNARD JUBY
M.B., F.R.C.S., D.L.O.

R. C. KESTER
M.D., Ch.M., F.R.C.S.

STUART C. LENNOX
M.B., F.R.C.S.

ARNOLD LEVENE
M.B., Ph.D., F.R.C.S.,
F.R.C.Path

JOHN M. LORÉ, Jr.
M.D.

PETER McKELVIE
M.D., Ch.M., F.R.C.S., D.L.O.

W. M. MANCHESTER
C.B.E., F.R.C.S., F.R.A.C.S.,
F.A.C.S.

*Consultant in Oral and Maxillofacial Surgery,
South West Thames Regional Health Authority*

*Consultant Surgeon, Ear, Nose and Throat Department,
Westminster Hospital and Westminster Children's Hospital, London;
Honorary Consultant Ear, Nose and Throat Surgeon,
Queen Charlotte's Hospital, London*

*Professor and Chairman, Department of Plastic Surgery,
Eastern Virginia Medical School*

Professor of Oral Surgery and Oral Medicine, University of Hong Kong

*Consultant Ear, Nose and Throat Surgeon,
Wolverhampton and Dudley Group of Hospitals*

*Consultant Plastic Surgeon, West Norwich Hospital
and Addenbrooke's Hospital, Cambridge*

*Consultant Plastic Surgeon, Charing Cross Hospital, London;
Plastic Surgery Centre, Queen Mary's Hospital, Roehampton
and Southwest Thames Regional Health Authority*

Consultant Ear, Nose and Throat Surgeon to the Ipswich Hospitals

*Senior Lecturer in Surgery, University of Leeds;
Consultant Surgeon, St. James's University Hospital, Leeds*

*Cardiothoracic Surgeon, Brompton Hospital and St. Mary's Hospital, London;
Senior Lecturer, Cardiothoracic Institute, University of London*

Department of Histopathology, Royal Marsden Hospital, London

*Professor and Chairman, Department of Otolaryngology,
School of Medicine, State University of New York at Buffalo*

*Consultant Otolaryngologist, The London Hospital
and Royal National Throat, Nose and Ear Hospital, London*

*Professor of Plastic and Reconstructive Surgery, University of Auckland;
Senior Plastic Surgeon, Plastic Surgical Unit, Middlemore Hospital, Otahuhu,
Auckland*

WYNDELL H. MERRITT
M.D.

*Assistant Professor of Surgery, Division of Plastic and Reconstructive Surgery,
Medical College of Virginia, Richmond*

TIMOTHY M. MILWARD
M.A. (Cantab.), F.R.C.S.

*Consultant Plastic Surgeon, The Leicester Royal Infirmary and
Lincoln County Hospital*

DAVID A. MOFFAT
B.Sc., M.B. B.S., F.R.C.S.

*Consultant Otolaryngologist, Westminster Hospital
and Metropolitan Ear, Nose and Throat Hospital, London*

JOHN C. MUSTARDÉ
F.R.C.S., F.R.C.S. (Glas.)

*Consulting Plastic Surgeon, West of Scotland Regional Plastic Surgery Centre,
Canniesburn Hospital and Royal Hospital for Sick Children, Glasgow*

MOSES NUSSBAUM
M.D., F.A.C.S.

*Chief Surgeon, Division of Head and Neck Surgery,
Beth Israel Medical Center, New York;
Associate Professor of Clinical Surgery,
Mount Sinai School of Medicine, City University of New York*

T. P. F. O'CONNOR
F.R.C.S., F.R.C.S.(I.)

*Consultant Plastic Surgeon, Southern Health Board,
The Regional Hospital, Cork*

CLIVE ORTON
M.B. B.S., F.R.C.S., L.R.C.P.,
F.D.S.R.C.S.

Consultant Plastic Surgeon, Withington Hospital, Manchester

C. A. PARSONS
F.R.C.S., F.R.C.R.

Consultant Radiologist, Royal Marsden Hospital, London

The late DAVID H. PATEY
M.S., F.R.C.S.

Honorary Consultant Surgeon, The Middlesex Hospital, London

MICHAEL PERS
M.D.

Head of the Department of Plastic Surgery, Rigshospitalet, Copenhagen

N. C. PETERSEN
M.D.

Consultant Plastic Surgeon, Århus University Hospital, Denmark

B. H. PICKARD
F.R.C.S.

Consultant Ear, Nose and Throat Surgeon, St. George's Hospital, London

O. PIGNATARO
M.D.

*Associated Professor of Otolaryngology,
First Ear, Nose and Throat Clinic, University of Milan*

D. E. POSWILLO
D.D.S., D.Sc., F.D.S.R.C.S.,
F.I.Biol., M.R.C.Path

Professor of Oral Surgery, The Royal Dental Hospital of London

L. A. PRICE
M.D., M.R.C.P.

Consultant Physician and Medical Oncologist

CARL G. QUILLEN
M.D.

*Assistant Professor of Plastic Surgery,
College of Medicine and Dentistry, Newark, New Jersey*

CONTRIBUTORS TO THESE VOLUMES

DOUGLAS RANGER
M.B. B.S., F.R.C.S.

*Dean and Director of the Ferens Institute of Otolaryngology,
The Middlesex Hospital Medical School, London*

IRVING RAPPAPORT
M.D.

*Director, Orange County Regional Head and Neck Institute;
Clinical Professor of Surgery, University of California, Irvine*

J. RAYNE
D.Ph.(Oxon), F.D.S.,
D.Orth. R.C.S.

Consultant Oral Surgeon, John Radcliffe Hospital, Headington, Oxford

A. RICHARDSON
F.R.C.S.

*Consultant Neurosurgeon, St. George's Hospital
and Southwest Thames Regional Health Authority;
Honorary Consultant Neurosurgeon, Royal Marsden Hospital*

PAUL ROSSWICK
M.S.(Ill.), F.R.C.S.

*Consultant Surgeon, St. George's Hospital
and The Royal Masonic Hospital, London*

R. T. ROUTLEDGE
F.R.C.S.

Senior Consultant Plastic Surgeon, Frenchay Hospital, Bristol

ROY SANDERS
B.Sc., M.B. B.S., F.R.C.S.

*Consultant Plastic Surgeon and Honorary Senior Lecturer,
Mount Vernon Hospital, Northwood*

KENNETH V.
SANDERSON
M.B. B.S., F.R.C.P., F.R.A.C.P.

*Physician to the Skin Department, St. George's Hospital, London;
Consultant Dermatologist, Royal Marsden Hospital, London;
Senior Lecturer in Dermatology, St. George's Hospital Medical School, London*

H. SCHJELDERUP

*Head of Department of Plastic Surgery,
University Hospital Clinic, Bergen, Norway*

H. J. SHAW
V.R.D., F.R.C.S.

*Consultant Ear, Nose and Throat Surgeon,
Royal Marsden Hospital and Royal National
Throat, Nose and Ear Hospital, London*

J. CONNELL SHEARIN, Jr.
M.D.

*Associate Professor of Surgery, Division of Plastic Surgery,
Bowman Gray School of Medicine, Winston Salem, North Carolina*

DONALD A. SHUMRICK
M.D., F.A.C.S.

*Department of Otolaryngology and Maxillofacial Surgery,
University of Cincinnati Medical Center, Ohio*

JOHN McL. SINGLETON
M.S., F.R.C.S., F.D.S.R.C.S.

*Surgeon, Westminster Hospital Teaching Group
(Queen Mary's Hospital, Roehampton), London
and King Edward VII Hospital for Officers, London*

GORDON B. SNOW

*Professor and Chairman of the Department of Otolaryngology,
Free University Hospital, Amsterdam*

MAX SOM
M.D., F.A.C.S.

*Attending Surgeon, Department of Surgery and Otolaryngology,
Beth Israel Medical Center, New York;
Emeritus Professor of Otolaryngology,
Mount Sinai School of Medicine, City University of New York*

P. M. STELL
Ch.M., F.R.C.S.

Professor of Otorhinolaryngology, University of Liverpool

S. DAWSON THEOGARAJ
M.D., F.A.C.S.

*Professor of Surgery, Division of Plastic and Reconstructive Surgery,
Medical College of Virginia, Richmond*

W. G. THOMSON
F.R.C.S.(Ed.)

*Formerly Consultant in Burns and Plastic Surgery,
Army Burns Unit, Queen Elizabeth Military Hospital, Woolwich*

J. F. TOWERS
M.R.C.S., L.R.C.P.,
F.D.S.R.C.P.S.,
F.F.D.R.C.S.(I.)

*Senior Lecturer in Oral Surgery, The Royal Dental Hospital of London;
Honorary Consultant in Dental Surgery, Wandsworth and East Merton Health
District*

LAWRENCE S. WALSH
F.R.C.S.

*Neurosurgeon, Atkinson Morley's Hospital, London;
Consultant Neurosurgeon, St. George's Hospital, London,
National Hospital for Nervous Diseases, London
and St. Mary's Hospital, London*

G. WESTBURY
M.B.B.S., F.R.C.S., F.R.C.P.

Consultant Surgeon, Westminster Hospital, London

PATRICK J. WHITFIELD
F.R.C.S.

Consultant Plastic Surgeon, Queen Mary's Hospital, Roehampton

D. E. WHITTAM
F.R.C.S.

*Consultant Otolaryngologist, St. George's Hospital,
and Atkinson Morley's Hospital, London*

K. W. WILKINSON
M.S., F.R.C.S.

*Consultant Surgeon, St. George's Hospital, London
and St. Peter's Hospital, Chertsey*

J. S. P. WILSON
F.R.C.S.(Ed.), Hon.F.R.C.S.

*Consultant Plastic Surgeon, St. George's Hospital,
Royal Marsden Hospital and Westminster Hospital, London
and Queen Mary's Hospital, Roehampton*

D. WINSTOCK
M.B., B.D.S., F.D.S.R.C.S.

Consultant Oral Surgeon, The Middlesex Hospital, London

JOHN ZAMBACOS
M.D.

*Consultant Plastic Surgeon,
Metaxas Memorial Hospital for Cancer, Piraeus, Greece*

Introduction

In recent years, there have been many advances in the field of head and neck surgery, both in the ablation of the tumour and the reconstruction of the consequent defect, and this new edition has been greatly expanded to take these into account. Very radical ablation is now possible, but the types of major resection this involves are more likely to result in deformities unacceptable to both patient and surgeon, especially when the tumours are those invading the soft tissues and bones of the face. Therefore, much of the text and illustrations in these volumes has been directed to dealing with the problems of surgical reconstruction and prosthetic rehabilitation.

The first section of the book deals with the basic principles of head and neck surgery and the applications of these principles are discussed in more detail in later sections. It was felt that this would be the most useful approach for the reader, but inevitably some overlap may have resulted. Microvascular surgical techniques have only been referred to in the basic principles section as they are applicable to so many repairs, especially in the upper third of the head. They allow a one-stage reconstruction without necessitating unnatural positioning of the patient's limbs. However, a skilled team of microvascular surgeons and considerable operating time must be available if these methods are to succeed.

As well as chapters dealing with the principles of achievement of skin cover, lining and support, the first section includes a number of chapters on computed tomographic scanning, whose advent has revolutionized pre-operative assessment. Although CT scans may not define operability, they certainly indicate to the clinician what is inoperable. Also dealt with are planned combinations of surgery, radiation and chemotherapy, as in certain categories of tumour such a multidisciplinary approach may be more successful.

Subsequent sections deal with the specific treatment of tumours invading each area in the head and neck, and although it has not been possible to include every new technique, it is earnestly hoped that the reader will feel he has been provided with a reasonable armamentarium of skills.

A wide range of surgical specialties has contributed to our present state of knowledge of the management of head and neck tumours and I would like to thank all the international representatives of these specialties who have contributed their invaluable expertise and experience to these volumes. I would also like to express my gratitude to the many medical artists without whose skill this work would not have been possible.

J. S. P. WILSON

OPERATIVE SURGERY

Contents of Part I

Introduction

Basic Principles

Achievement of Skin Cover
following Excision of a Tumour

Achievement of Lining of Mouth

- xxv J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.
- 1 **Pathological Factors influencing Excision of Tumours in the Head and Neck**
Arnold Levene, M.B., Ph.D., F.R.C.S., F.R.C.Path.
- 13 **General Principles of Cryosurgery**
D. E. Poswillo, D.D.S., D.Sc., F.D.S. R.C.S., F.I.Biol., M.R.C.Path.
- 17 **Basic Principles of Tumour Treatment**
J. S. P. Wilson, F.R.C.S.(Ed.), Hon. F.R.C.S.
- 21 **General Principles of Reconstruction**
J. S. P. Wilson, F.R.C.S.(Ed.), Hon. F.R.C.S.
- 25 **Achievement of Skin Cover with Free Grafts**
Patrick J. Whitfield, F.R.C.S.
- 33 **Local Skin Flaps**
R. L. B. Beare, F.R.C.S.
- 45 **Back Tube Pedicles**
A. J. Evans, M.B. B.S., F.R.C.S.
- 52 **The Abdominal Tubed Pedicle in Facial Reconstruction**
Nicholas M. Breach, M.B. B.S., F.R.C.S., F.D.S. R.C.S.
- 58 **Achievement of Skin Cover using the Deltopectoral Flap**
Vahram Y. Bakamjian, M.D.
- 64 **Immediate Repair of Major Facial, Oral and Pharyngeal Defects by Regional Cervical Flaps**
Hollon Woodhull Farr, M.D., F.A.C.S.
- 72 **Latissimus Dorsi Myocutaneous Flap for Head and Neck Reconstruction**
J. Connell Shearin, Jr., M.D.
Carl G. Quillen, M.D.
- 76 **The Sternomastoid Myocutaneous Flap**
Vahram Y. Bakamjian, M.D.
- 83 **Microvascular Transfer of Free Skin Flaps**
Kiyonori Harii, M.D.
- 95 **Provision of Intra-oral Lining by Forehead Flaps**
J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.

CONTENTS OF PART I

**Achievement of Simultaneous
Cover and Lining for
Full-thickness Defects**

Achievement of Support

**Reconstruction of Hair-bearing
Areas**

**Reconstruction of Vermilion
Border of Lip**

**General Management of Head and
Neck Tumours**

- 98 Provision of Intra-oral Lining by the Deltopectoral Flap**
Vahram Y. Bakamjian, M.D.
- 103 Inlay Skin Grafting in the Mouth**
R. Sanders, B.Sc., M.B. B.S., F.R.C.S.
O. M. Fenton, M.B. B.S., F.R.C.S.
- 108 Provision of Cover and Lining by Forehead Flaps**
J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.
- 122 Two-ply Reconstruction using the Deltopectoral Flap**
Vahram Y. Bakamjian, M.D.
- 128 Basic Principles of the Bipolar Forehead and Scalp Flap**
John Zambacos, M.D.
- 130 Bone Grafting in Head and Neck Surgery**
W. M. Manchester, C.B.E., F.R.C.S., F.R.A.C.S., F.A.C.S.
- 135 Immediate Reconstruction of the Hemimandible and
Temporomandibular Joint**
W. M. Manchester, C.B.E., F.R.C.S., F.R.A.C.S., F.A.C.S.
- 141 Maxillofacial Prosthetics: General Principles**
John Bowerman, M.B. Ch.B., B.D.S., F.D.S. R.C.S.
Brian Conroy, M.B.E., F.I.M.F.T.
- 164 Reconstruction of the Eyebrows and Eyelashes**
Marie S. L. Galvao, M.D.
J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.
- 175 Reconstruction of Hair-bearing Areas of the Face**
J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.
M. D. Brough, M.A., M.B. B.Chir., F.R.C.S.
- 184 Tongue Flaps**
Vahram Y. Bakamjian, M.D.
- 193 Full-thickness Reconstruction of Lip and Vermilion Border**
Clive Orton, M.B. B.S., F.R.C.S., L.R.C.P., F.D.S. R.C.S.
- 195 Radiology in Cancer of the Head and Neck**
J. A. Gleeson, F.R.C.P., D.M.R.D., F.R.C.R.
- 199 Application of Computer-Assisted Tomography of the Facial
Structures to Extended Surgery for Malignant Disease**
James Ambrose, M.B. Ch.B., F.R.C.P., F.F.R., D.M.R.D.
- 205 Computed Tomography of Paranasal Sinus Tumours**
C. A. Parsons, F.R.C.S., F.R.C.R.

Neck

- 216 **Computed Tomography of Tumours Related to the Parapharyngeal Space and Skull Base**
C. A. Parsons, F.R.C.S., F.R.C.R.
- 225 **Computed Tomography of Tumours of the Larynx and Adjacent Structures**
C. A. Parsons, F.R.C.S., F.R.C.R.
- 232 **Anaesthetic Management**
S. A. Feldman, B.Sc., F.F.A. R.C.S., D.A.
- 241 **Control of Cerebrospinal Fluid Pressure Intra- and Postoperatively**
E. P. Berwick, F.F.A. R.C.S.
- 243 **Combination Radiotherapy and Surgery**
I. W. F. Hanham, M.R.C.P., F.R.C.R.
- 246 **Combined Surgery and Chemotherapy in the Treatment of Head and Neck Tumours**
L. A. Price, M.D., M.R.C.P.
- 249 **Surgical Treatment of Tuberculous Cervical Lymph Nodes**
A. K. Basu, M.S., F.R.C.S., F.A.C.S.
Harold Ellis, M.Ch., D.M., F.R.C.S.
- 255 **Radical Neck Dissection**
P. M. Stell, Ch.M., F.R.C.S.
- 270 **Functional Neck Dissection**
E. Bocca, M.D.
O. Pignataro, M.D.

Scalp

- 287 **The Repair of Large Scalp Flaps**
R. C. Kester, M.D., Ch.M., F.R.C.S.

Face

- 294 **Congenital Abnormalities of the Face**
J. V. Jeffs, F.R.C.S.

Forehead and Frontal Bone

- 300 **Treatment of Tumours of the Forehead**
P. K. B. Davis, M.S., F.R.C.S.
- 320 **Tumours of the Frontal Sinus**
B. H. Pickard, F.R.C.S.

Nose and Nasopharynx

- 323 **Rhinophyma**
P. K. B. Davis, M.S., F.R.C.S.
- 333 **Surgery of Tumours of the External Nose and Nasal Cavity**
Timothy M. Milward, M.A.(Cantab.), F.R.C.S.
J. S. P. Wilson, F.R.C.S.(Ed.), Hon.F.R.C.S.

Ear

Malar and Infratemporal
Region

Orbit

Cheek and Upper Jaw

- 360 **Removal of a Tumour from the Frontal and Ethmoid Sinuses by the Macbeth Method**
B. H. Pickard, F.R.C.S.
- 363 **Lateral Rhinotomy**
D. F. N. Harrison, M.D., M.S., F.R.C.S.
- 365 **Transpalatal Approach to the Postnasal Space**
Douglas Ranger, M.B. B.S., F.R.C.S.
- 369 **Surgical Treatment of Angiofibroma of the Nasopharynx**
Douglas Ranger, M.B. B.S., F.R.C.S.
- 374 **Surgical Management of Malignant Nasopharyngeal Tumours**
David A. Moffat, B.Sc., M.B. B.S., F.R.C.S.
Peter McKelvie, M.D., Ch.M., F.R.C.S., D.L.O.
- 381 **Lesions of the Pinna**
Clive Orton, M.B. B.S., F.R.C.S., L.R.C.P., F.D.S. R.C.S.
- 391 **Tumours of the External Auditory Canal**
Nicholas M. Breach, M.B. B.S., F.R.C.S., F.D.S. R.C.S.
- 393 **Treatment of Malignant Tumours involving the Bony Meatus and the Temporal Bone**
Donald A. Shumrick, M.D., F.A.C.S.
Jack L. Gluckman, M.D., F.C.S.(S.A.)
- 402 **Transantral Decompression of the Orbit (Endocrine Exophthalmos)**
H. J. Shaw, V.R.D., F.R.C.S.
- 406 **Treatment of Exophthalmos – Orbital Decompression**
Lawrence S. Walsh, F.R.C.S.
- 409 **Eyelid Tumours**
John C. Mustardé, F.R.C.S., F.R.C.S.(Glas.)
- 420 **Immediate Reconstruction following Exenteration of the Orbit including the Eyelids**
Michael Pers, M.D.
- 425 **Maxillofacial Prosthetics: Orbital Resections**
Brian Conroy, M.B.E., F.I.M.F.T.
John Bowerman, M.B. Ch.B., B.D.S., F.D.S. R.C.S.
- 433 **Malignant Skin Lesions of the Cheek and Maxilla**
N. C. Petersen, M.D.