

THE YEAR BOOK *of* CANCER

(1956-1957 YEAR BOOK Series)

COMPILED and EDITED by

RANDOLPH LEE CLARK, JR.,
B.S., M.D., M.Sc. (Surgery), D.Sc. (Hon.)
Houston, Texas

*Director and Surgeon-in-Chief, The University of Texas M. D.
Anderson Hospital and Tumor Institute; Professor of Surgery,
The University of Texas Postgraduate School of Medicine;
Clinical Professor of Surgery, Baylor University College
of Medicine; Fellow, American College of Surgeons*

and

RUSSELL W. CUMLEY, B.A., M.A., Ph.D.
Houston, Texas

*Director of Publications, The University of Texas M. D.
Anderson Hospital and Tumor Institute; Professor of
Medical Journalism, The University of Texas
Postgraduate School of Medicine*

THE YEAR BOOK PUBLISHERS

INCORPORATED
200 EAST ILLINOIS STREET
CHICAGO

THE PRACTICAL MEDICINE YEAR BOOKS

This volume is one of the 14 comprising the Practical Medicine Series of Year Books founded in 1900 by G. P. Head, M.D., and C. J. Head, and published continuously since then. The complete list follows:

Medicine: *Infections*, edited by PAUL B. BEESON, M.D.; *The Chest*, by CARL MUSCHENHEIM, M.D.; *The Blood and Blood-Forming Organs*, by WILLIAM B. CASTLE, M.D.; *The Heart and Blood Vessels and Kidney*, by TINSLEY R. HARRISON, M.D.; *The Digestive System*, by FRANZ J. INGELFINGER, M.D.; *Metabolism*, by PHILIP K. BONDY, M.D.

General Surgery edited by EVARTS A. GRAHAM, M.D., with a section on *Anesthesia*, by STUART C. CULLEN, M.D.

Drug Therapy edited by HARRY BECKMAN, M.D.

Obstetrics & Gynecology edited by J. P. GREENHILL, M.D.

Pediatrics edited by SYDNEY S. GELLIS, M.D.

Radiology: *Diagnosis*, edited by JOHN FLOYD HOLT, M.D., and FRED JENNER HODGES, M.D.; *Radiotherapeutics*, by HAROLD W. JACOX, M.D., and MORTON M. KLIGERMAN, M.D.

Eye, Ear, Nose & Throat: *The Eye*, edited by DERRICK VAIL, M.D.; *The Ear, Nose & Throat*, by JOHN R. LINDSAY, M.D.

Neurology, Psychiatry & Neurosurgery: *Neurology*, edited by ROLAND P. MACKAY, M.D.; *Psychiatry*, by S. BERNARD WORTIS, M.D.; *Neurosurgery*, by OSCAR SUGAR, M.D.

Dermatology & Syphilology edited by RUDOLF L. BAER, M.D., and VICTOR H. WITTEN, M.D.

Urology edited by WILLIAM W. SCOTT, M.D.

Orthopedics and Traumatic Surgery edited by EDWARD L. COMPERE, M.D.

Endocrinology edited by GILBERT S. GORDAN, M.D.

Pathology and Clinical Pathology edited by WILLIAM B. WARTMAN, M.D.

Cancer, edited by RANDOLPH LEE CLARK, JR., M.D., and RUSSELL W. CUMLEY, Ph.D.

Dentistry: *Oral Pathology & Oral Medicine*, edited by HAMILTON B. G. ROBINSON, D.D.S.; *Operative Dentistry*, by DONALD A. KEYS, D.D.S.; *Oral Surgery*, by CARL W. WALDRON, M.D., D.D.S.; *Prosthetics*, by STANLEY D. TYLMAN, D.D.S., M.S.; *Orthodontics*, by HAROLD J. NOYES, D.D.S.; *Public Health*, by JOHN W. KNUTSON.

COPYRIGHT 1957, BY THE YEAR BOOK PUBLISHERS, INC.

Printed in U.S.A.

TABLE OF CONTENTS

Publisher's Foreword	8
Introduction	9
Head and Neck	11
Brain and Nervous System	37
Gastrointestinal Tract	50
Lung	99
Skin	136
Female Breast	160
Genitourinary Tract	174
Female Genital Tract	221
Leukemia and Lymphomas	256
Bone and Soft Parts	275
Cytology and Pathology	283
Virology	315
Radiotherapy	326
Chemotherapy	355
Steroid Endocrinology	370
Genetics	378
Epidemiology and Statistics	381
Metastatic Tumors and Late Care	391
Basic Research	411
Special Surgical Problems	448
Pediatric Cancer	462
Roentgen Diagnosis	470
Radiobiology and Radiophysics	488
Endocrine Tumors	505
Psychologic Aspects of Cancer	534

THE YEAR BOOK *of* CANCER

(1956-1957 YEAR BOOK Series)

COMPILED and EDITED by

RANDOLPH LEE CLARK, JR.,
B.S., M.D., M.Sc. (Surgery), D.Sc. (Hon.)
Houston, Texas

*Director and Surgeon-in-Chief, The University of Texas M. D.
Anderson Hospital and Tumor Institute; Professor of Surgery,
The University of Texas Postgraduate School of Medicine;
Clinical Professor of Surgery, Baylor University College
of Medicine; Fellow, American College of Surgeons*

and

RUSSELL W. CUMLEY, B.A., M.A., Ph.D.
Houston, Texas

*Director of Publications, The University of Texas M. D.
Anderson Hospital and Tumor Institute; Professor of
Medical Journalism, The University of Texas
Postgraduate School of Medicine*

THE YEAR BOOK PUBLISHERS

INCORPORATED
200 EAST ILLINOIS STREET
CHICAGO

THE PRACTICAL MEDICINE YEAR BOOKS

This volume is one of the 14 comprising the Practical Medicine Series of Year Books founded in 1900 by G. P. Head, M.D., and C. J. Head, and published continuously since then. The complete list follows:

Medicine: *Infections*, edited by PAUL B. BEESON, M.D.; *The Chest*, by CARL MUSCHENHEIM, M.D.; *The Blood and Blood-Forming Organs*, by WILLIAM B. CASTLE, M.D.; *The Heart and Blood Vessels and Kidney*, by TINSLEY R. HARRISON, M.D.; *The Digestive System*, by FRANZ J. INGELFINGER, M.D.; *Metabolism*, by PHILIP K. BONDY, M.D.

General Surgery edited by EVARTS A. GRAHAM, M.D., with a section on *Anesthesia*, by STUART C. CULLEN, M.D.

Drug Therapy edited by HARRY BECKMAN, M.D.

Obstetrics & Gynecology edited by J. P. GREENHILL, M.D.

Pediatrics edited by SYDNEY S. GELLIS, M.D.

Radiology: *Diagnosis*, edited by JOHN FLOYD HOLT, M.D., and FRED JENNER HODGES, M.D.; *Radiotherapeutics*, by HAROLD W. JACOX, M.D., and MORTON M. KLIGERMAN, M.D.

Eye, Ear, Nose & Throat: *The Eye*, edited by DERRICK VAIL, M.D.; *The Ear, Nose & Throat*, by JOHN R. LINDSAY, M.D.

Neurology, Psychiatry & Neurosurgery: *Neurology*, edited by ROLAND P. MACKAY, M.D.; *Psychiatry*, by S. BERNARD WORTIS, M.D.; *Neurosurgery*, by OSCAR SUGAR, M.D.

Dermatology & Syphilology edited by RUDOLF L. BAER, M.D., and VICTOR H. WITTEN, M.D.

Urology edited by WILLIAM W. SCOTT, M.D.

Orthopedics and Traumatic Surgery edited by EDWARD L. COMPERE, M.D.

Endocrinology edited by GILBERT S. GORDAN, M.D.

Pathology and Clinical Pathology edited by WILLIAM B. WARTMAN, M.D.

Cancer, edited by RANDOLPH LEE CLARK, JR., M.D., and RUSSELL W. CUMLEY, Ph.D.

Dentistry: *Oral Pathology & Oral Medicine*, edited by HAMILTON B. G. ROBINSON, D.D.S.; *Operative Dentistry*, by DONALD A. KEYS, D.D.S.; *Oral Surgery*, by CARL W. WALDRON, M.D., D.D.S.; *Prosthetics*, by STANLEY D. TYLMAN, D.D.S., M.S.; *Orthodontics*, by HAROLD J. NOYES, D.D.S.; *Public Health*, by JOHN W. KNUTSON.

COPYRIGHT 1957, BY THE YEAR BOOK PUBLISHERS, INC.
Printed in U.S.A.

EDITORIAL BOARD

Anesthesiology

WILLIAM SHELDON DERRICK,
M.D., Houston, Texas

Bacteriology

JEROME T. SYVERTON, A.B., B.S.,
M.D., Minneapolis, Minn.
E. STATEN WYNNE, B.A., M.A.,
Ph.D., Houston, Texas

Biochemistry

JORGE AWAPARA, Ph.D., Houston,
Texas
A. CLARK GRIFFIN, Ph.D.,* Hous-
ton, Texas
GEORGE HERBERT HITCHINGS,
Ph.D., Tuckahoe, N. Y.
SEYMOUR LIEBERMAN, Ph.D.,
New York, N. Y.
SANFORD L. STEELMAN, B.S.,
Ph.D., Houston, Texas

Biology

FELIX LEVERE HAAS, M.A.,
Ph.D., Houston, Texas

Dentistry

EDWARD C. HINDS, B.A., D.D.S.,
M.S., Houston, Texas

Dermatology

FRANK CHARLES COMBES, M.D.,
New York, N. Y.
LEONARD MELTZER, B.S., M.D.,*
Houston, Texas

Epidemiology

CARL E. HOPKINS, A.M., Ph.D.,
Portland, Ore.
ELEANOR J. MACDONALD, A.B.,*
Houston, Texas

Genetics

WALTER E. HESTON, B.S., M.S.,
Ph.D., Bethesda, Md.

MADGE T. MACKLIN, M.D.,
LL.D., Columbus, O.
CLARENCE PAUL OLIVER, Ph.D.,*
Austin, Texas

Gynecology

RALPH CRISWELL BENSON, M.D.,
Portland, Ore.
ROBERT A. JOHNSTON, B.S., M.D.,
Houston, Texas
FELIX N. RUTLEDGE, M.D.,* Hous-
ton, Texas
RICHARD W. TE LINDE, A.B.,
M.D., Baltimore, Md.
J. DONALD WOODRUFF, M.D., Bal-
timore, Md.

Hematology

WILLIAM CURRY MOLONEY, M.D.,
Boston, Mass.
C. C. SHULLENBERGER, A.B.,
M.D.,* Houston, Texas
CHARLES HAMILTON WATKINS,
M.D., M.A., Ph.D., Rochester,
Minn.

Immunology

JOSEPH W. BEARD, M.D., Dur-
ham, N. C.

Internal Medicine

THEODORE L. BADGER, M.D.,
H.M.S., Boston, Mass.
HENRY L. BOCKUS, M.D., Phil-
adelphia, Pa.
JOSEPH HOLLAND BURCHENAL,
M.D., New York, N. Y.
JAMES CLARENCE CAIN, M.D.,
M.S., Rochester, Minn.
ROWE A. CASTAGNO, M.D., Hart-
ford, Conn.
HAROLD WILLIAM DARGEON,
M.D., New York, N. Y.
LEONARD P. ELIEL, B.S., M.D.,
Oklahoma City, Okla.

*Section Editor.

CLIFTON D. HOWE, B.S., M.D.,*
Houston, Texas

DAVID A. KARNOFSKY, M.D.,
New York, N. Y.

MAVIS P. KELSEY, M.D., M.S.,*
Houston, Texas

LAURENCE H. KYLE, M.D., Wash-
ington, D.C.

ALFRED E. LEISER, B.S., M.D.,
Houston, Texas

J. B. TRUNNELL, M.D.,* Hous-
ton, Texas

CHARLES DONALD WEST, M.D.,
Ph.D., New York, N. Y.

Neurology

WILLIAM S. FIELDS, A.B., M.D.,
Houston, Texas

Orthopedics

EDWARD L. COMPERE, M.D., Chi-
cago, Ill.

Pathology

LAUREN V. ACKERMAN, M.D.,
St. Louis, Mo.

RAYMOND D. ADAMS, M.D., M.A.
(Hon.), Boston, Mass.

R. PHILIP CUSTER, M.D., Phila-
delphia, Pa.

FRANK J. DIXON, M.D., Pitts-
burgh, Pa.

SIDNEY FARBER, B.S., M.D., Bos-
ton, Mass.

FRANK W. FOOTE, M.D., New
York, N. Y.

JOHN BEACH HAZARD, B.S., M.S.,
M.D., Cleveland, O.

ELSON B. HELWIG, B.S., M.D.,
Washington, D.C.

EMIL GUSTAV HOLMSTROM, M.D.,
Salt Lake City, Utah

JOHN ROLAND McDONALD, M.S.,
M.D., Rochester, Minn.

JACOB W. OLD, M.D., Houston,
Texas

WILLIAM OGBURN RUSSELL, A.B.,
M.D.,* Houston, Texas

HANS G. SCHLUMBERGER, A.B.,
M.D., Columbus, O.

ARTHUR PURDY STOUT, M.D.,
New York, N. Y.

THEODORE WINSHIP, A.B., M.D.,
Washington, D.C.

DAVID A. WOOD, A.B., M.D., San
Francisco, Cal.

Pediatrics

WATARU W. SUTOW, M.D., Hous-
ton, Texas

H. GRANT TAYLOR, A.B., M.A.,
M.D.,* Houston, Texas

Physics

HENRY IRVING KOHN, A.B.,
Ph.D., M.D., San Francisco,
Cal.

JOHN S. LAUGHLIN, Ph.D., New
York, N. Y.

RAYMOND STANLEY QUICK, B.S.,
Rochester, N. Y.

WARREN K. SINCLAIR, M.S.,
Ph.D.,* Houston, Texas

Psychology

ALDRENA BEATRIX COBB, Ph.D.,*
Houston, Texas

RICHARD RENNEKER, M.D., Bev-
erly Hills, Cal.

HARLEY C. SHANDS, B.S., M.D.,
Chapel Hill, N. C.

ARTHUR M. SUTHERLAND, M.D.,
New York, N. Y.

PHILIP M. WEST, Ph.D., M.D.,
Los Angeles, Cal.

Radiology

FERNANDO G. BLOEDORN, M.D.,
Baltimore, Md.

AUSTIN M. BRUES, M.D., Le-
mont, Ill.

DONALD S. CHILDS, JR., M.D.,
M.S., Rochester, Minn.

LOIS COWAN COLLINS, M.D.,
Houston, Texas

CARLO A. CUCCIA, M.D., Hous-
ton, Texas

JUAN A. DEL REGATO, M.D., Col-
orado Springs, Colo.

GERALD D. DODD, JR., M.D.,*
Houston, Texas

*Section Editor.

GILBERT H. FLETCHER, B.A.,
M.S., M.D.,* Houston, Texas
COLIN B. HOLMAN, A.B., M.D.,
M.S., Rochester, Minn.
MORTON M. KLIGERMAN, B.S.,
M.D., New York, N. Y.
RALSTON PATERSON, C.B.E.,
M.D., M.C., Manchester, Eng-
land
CARLETON B. PEIRCE, A.B., M.D.,
M.S., Montreal, Canada
EUGENE PERCIVAL PENDERGRASS,
M.D., Philadelphia, Pa.
LEO G. RIGLER, B.S., B.M., M.D.,
Minneapolis, Minn.
ROBERT S. SHERMAN, M.D., New
York, N. Y.
MARTIN DEFOREST SMITH, JR.,
A.B., M.D., Denver, Colo.
PAUL CHRISTIAN SWENSON, B.S.,
M.D., Philadelphia, Pa.
LUTHER M. VAUGHN, M.D.,
Houston, Texas
THOMAS ALASTAIR WATSON,
M.B., Ch.B., D.M.R., Saska-
toon, Canada

Surgery

FRANK E. ADAIR, M.D., D.S.,
LL.D., New York, N. Y.
ALANDO J. BALLANTYNE, M.D.,*
Houston, Texas
HOWARD T. BARKLEY, M.D.,*
Houston, Texas
WALTER J. BURDETTE, Ph.D.,
M.D., Columbia, Mo.
J. MAXWELL CHAMBERLAIN,
M.D., New York, N. Y.
O. T. CLAGETT, M.D., Rochester,
Minn.
JOHN J. CONLEY, M.D., New
York, N. Y.
MURRAY M. COPELAND, M.D.,*
Washington, D.C.

GEORGE EHNI, M.D., M.S.,*
Houston, Texas
LYLE A. FRENCH, M.D., Ph.D.,
Minneapolis, Minn.
JOHN VIVIAN GOODE, B.S., M.D.,
Dallas, Texas
GEORGE A. HALLENBECK, M.D.,
Ph.D., Rochester, Minn.
DANIEL KLEIN, A.B., M.D.,
Brooklyn, N. Y.
CALVIN T. KLOPP, A.B., M.D.,
Washington, D.C.
EDWARD FREDERICK LEWISON,
B.S., M.D., Baltimore, Md.
WILLIAM S. MACCOMB, A.B.,
M.D.,* Houston, Texas
IAN MACDONALD, M.D., Los An-
geles, Cal.
RICHARD GORDON MARTIN, B.S.,
M.D.,* Houston, Texas
GORDON PALMER MCNEER, M.D.,
New York, N. Y.
GEORGE THOMAS PACK, M.D.,
New York, N. Y.
JOHN L. PERRY, A.B., M.D.,
Houston, Texas
ALFRED R. SHANDS, JR., A.B.,
M.D., Wilmington, Del.
MARGA H. SINCLAIR, M.D., Hous-
ton, Texas
E. C. WHITE, M.D.,* Houston,
Texas

Urology

CECIL MORRISON CRIGLER, M.D.,*
Houston, Texas
ALBERT JOSEPH PAQUIN, JR.,
M.D., New York, N. Y.

Virology

LEON L. DMOCHOWSKI, M.B.,
Ch.B., M.D., Ph.D.,* Houston,
Texas

MANUSCRIPT EDITORS

JOHN L. PERRY, A.B., M.D.

Manuscript Editor

ALLENE JEFFERSON
Assistant Manuscript Editor

JOAN MCCAY, B.A., M.A.
Assistant Manuscript Editor

*Section Editor.

TABLE OF CONTENTS

Publisher's Foreword	8
Introduction	9
Head and Neck	11
Brain and Nervous System	37
Gastrointestinal Tract	50
Lung	99
Skin	136
Female Breast	160
Genitourinary Tract	174
Female Genital Tract	221
Leukemia and Lymphomas	256
Bone and Soft Parts	275
Cytology and Pathology	283
Virology	315
Radiotherapy	326
Chemotherapy	355
Steroid Endocrinology	370
Genetics	378
Epidemiology and Statistics	381
Metastatic Tumors and Late Care	391
Basic Research	411
Special Surgical Problems	448
Pediatric Cancer	462
Roentgen Diagnosis	470
Radiobiology and Radiophysics	488
Endocrine Tumors	505
Psychologic Aspects of Cancer	534

PUBLISHER'S FOREWORD

The publisher welcomes the opportunity to present, in co-operation with the cancer group of the University of Texas M. D. Anderson Hospital and Tumor Institute, the first YEAR BOOK OF CANCER.

The need for such an addition to the annual series of medical YEAR BOOKS has become increasingly apparent as cancer itself has become increasingly the responsibility of every member of the medical profession. Since knowledge is the underlying force in the physician's capacity to discharge this responsibility, a single compact, all-inclusive abstract volume of the world's foremost medico-scientific journal literature is obviously indicated.

Because of special problems encountered, several departures from the normal editorial and production framework of the other volumes in the YEAR BOOK series have been required. Since the YEAR BOOK OF CANCER cuts across the lines of all disciplines, it was deemed important to establish a consulting editorial board which would reflect the ultimate in authority on all aspects of cancer and the broadest possible intimacy with the world literature. This necessitated selection of articles and preparation of abstracts further in advance of publication than is required for the other YEAR BOOKS. To some extent, therefore, a greater span exists between closing date of the literature covered and actual publication of the book than is the case with the other volumes in the series.

This is not believed to be a detriment; rather, it is considered a virtue, since the end result provides a more complete and effective presentation of vital literature—the primary consideration in publishing a YEAR BOOK OF CANCER. As future volumes are prepared, this gap will be narrowed to the normal period of the other annual YEAR BOOKS.

For more complete details of the philosophy and scope of contents of the YEAR BOOK OF CANCER, we refer the reader to the editors' introduction.

INTRODUCTION

Five thousand medical journals are published annually throughout the world. Of these journals, some 500 regularly publish, in the English language, articles which are related to cancer. In any one year, more than 4,000 of these articles appear. Obviously, the clinician and investigator—even the clinician who has many cases of cancer among his patients—cannot hope to read more than a sparse fraction of this abundant literature. Indeed, except with the expenditure of much time and effort, he cannot even know which few of the 4,000 articles are worth his reading. The purpose of the YEAR BOOK OF CANCER, then, is to provide comprehensive abstracts of significant articles in the field of oncology, which have appeared during the preceding year. In the main, the abstracts are of articles which relate to clinical cancer rather immediately, although some are included which describe results of basic research. Since it will appear annually, the YEAR BOOK OF CANCER would be expected to raise the standards of medical management of the cancer patient by informing readers of the latest developments in oncology.

The value of the YEAR BOOK OF CANCER depends on how judicious has been the selection of articles for abstraction. Consequently, the editors endeavored to assemble a group of physicians and other medical scientists who have attained a somewhat more than usual acquaintance with the many aspects of the broad field of oncology. The group finally consisted of 119 editors, each of whom had some particular body of information well in his grasp. The field of oncology was then divided into 25 sections, and to each section was assigned from three to seven of the editors. Naturally, the editors were assigned to areas in which they had greatest competence. To these editors were submitted bibliographies of articles which had appeared in their respective sections. Within these sections, the editors made their decisions only in terms of their particular disciplines. Thus, the section on "Lung" had as editors, a clinician, a pathologist, a radiologist and a surgeon. The pathologist submitted decisions on articles relating to pathology, the surgeon submitted selections relating to surgery, and so on.

In this way, 207 articles were selected, which represented much of the best thought in all fields of oncology. That the value of the YEAR BOOK OF CANCER might further be enhanced by the integrity of its contents, the authors of the 207 articles were asked to abstract their own articles. This they generously did and, with such minor amendments as the editors deemed necessary for conservation of space, these abstracts are published herein.

Thus, in preparing the YEAR BOOK OF CANCER, the time and effort of some 325 persons have been engaged. The editors and publishers are most appreciative of the generosity of spirit which has made this volume possible.

Finally, and of fundamental importance to this undertaking, was the generosity of the William Heuermann Foundation, which provided the funds necessary to the development of this project. Without this support, this volume could not exist.

Each year the editors will evaluate the categories into which the articles are placed in an attempt to provide the reader with a body of subject matter of current interest.

R. L. C., JR.

R. W. C.

HEAD AND NECK

Incidence of Total and Partial Laryngectomy, 1947 and 1952. Hayes Martin¹ (Memorial Center for Cancer and Allied Diseases). The incidence of total laryngectomy in 1947 was obtained from data acquired by a survey in various cities of the United States. For 1952, a second survey was made that included foreign countries and data on partial as well as total laryngectomy. In 1947, 846 total laryngectomies were performed in the United States. In 1952, the number was 1,315—an increase of 55% over a 5-year period. In New York City, the increase was 50%. In eleven cities, there was an average decrease of six in total laryngectomies, the greatest being in Pittsburgh. Eight states showed a decrease, while in the remaining 39 states and Washington, D.C., there was either an increase or no change in the number.

In foreign countries, there was a uniform increase in total laryngectomies wherever positive data were available for comparison. In London, the increase was fivefold. Havana reported approximately the same increase as London. In Madrid and in Japan, the increase was almost 50%.

The most significant fact so far disclosed was that the incidence of total laryngectomy is on the increase and that it was performed in smaller cities more often in 1952 than in 1947, probably because of the activities of the younger, recently trained surgeons who have settled in the smaller communities. It is apparent that the operation is no longer viewed with the former distrust because of the operative hazards.

The proportion of partial to total laryngectomies should be fairly uniform in various clinics, assuming a similar competence of the staff and similar nature of clinical material. In 1952, in the United States, 567 partial laryngectomies were performed, a proportion of about one partial to two total laryngectomies. The figures for foreign countries are similar.

(1) Cancer 8:1122-1125, Nov.-Dec., 1955.

Conclusion

Surveys have been made as to the number of laryngeal operations for cancer for the years 1947 and 1952. The 1947 survey deals chiefly with the United States. The 1952 survey deals with world figures and includes a survey of partial as well as total laryngectomies. In the United States, during the five-year period 1947-1952, the number of total laryngectomies increased from 846 to 1,315. Where figures are available for comparison, the over-all increase in the incidence of total laryngectomy for the five-year period is about 55%. The over-all proportion of total to partial laryngectomies is approximately 2:1.

► [This interesting study probably reflects both an increase in the use of surgery for cancer of the larynx and an increased recognition of the disease in a stage when treatment is possible.—Eds.]

Cancers de l'Hypopharynx: Classification; Résultats de la Radiothérapie. M. Lederman² (Royal Marsden Hosp., London). In the absence of a generally accepted classification for carcinoma of the laryngopharynx, the following is employed at the Royal Marsden Hospital, London:

(1) *Epilaryngeal tumors*.—These are neoplasms of the suprahyoid epiglottis, aryepiglottic fold and arytenoid, and the point of junction of the pharyngo-epiglottic fold with the epiglottis and aryepiglottic fold. This includes many of the so-called extrinsic tumors.

(2) *Sinus pyriformis tumors*.

(3) *Epiesophageal tumors*.—These neoplasms arise from the mouth of the esophagus (cricopharyngeal), the pharynx and esophagus (pharyngo-esophageal) and the cervical esophagus. The last group may be excluded, if necessary.

(4) *Posterior and lateral wall tumors*.—These are rare neoplasms and are often excluded from the laryngopharynx. They arise from the pharyngeal mucosa opposite the laryngeal additus, extending from the epiglottis above to the cricopharyngeus below.

In order to utilize the above classification, the necessary information is obtained from clinical, instrumental and radiographic investigation. In difficult cases, information can be obtained from observing the response to radiotherapy (since the tumor disappears last from its point of ori-

(2) Ann. oto-laryng. 72:506-527, Nov. 7, 1955.

gin) or from the operative specimen if surgery is undertaken.

In a series of 417 cases, the most common primary site was the sinus pyriformis (39%). Epiesophageal tumors were found in 35% of the cases. Of the remainder, 21% affected the epilaryngeal region and 5% the posterior and lateral walls. Most patients with epiesophageal tumors were women; those with other types were predominantly males.

Few attempts have been made to stage laryngopharyngeal cancer. The following system is suggested:

Stage I. A lesion limited to the tissue of origin.

Stage II. A lesion which has spread from the site of origin but is still within the confines of the pharynx and cervical esophagus. There may be deep infiltration at the primary site without complete fixation, or the disease may have spread to the oropharynx (including tonsil, base of tongue and vallecula fossa), the thoracic esophagus or to the larynx (some degree of mobility being retained).

Stage III. A lesion which has spread beyond the walls of the pharynx or cervical esophagus. There may be invasion of the pre-epiglottic space, the prevertebral tissues, the subcutaneous tissues overlying the pharynx and cervical esophagus or the thyroid gland. In other cases, fixation may have developed, or homolateral, mobile node or nodes may be present.

Stage IV. Fixed, bilateral or contralateral nodes and, often, distant metastases are present. A simultaneous or consecutive primary cancer may be associated.

This scheme could easily be modified should tumors of the cervical esophagus be excluded.

Of 387 previously untreated patients, only 7% had stage I and 10% stage II malignancies. No less than 83% of the patients had stage III or IV lesions. Although the patient is observed at the onset of symptoms, the disease may be found to be advanced. In these circumstances, whatever the type of treatment undertaken, the outcome is likely to be successful in only a small proportion of the cases.

Telecurietherapy is the chief method of treatment at the Royal Marsden Hospital, x-ray therapy being reserved for palliative purposes. The principles of the telecurietherapy technic are the same as those followed in the treatment of cancer of the larynx. Allowance must be made, however, for