

HISTORY
COLLEGE OF MEDICINE
1959-1968

CHAPTER 21

DEPARTMENT OF SURGERY

WILLIAM G. PACE, M. D.

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I. INTRODUCTION: FACULTY AND ACADEMIC AFFAIRS

The organization of the Department of Surgery includes the seven divisions of the department. The Department's faculty roster has increased from 88 members in 1958 to a total of 129 in 1968. During the same time, the structure of residency programs has expanded in all areas. Fully-accredited residency training programs are now offered by all of the divisions.

The Division of General Surgery has grown from the full-time faculty of three to nine in 1969, and has seen the establishment of the Robert M. Zollinger Chair of Surgery.

The Division of Neurological Surgery, which consisted of one full-time member in 1958, has expanded to include the activities of Children's Hospital. The full residency training program now includes the division of pediatric neurosurgery.

The Division of Orthopaedics has enlarged to include, under the director of the division, the directorship of the department of orthopaedic surgery at Children's Hospital. The full-time staff has increased from one in 1958 to the present staff of three.

The Division of Pediatric Surgery has grown under the direction of Dr. H. William Clatworthy, Jr. from two in 1958 to its present staff of four. The research areas of this division were greatly enhanced by the completion of the Ross Laboratories in 1961.

The Division of Plastic Surgery which consisted of one full-time director in 1958 has now achieved approved residency status under the directorship of Dr. Berggren.

The Division of Thoracic Surgery has doubled in the past decade and now includes cardiovascular surgery, cardiovascular surgical research, and pulmonary and allied malignancies.

Urologic Surgery has shown a substantial expansion and continued increase in the residency training program with an increase to the full-time staff from one to two. The Division of Urologic Surgery is responsible for the direction of the corresponding division at Children's Hospital.

The guidance and continued growth of the Department as well as the increased strength of the divisions, and the decision to establish a Division of General Surgery has been directed by the Chairman, Dr. Robert M. Zollinger.

There were increasing numbers of international visitors and honors, due largely to the world esteem for Dr. Zollinger. He has traveled extensively throughout the major surgical clinics, and a full elaboration of his extensive activities in national scope in both undergraduate and graduate surgical education would fill an entire volume. The contributions of this leader to Ohio State and to the Nation has increased yearly. The local result of this stimulus is reflected in the increasing productivity of the department.

In addition to the presidency of nearly every major surgical society in North America, Dr. Zollinger has served as president of the American College of Surgeons and the American Surgical Association, and Chairman of the American Board of Surgery. He was awarded Honorary Fellowships by the Royal College of Surgeons of England and Edinburgh, and an Honorary Doctorate by the University of Lyon in France. The Department of Surgery is indeed indebted to this great leader.

II. HISTORIES OF DIVISIONS

A. Division of General Surgery

Robert M. Zollinger, M.D.
Director

1. General and Academic

In 1958 Dr. Richard Ireton completed his fifth year as Chief Resident in General Surgery and accepted the position as Chief of the Division of Surgery at the Dayton Veterans Administration Hospital. He held this position until 1962, when he was succeeded by Dr. Murray N. Levin.

Dr. Charles Cogbill, formerly Chief of Surgery at the Cleveland Veterans Hospital because the Chief after Dr. Levin's return to Boston. Dr. Edwin H. Ellison, Professor of Surgery, and valuable contributor to many areas of the Department, accepted the post of Professor and Chairman of the Division of Surgery at Marquette University Medical School in Milwaukee, Wisconsin.

Dr. I. S. Ravdin, The John Rhea Barton Professor of Surgery, and Chairman of the Department of Surgery at the University of Pennsylvania was the Ninth Annual Visiting Professor of Surgery. Dr. John J. Farrell of Miami and Dr. Ian Ranger of Middlesex, England were other distinguished visitors to the department in 1958.

Under the able guidance of Dr. Roger D. Williams, arrangements were completed for the first examination session of the American Board of Surgery. A total of 96 surgeons from various areas in the country participated in these examinations which were given by 12 members of the American Board

of Surgery and 12 invited members from the department.

The department chairman, Dr. Robert M. Zollinger, was elected First Vice President of the American College of Surgeons and President-Elect of the Interstate Postgraduate Assembly of North America.

In 1959 Dr. William G. Pace joined the staff in the division of general surgery as a member of the attending staff after completion of his chief residency. The office space in the North Wing of the University Hospital was opened and the expanded area allowed increased space for both teaching and research. The department was honored by the visit of Dr. William P. Longmire, Jr., Professor of Surgery at the University of California as the Annual Visiting Professor. The department was also honored by the visits of Dr. Orvar Swenson of Boston, Dr. C. W. Lillehei of Minnesota, and Dr. George E. Moore of Buffalo.

A national telecast of Grand Rounds originated from the department on April 20. Dr. Zollinger was the host clinician for the production.

On December 16, 1960, the department suffered a disastrous loss in the untimely death of Dr. Robert N. Watman in an airplane crash over New York City. Dr. Watman was an associate professor at the time of his death, and had established himself as an outstanding teacher and clinician.

Dr. Michael DeBakey was the 11th consecutive Visiting Professor in the department. Other internationally famous visitors in that year included Mr. Ian Aird of London, Drs. Ite Boerema and Brummelkamp of Amsterdam, Dr. Warren H. Cole of Chicago, Dr. Stanley O. Hoerr of Cleveland and Dr. J. Englebert Dunphy of Portland, Oregon.

The department was again host to the American Board of Surgery in 1960, and the Buffalo Surgical Society honored the department with a two-day visit.

In 1962 the department was honored to have Dr. Francis D. Moore, Moseley Professor of Surgery and Surgeon-In-Chief of the Peter Bent Brigham Hospital in Boston, Mass. as the Annual Visiting Professor. The department was substantially augmented and assisted by the addition of Dr. Samuel A. Marable as Assistant Professor. Dr. Marable completed his training with Dr. Longmire of California, and joined the staff in peripheral vascular surgery. Dr. Pace was appointed to the Committee on Motion Pictures of the American College of Surgeons, and Dr. Roger Williams was elected to the American Surgical Association. The chemotherapy program of the department was organized and directed under the capable leadership of Dr. Neil C. Andrews.

Dr. Pace was appointed Assistant Dean and Director of The Center for Continuing Medical Education in 1962. In the same year, the department participated in nine postgraduate courses, and in four two-way radio-telephone conferences. Dr. Daniel W. Elliott was the fourth member of the department to be elected to the American Surgical Association. The Visiting Professor of Surgery that year was Dr. Loyal Davis, Professor and Chairman of the Department of Surgery at Northwestern University, and President of the American College of Surgeons. The department was also honored to have as visitors Sir Russell Brock of London, England, Dr. Oscar Creech, Jr., of Tulane University, and Dr. Vaino Serio of Helsinki, Finland.

The department was saddened in 1962 by the loss of Dr. Wells Teachnor, son of a prominent Ohio physician and a sincere friend and benefactor of the University from the time of his graduation in 1919.

In 1963 there was a major change in the policy of the teaching program, with the rotation of junior students for the first time to the affiliated services at Mt. Carmel and Riverside Methodist Hospitals. This step represented a major departure from tradition, and has been followed in subsequent years by affiliations with St. Anthony and Grant Hospitals. The addition of these valuable teaching areas not only increased experience for the student, but also exposed them to completely new areas, making possible a broader education.

Dr. David L. Kinsey completed a final year as Administrative Chief Resident, and subsequently served enthusiastically and ably as the Cancer Coordinator, a post which involved coordination of the Surgical Followup Clinic's activities. Dr. Kinsey continued to serve untiringly in oncologic research and teaching until his forced retirement in 1964 following a premature coronary thrombosis. He planned to resign from the faculty to accept a position as Medical Director of the Weirton Steel Company in West Virginia, but his untimely death after a second myocardial infarction in May 1968 arrested a promising career.

In 1964 one of the most distinct honors that could be given was received by the Chairman of the department with the establishment of the Robert M. Zollinger Chair of Surgery. This was the first of two named Chairs established by the University in the College of Medicine. The

other honored Dr. Charles Austin Doan, a long time Dean and director of the destinies of the College of Medicine. The first recipient of the Zollinger Chair, Dr. Stuart S. Roberts, was appointed in March 1967. Dr. Roberts came from the University of Illinois, where he had succeeded his own professor, Dr. Warren H. Cole, as Acting Chairman of the Department of Surgery. Dr. Roberts, a Markle Scholar, also had advanced training in oncology at the Memorial Sloane-Kettering Cancer Center in New York City. In addition to his extensive research activities in cancer, Dr. Roberts, along with Dr. Marable, pioneered the Medicopter program which has since received national acclaim.

Dr. George M. Curtis, a national leader in surgery and formerly Chairman of the Division of Surgical Research, died on December 23, 1965, after a long and incapacitating illness. Dr. Curtis, a master surgeon and original surgical investigator, made innumerable contributions to the field of surgery during his 35-year faculty tenure. As a tribute to this leader, his former students created the George M. Curtis Lectureship in 1957.

In January 1965 Dr. Daniel W. Elliott, long an essential member of the department, resigned to become Director of the Division of Surgery at the Western Pennsylvania Hospital in Pittsburgh, and Clinical Professor of Surgery at the University of Pittsburgh. Dr. Elliott assumed leadership of the research laboratories and intern program in Pittsburgh. Dr. David A. Taft who came here from the University of Iowa, and who completed six years of training in the division (including one year as an Advanced Clinical Fellow of the American Cancer Society) accepted a position in

the Edinburgh School of Surgery under Sir John Bruce. Dr. Louis Mengoli, also after six years, was accepted for an additional year of training at the Middlesex Hospital in London with Dr. Leslie LeQuesne. Dr. William V. Nick accepted a position as Instructor in Legal Medicine at the University of California at Berkeley. In the following year, he returned to Ohio State, and joined the full-time staff as assistant professor.

The department was saddened by the death of a long time member of the staff, Dr. Howard Boucher, who was an Instructor Emeritus. The loss in the same year of Mr. George J. Kienzle, Director of the School of Journalism created a difficult void in the area of instruction in medical writing which he had cultivated, and which his School offered to surgical residents. Although not a member of the department, he was a sincere friend of the entire staff.

In December 1965, Dr. Roger Williams became Professor and Chairman of the Department of Surgery at the University of Texas Medical Branch at Galveston. Dr. Williams was one of the most productive members of the department. At the same time, the department was strengthened by the addition of Dr. John E. Jesseph as associate professor. He came to the department from the Brookhaven National Laboratory in New York where he was the Visiting Associate Scientist. His previous training was with the late Dr. Henry L. Harkins of Seattle, and he brought to the department his chief fields of interest in physiology of the gastrointestinal tract.

Dr. Neil R. Thomford joined the department after completing his residency at the University of Minnesota and in the program of the Mayo

Clinic. Dr. Thomford's area of primary interest added a new depth to the department in the fields of hepatic homotransplantation and biliary stricture.

Dr. G. James Cerilli joined the department from the University of Colorado where he had received his background in the field of transplantation. Concurrent with the establishment of a program in organ transplantation, Dr. Cerilli succeeded Dr. Kinsey as Cancer Coordinator for the extensive program in cancer research and education involving multiple departments and disciplines in the University Hospitals.

In 1967 Mrs. Mary Lou Kindred found it necessary to retire after so many years of effective service. She had become a prime source of information on all departmental functions, and had served the department faithfully for nearly 20 years.

Dr. Fred T. Moore accepted an appointment as assistant professor of surgery at the University of Louisville School of Medicine in 1968 after the completion of his extensive training at Ohio State.

Over the decade since 1958, increasing numbers of honors have been bestowed on the division. Dr. Joseph A. Bonta was elected president of the Columbus Academy of Medicine for the year 1966-67. Dr. Arthur G. James was elected president of the International Society for Head and Neck Surgeons in 1967. Dr. Samuel A. Marable was president-elect of the Columbus Academy in 1968, and at the same time, Dr. William G. Pace was elected president of the Columbus Surgical Society.

2. Research Activities

The research activities of the Division of General Surgery consistently developed in depth and scope during the decade 1959-1968. The major focal points of interest, which gave rise to scores of individual projects, were: the pancreas; gastric secretion; biliary physiology; surgery of the liver and peripheral arteries; operative and non-operative treatment of cancer; and renal transplantation. The nagging problems of space, facilities, and budget were brought under control innumerable times, only to recur again - singly and often en masse. But this is good in the sense that is one indicator of our research program's viability. In the paragraphs that follow are capsule highlights of the division's research efforts for each academic year between 1959 and 1969.

1958-1959

More than 50 separate projects were pursued during this academic year. A partial listing of titles will illustrate the wide diversity of the staff: pancreatic endocrine function and peptic ulceration; interrelationship of pancreatitis and parathyroid activity; cortisone in the treatment of experimental acute pancreatitis; gastric acidity after operations for ulcer; effect of hypotension on obstructive jaundice; treatment of venous thrombosis with fibrinolysis; hypothermia in the treatment of carbon monoxide poisoning; care of the multiple injury patient; athletic injuries in a Big Ten University, and malignant melanoma.

At the annual meeting of the Ohio Chapter of the American College of Surgeons in Dayton, two of the six prize winning papers were presented by

the co-chief residents - Drs. Mitchell Karlan and William G. Pace. A scientific exhibit - Steering Wheel Injuries to the Chest - earned the gold medal in teaching for Dr. Pace, Drs. Karl P. Klassen and Charles V. Meckstroth of the Division of Thoracic Surgery, and Dr. William Molnar of the Department of Radiology at the annual meeting of the Ohio State Medical Association.

As noted in the annual report, "A highly productive innovation was the initiation of a course in medical writing, arranged and carried on by the School of Journalism under the direction of George Kienzle. The senior department members as well as the resident staff have benefited from the instruction in technical writing and from the weekly seminars." This unique and productive relationship continued until the untimely death of Professor Kienzle in 1965.

1959-1960

Four new grants were obtained for original laboratory and clinical research, thus permitting expansion of the research program to keep pace with our efforts in teaching and patient care.

The division continued to be well represented at local, state and national scientific meetings. Three winners of the annual Columbus Surgical Society's Resident's Prize Competition were Drs. Blanca Smith, A. Bruce Cameron and David L. Kinsey. The scientific exhibit entitled Pancreatitis was awarded the second prize in teaching at the Ohio State Medical Association annual meeting. This work was done by Drs. Pace, Dan W. Elliott and Richard McPherson. Two general surgeons - Dr. Cameron and Dr. Edward Passaro - again were prize winners in the Essay Contest sponsored annually

by the Ohio Chapter of the American College of Surgeons.

1960-1961

Modern facilities for effective animal research became available in 1961 with the opening of the Health Center Research Laboratory; the first animal operation was performed on March 15. The department's Biochemical Research Laboratories acquired a full-time director from the University of Alabama - Dr. Gerald L. Endahl. Prior to Dr. Endahl's arrival, these laboratories had for eight years received part-time guidance from Dr. Richard O. Moore, Professor of Biochemistry.

The Division of General Surgery had 18 approved research projects with a total budgetary allocation of \$167,090. Our research activities were greatly strengthened by several cooperative studies with members of the Department of Pathology including: Dr. Colin Macpherson in bacteriology; Dr. Walter Frajola in enzymology and clinical chemistry; Dr. James M.B. Bloodworth Jr. in special histologic techniques, and Dr. Marie Greider in electron microscopy.

The general surgery research staff enjoyed a particularly fruitful year: eight postdoctoral research fellowships; four of the six prizes in the essay contest of the Ohio Chapter of the American College of Surgeons; two of the three prizes in the Columbus Surgical Society essay contest; eight presentations at national meetings; and finally, 11 residents received master's degrees. These successful literary achievements were no doubt greatly enhanced by the masterful blue pencils of Professor Kienzle and his staff at the School of Journalism.

1961-62

New facilities stimulated much of the expansion in our biochemical laboratories, experimental and animal surgery and in the Clinical Metabolic Research Unit. This year marked the final passing of the old "dog lab." The last project was transferred to the new Health Center Research Laboratory in April after 14 years of "temporary" operation in space generously provided by Dean Walter R. Krill of the College of Veterinary Medicine. Almost 50 individual research projects were completed there; from which more than 100 scientific publications were contributed to the literature.

The value of sponsored research exceeded \$200,000. There were seven projects with financial support averaging \$3,000 each, in which the responsible investigator was a surgical resident. Most of these projects were financed by the Comly Fund of the College of Medicine.

Twelve residents received the degree Master of Medical Science in Surgery. Four had original research papers accepted for presentation at the 47th Clinical Congress of the American College of Surgeons. In addition, four residents represented the division at various other national meetings.

Outstanding contributions were made by Dr. Elliott and his co-workers in their continuing studies of the relationship between the pancreas and peptic ulcer. In association with Drs. George N. Grant and John T. Goswitz working with Dr. Endahl, progress was reported in the verification of the hormone produced by ulcerogenic non-beta islet cell tumors of the pancreas. Their investigations suggested the presence of a similar hormone in the presence of acinar atrophy either experimentally produced or in patients with an atrophic pancreas caused by chronic calcific pancreatitis. This

work was presented before the annual meeting of the American Surgical Association.

A four year Colon Cancer Survey ended in October 1961. It was sponsored by the National Cancer Institute under the co-directorship of Dr. Emmerich von Haam, Chairman of the Department of Pathology and Dr. Robert M. Zollinger. During this study, which was supervised by Dr. Cameron and Dr. Harvey E. Knoernschild, all adult male patients admitted to the University Hospitals underwent routine sigmoidoscopy, unless some contraindication existed. It was found that approximately one-third of the malignancies discovered were previously unsuspected. Projecting this figure to the general population, it was predicted that 0.2 per cent of a similar group would have unsuspected colon cancer which might be diagnosed by routine sigmoidoscopy.

1962-63

There were 18 different research projects listed in June 1963, with financial support for individual projects ranging from \$1,000 to \$75,000 for one year. The total budgetary support for these three projects was \$210,545.

Investigations of the relationships between the pancreas and gastric secretion by Dr. Elliott, Dr. Endahl and the resident staff were considerably augmented by the purchase of much needed equipment for the Biochemical Laboratories. Dr. Roger D. Williams continued his extensive studies of the physiological factors in partial, intermittent and complete biliary obstruction with special reference to their effects on bilirubin and

alkaline phosphatase. This study was supported by the National Institutes of Health as part of an overall program to determine the origin of alkaline phosphatase in surgical jaundice. The Midwest Foundation, with the support of The John A. Hartford Foundation, Inc., sponsored Dr. Pace's project "A Study of Regional Perfusion of Chemotherapeutic Agents for Far Advanced Cancer.

Mr. Colin T. Howe began a year of study in the research laboratories as a Travelling Research Fellow from Cambridge University and the Middlesex Hospital of London, England. He was awarded a \$10,000 general research support grant for his study "The Role of Histamine in Pancreatic-Induced Acid Hypersecretion."

The residents continued to play a leading role in the division's research activities. Dr. Martin E. Felder was instrumental in starting the project "An Objective Evaluation of the Spreading Enzymes." Dr. George N. Grant was awarded support from General Research Funds for his investigation "The Role of Undigested Food in the Bowel in Gastric Acid Hypersecretion." He also presented a paper on "The Role of Pancreatic Digestive Enzymes in Gastric Acid Hypersecretion" before the Surgical Forum of the American College of Surgeons.

At the fall meeting of the Ohio Chapter of the American College of Surgeons, four of the six prizes awarded in the Resident's Essay Contest went to general surgery residents: Drs. Felder, Goswitz, Knoernschild and Henry G. Kelley. Three residents attained the degree Master of Medical Science.

1963-64

The division's research program consisted of 23 active projects with a budget of \$445,501.

Dr. Elliott continued his investigation of the physiology of gastric secretion and firmly established himself as an authority in various aspects of diseases of the pancreas. Dr. Endahl carried on an intensive study to identify the antral hormone, gastrin - a logical deviation from the overall program of study concerning the ulcerogenic tumor of the pancreas.

An extensive program of research and patient therapy was instituted by Dr. Pace and his staff in the field of pelvic perfusion. His grant from The John A. Hartford Foundation, Inc., made funds available for the purchase of monitoring equipment and for personnel to investigate the distribution and effectiveness of chemotherapeutic agents in pelvic perfusion. In the laboratory, Dr. Kinsey investigated the use of 5-fluorouracil and hyperbaric oxygen in the treatment of experimental melanomata. This study, which was presented to the Surgical Forum of the American College of Surgeons, indicated that while neither the drug nor the increased tissue oxygen alone prevented the growth of transplanted tumor, marked suppression of tumor activity and increased rates of survival were found when 5-fluorouracil was used in conjunction with hyperbaric oxygen.

Dr. Kinsey also presented a paper entitled "Simplified Management of Malignant Pleural Effusion" before the Central Surgical Association meeting in February. This report, written with Dr. Klassen and Dr. Daryl Carter of the Experimental Surgery Division of Walter Reed Hospital, described the efficacy of nitrogen mustard as a pleural vesicant after total effusion drainage and lung re-expansion by closed tube thoracotomy.

A total of 87 per cent of the patients had permanent control of their malignant effusion after this treatment.

1964-65

The division had nine research projects with a total budgetary allotment of \$200,544. Our research efforts suffered a major loss when Dr. Elliott left the division in December 1964 to become Chief of Surgery at Western Pennsylvania Hospital in Pittsburgh. Mr. Grant Kerr of Dundee, Scotland, was a most welcome and active investigator. His field of interest was gastric secretion and the use of the Thiery fistula.

The resident staff continued to play an indispensable role in our research activities with the following studies:

Dr. Jerry M. Hardacre - Duodenal stimulation of gastric secretion.

Dr. James W. Keller - Prolonged survival with paired-reversed segments after massive intestinal resection; evaluation of iodinated sutures in experimental tumor inhibition; and calcium excretion in bile in pancreatitis.

Dr. Frederick G. Winegarner - Experimental evaluation of pulmonary embolism.

Dr. Anthony A. Yurko - Alkaline phosphatase in relation to bilirubin and common duct pressure in partial, complete and totally obstructed common bile ducts.

Dr. Robert L. Westerheide presented a paper entitled "The Potential of the Upper Small Bowel in Regulating Acid Secretion" at the Society of University Surgeons meeting in February 1965. Drs. William V. Nick and Robert L. Westerheide received the degree Master of Medical Science for their projects "Diagnosis of Traumatic Pancreatitis with Blunt Abdominal Injuries" and The Effect of Hypercalcemia and Parathyroid Hormone on Pancreatic and

Hepatic Calcium Excretion," respectively. In addition, Dr. Westerheide presented his prize winning essay at the fall meeting of the Ohio Chapter of the American College of Surgeons.

Overall, there were 90 publications by the staff in general surgery and its specialties, and by 12 members of the resident staff.

1965-66

The research efforts of the division and the department as a whole were greatly enhanced with the appointment of Dr. John E. Jesseph as associate professor. Before coming here Dr. Jesseph had written more than 65 articles, mostly in the field of gastrointestinal physiology. He quickly assumed heavy responsibilities as Coordinator of Research for the department and Chairman of the Committee of Clinical Research for the College of Medicine.

Dr. Jean Murat, B.P.C.B., was appointed Research Associate in the department July 1 through December 31, 1965. He came to the United States as a Fulbright Scholar from Lyon, France, where he worked under Dr. Mallet-Guy, Chief of Surgery of the Lyon Faculty of Medicine. His major study here was homotransplantation of the pancreas which was undertaken with Dr. Fred T. Moore of the resident staff.

Dr. Ronald B. Passi came to Ohio State from the University of Western Ontario in London, Canada, as the R. Samuel McLachlin Foundation Traveling Fellow. Under the provisions of that distinguished award, he chose to join our staff as Instructor in General Surgery. This award is made to an outstanding young surgeon who has completed his training and who plans to

gain further experience in preparation for an academic career. His research interests were centered on the problems associated with shock.

Two surgical trainees, Dr. James M. Blackwood and Dr. John P. Minton, held fellowships sponsored by the American Cancer Society. Dr. Blackwood conducted several research projects, including the evaluation of adjunctive chemotherapy upon the therapeutic response of recurrent cancer in mice, a review of combined hexamethylmelamine and radiation therapy in the treatment of patients with carcinoma involving the head and neck and cancer of the lung, a review of the effects of postoperative empyema on the patient treated for lung cancer, a survey of patients with biliary carcinoma and the diagnosis of parotid tumors. Dr. Minton investigated the levels of serum enzymes in patients with advanced cancer and the use of a 1000-joule laser as a surgical adjuvant in the management of cancer. Dr. Minton received first prize from the American Therapeutic Society on June 25, 1966, for his paper "Laser Energy, an Adjunct to Cancer Surgery," and presented a paper to the Surgical Forum of the American College of Surgeons in San Francisco on "Quantitation of Tissue Destruction by a 1000-joule Pulsed Neodymium Laser."

1966-67

During the period June 1, 1966 to June 1, 1967, the Division of General Surgery had 32 approved research projects with a total budget of \$558,368. In addition, the division was greatly augmented by approval of the Surgery Training Grant from the National Institute of General Medical Science in Bethesda, Md. The purpose of this grant was and continues

to be training academic surgeons with a firm foundation in a basic science as well as in surgery. The first trainees chosen for this program were: Drs. John P. Minton, Fred T. Moore, Ronald K. Tompkins and Thomas E. Williams, Jr.

1967-68

Dr. Robert M. Zollinger was awarded a clinical research grant from The John A. Hartford Foundation, Inc. to allow expansion of studies related to the phenomena of ulcerogenic tumors of the pancreas. Early in 1968, these studies resulted in the description of a new clinical state in which tumors of the pancreas were associated with the syndrome of watery diarrhea, hypokalemia and achlorhydria. The concept that tumor production of the hormone secretin accounts for this diarrheal state was presented by Dr. Zollinger and his colleagues before the annual meeting of the American Surgical Association. Related to this area of interest is the continuing effort to develop a simple and reliable method of radioimmunoassay for the hormone gastrin. This work, under the direction of Drs. Endahl, Jesseph and Minton, made fruitful gains, which coupled with the findings of other investigators, should give us the tool for looking into many of the mechanisms in regulation of gastric acid secretion, as well as a diagnostic test for the Zollinger-Ellison syndrome.

Cryotherapy of certain forms of malignancy was a continuing study of Dr. Pace, both in the laboratory and in humans. This work, supported by The John A. Hartford Foundation, Inc., has shown that many patients - otherwise not satisfactorily treatable - may be distinctly benefited by

the use of extreme cold. Though limited to superficial or easily accessible tumors, in some cases it is the only rational therapy.

Dr. Stuart Roberts initiated an intensive clinical study of certain clotting abnormalities which accompany shock, liver trauma and other causes of hemorrhage. He acquired a new, specially-designed laboratory device for the rapid determination of several physical parameters of the blood clotting process and has made steady progress.

The mechanisms of pulmonary embolization and the resulting changes in pulmonary hemodynamics continued to be the major research interest of Dr. Samuel A. Marable. Dr. Michael F. Kaplan, a member of the resident staff, spent the year working with Dr. Marable under the provisions of a fellowship from the Central Ohio Heart Association. They developed a reliable and reproducible method for experimental production of pulmonary embolization, and are perfecting an improved method of radioisotope lung scanning using strontium carbonate particles.

A key portion of Dr. Cerilli's investigation was the production of horse anti-human lymphocyte globulin (ALG). This material has been administered to kidney transplant recipients in an effort to modify and suppress the rejection process. To date, the method has given evidence of distinctly improving the course of patients.

Dr. Minton completed the work for his dissertation for a doctor of philosophy degree in cancer immunology under the direction of Dr. Matthew C. Dodd, Chairman of the academic faculty of Microbial and Cellular Biology. Dr. Ronald K. Tompkins completed two years in research in physiological chemistry under the guidance of Dr. David G. Cornwell, Chairman of the

Department. His work was a study of the role of phospholipid concentration in human gallstones, and how these levels might be altered by diet. His experimental observations were reported to the Surgical Forum of the American College of Surgeons and the Federation of American Societies of Experimental Biology. Dr. Thomas E. Williams Jr. continued advanced studies in biomedical engineering at Northwestern University with Drs. F. John Lewis and G. J. Rath of the Departments of Surgery and Biomedical Engineering. His specialty was the computer analysis of acid-base physiology. Dr. James A. Madura investigated the problems of transplantation immunology. After completing preliminary graduate level courses at Ohio State, he started a year of special study with Dr. Chester Zmijewski of the Duke University Division of Immunology. Dr. Avram R. Kraft, completed his second year of laboratory investigation under the auspices of a US Public Health Service Postdoctoral Research Fellowship. His findings on the role of portal, system venous and lymphatic transport in peritoneal electrolyte absorption were presented before the annual meeting of the Society of University Surgeons. Further studies were undertaken to define the influences of inflammation and a variety of pharmacologic agents on the routes of peritoneal absorption and their rates of transport.

Overall the division's research activities were divided into 41 projects with a total budgetary allocation of \$482,307.

B. DIVISION OF NEUROLOGICAL SURGERY

William E. Hunt, M.D.
Director

Neurological Surgery developed rapidly under the direction of Dr. Harry E. LeFever, Professor and Director of the Division until his death in 1961. Four residents completed their full training program from 1958 to 1961.

In October 1961, Dr. William E. Hunt, associate professor, was appointed acting Director of the Division. By this time, the total in-patient service at the University Hospital had expanded by 16 percent and the total number of major operations trebled.

With expansion of the basic research laboratory, a resident was assigned full time to research as part of his training. During this time, Drs. Robert E. Chambers, Christodoulos Theodotou, Robert Atkinson, James E. Barnes, Robert M. Hess and Charles W. Rossel carried out significant research projects which culminated in their receiving the degree Master of Medical Science. Dr. Barnes and Dr. Rossel joined the part-time faculty upon completion of their residency in 1963. Dr. Myron R. Smith, Lt. Col., U.S.A.F., was assigned to the USAF Hospital in Wiesbaden, Germany at the end of his training.

In 1963 Dr. William E. Hunt became Director and was promoted to the rank of Professor in 1964. Under his aegis, the teaching and research programs at both the student and resident level gained impetus, with the significant help of Dr. Martin P. Sayers, chief of the pediatric section of the division at Children's Hospital, and Dr. John N. Meagher,

associate professor, at University Hospital.

Dr. W. George Bingham, Jr. joined the faculty as assistant professor in 1964 and has added to the research program in the investigation of brain edema and electron microscopy of brain. Dr. Bingham's Ph.D. in Anatomy was awarded by the University of Illinois. His neurological training was at Walter Reed Hospital.

In 1964 a National Institute of Health grant was awarded to Drs. Hunt, Early and Meagher for research in vascular physiology and anatomy. This work culminated in Dr. Early's dissertation in 1967 for Ph.D. in Physiology entitled "Dynamic Pressure-Flow Relationships of Brain Blood Flow in the Monkey."

Dr. Early, a career officer in the U.S. Navy, served in Viet Nam after completion of his residency. He has since made important contributions to the Navy's policies with regard to missile wounds of the brain and spine.

Dr. Thomas J. Hawk and Dr. Joel E. White completed their residencies in 1968. Dr. White received a M.Sc. degree in Anatomy.

In 1966, the division was awarded \$107,152 for one of the first training grants in neurological surgery in the country.

Dr. Hunt was elected Vice-President of the Congress of Neurological Surgeons in 1966. He was named to the American Board of Neurological Surgery in 1968 and was elected to the Society of Neurological Surgeons. In 1969 he became Secretary-Treasurer of the Society. Among other national society duties, chiefly in scientific programming and graduate education, he was appointed to a five-year term as representative for

neurosurgery to the Surgical Forum Committee of the American College of Surgeons. He has served numerous distinguished visiting professorships.

Dr. John Meagher was elected Treasurer of the Congress of Neurological Surgeons for the term 1966 to 1969. He has been Executive Officer of the division at the University Hospital since 1966.

In 1968 Dr. James E. Barnes was named Executive Officer of the pediatric section of the division. This division has been headed by Dr. Martin P. Sayers since 1959. Children's Hospital is an important part of the neurosurgical training program at Ohio State, and is recognized as one of the largest and most active pediatric neurosurgical centers in the United States.

Clinical research in congenital anomalies of the nervous system has been important. The Birth Defects Clinic recorded 647 visits in 1968. This clinic provides a team of specialists for the management of these difficult problems.

The division has produced 79 publications, the most important of which have been in the fields of intracranial vascular surgery, cerebrovascular physiology and the treatment of hydrocephalus and myelomeningocele. Research in the chemotherapy of brain tumors is supported by the National Cancer Institute through its Brain Tumor Study Group.

During the past decade, 10 residents have completed their training, eight of whom received a Master of Medical Science degree, and one of whom was awarded a Ph.D. in physiology.

The division will add another full-time faculty member, Dr. David Yashon, in 1969 and is anticipating further growth in its teaching and research activities.

C. DIVISION OF ORTHOPAEDICS

Paul H. Curtiss Jr., M.D.
Director

In 1960 Dr. William Stanley Smith received the Kappa Delta Award for outstanding research in orthopaedic surgery for his paper "An Experimental Approach to the Etiology of Congenital Dislocation of the Hip." Dr. Smith's co-authors were Drs. Melvin Olix, Richard F. Slager, and Carl R. Coleman who were serving as residents. Under Dr. Smith's able direction the Division of Orthopaedics expanded its activities in both clinical and laboratory research. The number of presentations made at meetings, papers published and residents' activities increased each year.

In 1964 Dr. Smith returned to his alma mater, the University of Michigan, as Director of the Section of Orthopaedic Surgery. Dr. Carl R. Coleman was appointed Acting Director of the Division here on October 1, 1964. On January 1, 1965 Dr. Paul H. Curtiss Jr., assumed the position of Professor and Director of the Division. He had been associated with Western Reserve University since 1952. Dr. Curtiss also became Chief of the Department of Orthopaedic Surgery at Children's Hospital, succeeding Dr. Henry B. Lacey who retired from this position after years of devoted service. Beginning July 1, 1966, the resident appointments in orthopaedic surgery were increased from one to two per year.

In February 1967, Edward J. Eyring, M.D., Ph.D., was appointed assistant professor of Orthopaedics and Assistant Chief of the Department of Orthopaedic Surgery at Children's Hospital. Dr. Eyring also received a joint appointment as assistant professor in the Department of Physiological

Chemistry. His clinical activities are concentrated in pediatric orthopaedics and his research activities are primarily concerned with metabolic problems of the musculo-skeletal system. A Department of Orthopaedics Laboratory for pursuit of these studies was established in Ross Hall.

During the spring of 1967 an Orthopaedic Library was constructed for the use of residents and students and a Histology Research Laboratory was equipped on the fourth floor of the north wing of University Hospital.

In October 1967 Dr. John B. Roberts, a graduate of Northwestern University Medical School, joined the orthopaedic staff at the rank of assistant professor. Dr. Roberts has made many contributions to the teaching and clinical programs.

Five former residents, Carl R. Coleman, Richard F. Slager, Melvin L. Olix, Richard M. Ward and Thomas L. Meyer, became members of the clinical orthopaedic faculty after completion of their residency. Other additions to the clinical staff included Dr. J. John Bock in 1967 and Dr. Martin A. Torch in 1968. Dr. Torch completed his residency here in 1966. The dedicated assistance of the clinical staff remains an integral part of the functions of the division.

At the present time, the orthopaedic residency lasts four years. The first year is spent as junior assistant resident on the orthopaedic service at University Hospital; the second year consists of six-months laboratory experience and six-months elective time; the third year is spent in pediatric orthopaedics in the Orthopaedic Department at Children's Hospital, and the final year is one of senior resident responsibility at University Hospital. Throughout the four-year period there is a concentrated and

organized program of conferences, seminars and discussions related to both basic sciences and clinical orthopaedic subjects.

In 1966, the department was honored to have Dr. Curtiss appointed to Surgery Study Section B of the National Institute of Health. This committee is responsible for review and initial approval of grant applications pertaining to the field of surgery. Dr. Curtiss was also elected to the American Board of Orthopaedic Surgery in 1967 and serves as treasurer of that organization.

The emphasis on research in the division has changed over this ten-year period from morphological studies of the congenitally dislocated hip and clinical investigations to a more fundamental and basic approach. Areas currently under investigation include: the effects of compression and salicylate administration on cartilage; mechanisms of calcification and the conformation of chondromucoprotein; use of the isotope Strontium 87m as a research tool; the development of ceramic prostheses, and mathematical modeling of scoliosis curves. The amount of research funds has steadily grown to a current total of \$51,000. There have been 27 research publications and five presentations at the Surgical Forum of the American College of Surgeons and the Orthopaedic Research Society.

Visiting Professors to the divisions have included Drs. D. Lloyd Griffith of the University of Manchester, William Harris of Boston, Michael Bonfiglio of the University of Iowa, Harold Sofield of Chicago, Carl Badgely of the University of Michigan and John Fahey of Chicago.

D. DIVISION OF PEDIATRIC SURGERY

H. William Clatworthy Jr., M.D.
Director

The College of Medicine has been fortunate to have a close affiliation with one of the largest children's hospitals in the United States. Here the Division of Pediatric Surgery has assumed a role of steadily increasing importance in the teaching of medical students, interns and residents in general surgery.

At the beginning of the decade, Dr. Robert J. Izant left the staff to head the Division of Pediatric Surgery at Western Reserve University. Dr. H. William Clatworthy Jr. and Dr. E. Thomas Boles Jr. were joined by Dr. Thomas S. Morse in 1960 and Dr. Blanca Smith in 1962.

Since 1958, 22 residents have completed senior training in pediatric surgery. Of these 22 trainees, 16 now hold academic appointments, and 11 are chiefs of their own divisions of pediatric surgery. These eleven are: Jacques Charles Ducharme - University of Montreal; Marc I. Rowe - University of Miami; Peter K. Kottmeier - Downstate Medical Center, State University of New York; Alfred A. deLorimier - University of California, San Francisco; H. Biemann Othersen Jr. - Medical College of South Carolina; Lloyd R. Schultz - University of Omaha; Eric W. Fonkalsrud - U.C.L.A.; Arnold S. Leonard - University of Minnesota; James A. O'Neill Jr. - Louisiana State University Medical Center; Neil R. Feins - Boston University School of Medicine, and Michael Bankole - University of Ibadan, Nigeria.

The clinical efforts of the staff have been focused on four major problems: congenital malformations, trauma, malignancy and transplantation.

The decade has seen improvements in the management of many gastrointestinal malformations, notably gastroschisis and ruptured omphaloceles.

Dr. Clatworthy established a neonatal surgical center and intensive care unit where expert nursing care, monitoring and prolonged respiratory support have greatly improved the salvage of severely ill infants.

Dr. Clatworthy and Dr. Blanca Smith pursued their earlier work with bowel resections in growing infants and children.

Trauma has received a major share of attention. The burn unit has drawn a large number of severely burned children from central Ohio. Clinical studies with supravital dyes, silver nitrate dressings and homografting have lead to greatly improved rates of survival. A study of more than 100 kidney injuries in children has been widely reported. Infusion pyelography was adapted to children by Dr. Marc I. Rowe and Dr. Morse, with the help of Dr. William H.R. Howard and Dr. Thomas Frye of the Department of Radiology and Dr. J. P. Smith of pediatric urology. This has permitted early and accurate diagnosis in the great majority of renal injuries, enabling the early identification of those children who require operation, and permitting the salvage of kidneys which might otherwise require removal. Dr. Blanca Smith's extensive laboratory experience with intrahepatic dissection has been carried over to the improved clinical management of liver injuries. The mortality from peritonitis in infants has been reduced by more than 50 per cent, largely because of the studies of Dr. Eric Fonkalsrud. Dr. Fonkalsrud's work in peritonitis and Dr. Rowe's clinical studies in shock have improved the outlook for children with traumatic peritonitis.

Dr. Boles has had a major interest in childhood malignancy. Under his guidance eight residents have received cancer training grants. In the Children's Tumor Clinic under his leadership, a thorough and systematic cancer followup program has been developed. Because a large number of children with cancer are treated here, the division has made major contributions to nationwide cancer chemotherapy cooperative studies in lesions such as neuroblastoma, nephroblastoma and hepatoblastoma.

Dr. Morse has pursued an interest in renal diseases. In addition to his studies on renal trauma, he introduced hemodialysis to Children's Hospital and performed the first renal transplant in Columbus in June 1966.

Research

The research activities of the Division may be divided into two areas. Clinical studies have focused upon the management of gastrointestinal malformations, cardiovascular lesions, biliary atresia, portal hypertension, trauma and malignancy. In the laboratory area primarily under Dr. Blanca Smith, studies have focused on organ preservation, hyperbaric oxygenation and tissue banking. Dr. Smith has studied the vascular and ductal anatomy of the liver and has demonstrated the feasibility of orthotopic transplantation of part of a liver, thus opening up the way to the use of living, related donors for this unpaired organ.

Based upon these clinical and research activities, the division has produced more than 125 publications in the 10-year period.

E. DIVISION OF PLASTIC SURGERY

Ronald B. Berggren, M.D.
Director

1. General and Academic

The decade 1959-1968 was marked by considerable growth in the Division of Plastic Surgery. A divisional office was established in the north wing of University Hospital, and a full-time director was named for the division.

In 1959, Dr. John Trabue became acting director of the division because of the illness of Dr. Bruce Martin. Dr. Martin, the first director, and long active in a career encompassing both original research as well as busy clinical responsibilities, died on September 13, 1965 in Weaver, Alabama. Dr. Robert J. Duran became acting director in 1960 upon Dr. Trabue's resignation. In July 1961, Dr. James C. Bennett became the first full-time director of the division. Dr. Bennett had received his training in general surgery at the University of Michigan and in plastic surgery at the University of Texas, Southern Branch, in Galveston. Dr. Bennett left Ohio State University in 1964 to become professor and chief of the division of plastic surgery at Indiana University. Dr. Duran again assumed the post of acting director until Dr. Ronald B. Berggren was appointed director of the division and assistant professor of surgery in July 1965. Dr. Berggren received his training in general surgery and plastic surgery at the University of Pennsylvania in Philadelphia.

Dr. John L. Terry joined the staff in 1960, after receiving his training in plastic surgery at Ohio State and the University of Pittsburgh. Dr. H. William Porterfield finished his residency at Indiana University and joined the faculty in 1961. After completing his training at St. Louis University, Dr. Clarence L. Maxwell joined the faculty in 1964. Dr. Robert G. Houser trained at Western Reserve, and Dr. Eugene Perrin trained at Western Reserve and Montreal, before joining the faculty in 1968.

The division developed a broad spectrum of interests in plastic and reconstructive surgery, encompassing activities in both the University and Children's Hospitals. With the polarization of interests, Dr. Robert J. Duran became increasingly interested in surgical problems in the hand. He stimulated the formation of hand clinics with the Division of Orthopaedics at University Hospital and with the Department of Orthopaedics and Division of Pediatric General Surgery at Children's Hospital. This interest led to his election to membership in the American Society for Surgery of the Hand in 1968.

Dr. Porterfield developed a strong interest in the problems of rehabilitation of the child with a cleft lip and palate. He stimulated the organization of a cleft palate clinic at Children's Hospital. This multidisciplinary clinic included active participation by the speech therapists and the Division of Dentistry.

The faculty received other honors during this period. Dr. John Trabue was elected to membership in the American Association of Plastic Surgeons in 1962 and was President of the Ohio Valley Plastic Surgery

Society during 1965-66. Dr. Bennett was elected to the Plastic Surgical Research Council in 1963. Dr. Porterfield became active in the local medical activities and in 1968 was elected President of the Academy of Medicine of Columbus and Franklin County. Dr. Duran was elected President of the Columbus Surgical Society in 1968. Dr. Berggren was elected to membership in the Central Surgical Association in 1967, the Plastic Surgical Research Council in 1968, and the order of The Sigma Xi in 1968.

The clinical activities of the division increased and the Residency Program was approved by the Joint Residency Review Committee of the American Medical Association and reactivated in 1968, with the appointment of Dr. Richard Mattison; Dr. Anthony Sokol was appointed the following year.

Contact was established with students in their first year of medical school by means of didactic lectures. Students in their third and fourth year could elect to spend time on the service where they learned basic information about soft tissue wounds, trauma and infection of the hand, facial trauma, burns, and problems of skin replacement. Junior residents from other divisions and departments also rotated on the service.

2. Research Activities

Dr. Rufus Craven, a plastic surgical resident in 1959, worked with Dr. Bruce Martin on reconstruction of the temporomandibular joint. He presented his results as a thesis for the degree Master of Medical Science in 1960. Drs. Terry and Craven later studied metabolism of ascorbic acid in the burn patient. Dr. Bennett and Dr. Terry studied problems of enhancement of tube pedicle survival. Dr. Mel Sturman, a general surgical resident,

worked with Dr. Bennett on a study of healing of second degree burn wounds and the relation of infection to their conversion to full-thickness loss.

Dr. Martin E. Felder, a resident in general surgery, and Dr. Bennett studied the effect of enzymes on the resolution of edema. Dr. Porterfield carried out a series of clinical investigations in the patient with hypernasal speech whether or not it was associated with a cleft palate. Dr. Duran carried out a series of studies in patients with median nerve compression at the wrist as well as investigation of patients with hemangiomas associated with thrombocytopenia.

Dr. Berggren instigated several studies including: long-term preservation of tissues and organs at below-freezing temperatures, enhancement of pedicle flap survival with various topical agents, blood flow in pedicle flaps, the effect of topical antimicrobials on burn wounds, and clinical investigation of facial fractures.

Research projects were carried out by several general surgical residents and undergraduate medical students, as well as the resident staff. The research efforts of the division have resulted in more than 43 publications over the decade, and concurrent with this has been development of research grant support approximating \$72,000.

F. DIVISION OF THORACIC SURGERY

Karl P. Klassen, M.D.
Director

Since its beginning in 1951, the Division of Thoracic Surgery has helped pace the remarkable advances in this surgical specialty throughout the nation. The activities of the division can be divided into teaching, research and the care of patients.

The main energies of this division are directed toward the instruction of medical students which begins with orientation lectures during the sophomore year. A full lecture-demonstration course of all aspects of thoracic and cardiovascular physiology and disease is presented to the junior students. The senior student may elect from two weeks to two months on the thoracic surgery service for clinical work or laboratory investigation either at University or Children's Hospitals. Instruction and lecture-demonstration classes are also given by the division for the undergraduate students in the School of Nursing.

Postgraduate medical training begins with the training of interns and residents and extends into community affairs. Generally, two interns rotate through the thoracic surgery service for each three-month period throughout the year. In addition to patient workup and diagnosis, they are instructed in the therapy of chest trauma, malignancy and cardiovascular surgery. The teaching program continues at the level of resident instruction to generally six residents, two of whom carry out the responsibilities as chief resident. During a recent year, 249 major and 267 minor operations were performed by the resident staff. The value of this residency training

is reflected in the complete range of surgery performed for tuberculosis, pulmonary neoplasms, esophageal lesions, congenital and adult cardiac defects, valvular prosthesis and coronary artery disease. By having senior responsibility on all of these services, the chief resident has an operative experience scarcely equaled elsewhere. Since 1958, the following physicians have received their training as chief resident in the division: James Quinn, Clarence Britt, Maruice Fuquay, David L. Kinsey, Arnold M. Epstein, Louis R. Mengoli, Thomas Z. Lajos, Alan J. Togut, Donald M. Buckner, Neil R. Feins, and Changwoo Ahn.

The division also trains residents who are rotators from other services including general surgery. Thus, the division also serves to train residents whose final specialty may not be chest surgery, but who are well trained in the fundamentals of sound thoracic diagnosis and treatment.

The George Morris Curtis Lectureship has continued to provide outstanding teacher-lecturers throughout these years. The recent participants have been: Philip Sandblom, Richard H. Meade, William P. Longmire, Jr., Michael E. DeBakey, Francis D. Moore, Loyal Davis, Edwin H. Ellison, Lester R. Dragstedt, The Right Honorable Lord Brock of Wimbledon and Denton A. Cooley. In this manner, the investigative spirit of Dr. Curtis continues to inspire the student body and faculty.

The members take an active part in the many medical-surgical teaching conferences throughout each quarter. Examinations are conducted at all levels of instruction including the Mock Surgical Board exams of the resident staff. Many important committees of this medical center are staffed or headed by division members.

Members of this division have always been in demand to give their services toward community betterment by participating in discussions of chest disease at community and county levels, and secondly in participating or directing the policies of organizations such as the Central Ohio Heart Association and the American Cancer Society.

The research activities of the staff have greatly expanded over the past years. A recent budget amounted to more than \$400,000 for thoracic and cardiovascular research. These funds have been obtained from local, private and national sources. Some of the more important investigations include coronary arteriography, valvular prostheses, chemotherapeutic agents, myocardial cellular physiology, cardiac pacemakers, mechanical hearts, cardiac transplantation and circulatory assist devices. More than 300 square feet of Wiseman Hall Research Laboratory are assigned for this purpose. The fruits of this research have been presented to numerous national surgical societies. A partial listing of these societies includes the American Association for Thoracic Surgery, The Society of Thoracic Surgeons, American College of Surgeons, Central Surgical Association, Society of University Surgeons, International Cardiovascular Society, Association for Academic Surgery, Chest Club, American Medical Association, the Ohio State Medical Association, Society for Vascular Surgery, American Association for University Professors, American Thoracic Society and American Federation of Clinical Research. The members have contributed 285 publications to the thoracic literature since 1951 and 194 from research in this division itself.

The areas of patient care include the University Hospital, Children's Hospital and Means Hall (formerly the Ohio Tuberculosis Hospital) with an average daily census of 70 beds. Thus, a complete training program in all types of thoracic surgical diseases and in all age groups is afforded by the division.

More than 2,000 open-heart procedures have been performed at Children's and University Hospitals. More than 150 valvular prostheses have been inserted and approximately 70 patients have been operated upon for coronary artery disease. The division studies of the treatment of pulmonary and allied malignancies are carried out in Means Hall where resectional surgery for tuberculosis is also performed.

The full-time staff of the division consists of a Professor and Director, two additional professors, three associate professors, and one instructor.

The coordinated activities of this division make it an integral part of the College of Medicine and the research and patient care activities of Central Ohio. By its research activities, the division is known throughout the nation for a high degree of perfection in the areas of research and residency training.

G. DIVISION OF UROLOGIC SURGERY

Chester C. Winter, M.D.
Director

1. General and Academic

In 1960, Dr. William N. Taylor retired from the Professorship of Urology after a tenure of 41 years as the first chief of the division. The contributions and highlights of his professorship are thoroughly covered in the second volume of the history of the College of Medicine. In recognition of his meritorious service to the college, he was awarded the title, Professor Emeritus. He was succeeded by Dr. Chester C. Winter, who received his urologic training at the University of California and was assistant professor of surgery and urology at that medical center in Los Angeles. The division's administrative offices were moved to the new north wing of the hospital in the same year, while the large outpatient clinic (4,000-6,000 patients annually) continued in Starling-Loving Hall.

The medical community was saddened by the death of Dr. Louis Roth in 1964, a long-time loyal teacher and associate professor of urology. Dr. Roth taught many OSU medical students at the Columbus Public Health Department.

Dr. Jack N. Taylor was promoted to associate professor in 1960 and has been an active member of the teaching staff. Dr. John P. Smith was promoted to assistant professor in 1961 and has served as Chief of the Division of Urology at Children's Hospital which is affiliated with the university urology program.

Dr. Henry Habib became a full-time instructor in 1962, as did Dr. Ernest Lathem in 1965. Dr. Habib, coming from the University of Rochester, left in 1964 to become Chief of Urology at Kansas City General Hospital. Dr. Lathem of Bowman-Gray Medical College returned to private practice in Greenville, South Carolina in 1966.

Dr. Lionel E. Dorfman of Toronto General Hospital became a full-time instructor in 1966 and was promoted to assistant professor in 1968, attesting to his excellent contributions to the teaching program. He was certified by the American Board of Urology in 1969.

Two new residents are appointed each year, and they become eligible to enter the urologic program upon completion of one year of internship and one year of surgical residency. The first-year residents learn endoscopic techniques and radiologic procedures as well as becoming acquainted with office urology. In addition, they participate in the care of inpatients and in operative procedures. The second-year residents learn in greater depth, both in- and out-patient care and participate in more advanced surgical training. They also have an option to rotate through the Veterans Administration Hospital in Dayton with senior responsibility. The third-year or senior residents have administrative as well as senior surgical responsibility. A portion of this year is spent on the affiliated Children's Hospital urologic service. The residents have opportunities to work in the research laboratories and to undertake clinical projects. These, as well as staff research activities, will be described in greater detail later. Each spring the residents present a program in Columbus, concerning their activities, to the Central Ohio Urologic Society.

The residents completing their training program in the Division of Urology are now located as follows. Dr. Arthur Johnson (Master of Medical Science Degree 1961) is chief of a urology service at Henry Ford Hospital, Detroit. Dr. Robert Rehm earned his M.S. degree in 1962 and practices in Columbus where he is a clinical instructor in urology with a teaching assignment in urologic pathology. Dr. Kenneth Doolittle likewise received an M.S. degree in 1963 and practices in Columbus and is a clinical instructor in the division. Dr. Mark Immergut finished in 1964 and is now a full-time assistant professor of urology at the University of Iowa. Drs. Edward Murphy and John V. Maloney completed their residencies in 1965 and 1966 and are located in Eugene, Ore. and Madison, Wis. respectively. In 1967, Dr. Donald A. Grace was senior resident and he is now located in Calgary, Canada, with a faculty appointment at the University of Alberta. Dr. William K. Whitehouse was graduated in 1967 and is located in Columbus, Ohio. In 1968 Dr. Spencer August completed his training and is now practicing in Hamilton, Ohio. Finally, Drs. Carl V. Dreyer and Nick Trifelos will fulfill their residency requirements in 1969 and are to be located in Toledo and Canton, Ohio respectively.

Four Fellows-in-Urology served for one year each between 1962 and 1965. They were Drs. Robert S. Rose, Jacob Berger (Brazil), Juan Guerrero (Spain), and Henrique Barata (Brazil). They participated fully in the teaching program and are now practicing urology in their respective countries.

Student teaching consists of an introductory course in urologic physical diagnosis for the sophomores, while the juniors receive a series

of lectures on uropathies and the seniors perform clerkships on the urology service. The latter became elective in 1967. Two elective courses in student urology were then offered, one for a two-week period and the other for one month.

Weekly urologic teaching conferences include student presentations, radiology, pathology, tumor, complications, grand rounds, and a journal club. Urologic movies are shown monthly. A monthly seminar with a visiting speaker is held once a month on a Tuesday evening.

The following visiting Professors and Lecturers were presented by the Division of Urology:

Prof. Lester Persky - Case-Western Reserve University
 Mr. Howard Hanley - London Institute of Urology
 Dr. Joseph E. Murray - Peter Bent Brigham Hospital
 Prof. Willard Goodwin - U.C.L.A.
 Prof. Donald McDonald - University of Rochester
 Prof. John Mandler - Johns Hopkins Hospital, Baltimore
 Dr. John Woodard - Cornell - New York Hospital
 Sir Eric Riches - London Institute of Urology
 Prof. William Peart - St. Mary's Hospital, London
 Prof. Ernest Bors - U.C.L.A.
 Dr. Abraham Rapoport - Western Ontario Hospital, Toronto
 Dr. George Taplin - U.C.L.A.
 Dr. Cheng Tsuau Su - Savannah Urology Clinic
 Dr. Brantley Scott - Baylor University, Houston
 Prof. Hartwell Harrison - Harvard University
 Mr. Richard Turner-Warwick - Middlesex Hospital, London
 Prof. Ruben Flocks - State University of Iowa
 Prof. T. Minami - Jeikei Medical School, Japan
 Dr. Ongay de Mendieta - Mexico
 Dr. Heinz Wahner - Columbia
 Dr. Carl Smith - Christ Hospital, Cincinnati
 Dr. D. O. Akinkugbe - Ibadan Medical School, Nigeria
 Dr. Eugene Poutasse - Cleveland Clinic
 Prof. Leslie N. Pyrah - Leeds University, England
 Dr. Belton Burrows - Boston University
 Dr. Jaber Muhsen - Baghdad, Iraq
 Dr. John Emmett - Mayo Clinic
 Dr. H. Kobayashi - Japan

Dr. Leo Timmermans - University of Leige, Belgium
Mr. Miles Fox - Leeds University, England
Mr. Douglas Stephens - Melbourne, Australia
Prof. James Glenn - Duke University
Prof. Jack Lapidus - University of Michigan
Prof. Robert Garrett - Indiana University

Four urologic laboratories were instituted: the radioisotope urography laboratory (1960 to present), urinary studies (1960 to present), urologic photography and museum (1963-6), and angiotensin bioassay (1963 to present).

Renal transplantation was commenced at Children's Hospital in 1966 and at University Hospital in 1967 with the urologic division staff participating fully in both programs.

The director of the division received a number of honors during the decade, including the Winsbury-White Lectureship to the Royal College of Medicine in London, 1962, and honorary memberships in the Argentina Urology Association, the New York Medical College Urology Society, and the Academy of Medicine at Terre Haute, Indiana. He was elected a member of the Society of University Surgeons in 1961, the American Association of Genitourinary Surgeons in 1962, the American College of Surgeons in 1963, the Society of Pediatric Urology in 1964, the International Society of Urology in 1967 and the Society of University Urologists in 1968. He received an American Medical Association award for a urology exhibit on renal hypertension in 1963, and he was presented with a medal by the University of Liege, Belgium in 1967 for his contributions to urology in the field of radioisotope procedures. In 1964 he was made an editor of Medica Excerpta (Nuclear Medicine) and became a member of the editorial staff of Urological Survey in 1968.

During the 10 year span, he presented 181 papers in the United States and abroad, and published 68 journal articles, nine textbook chapters and five books. The latter are: Radioisotope Renography (1963), Correctable Renal Hypertension (1964), Nursing Care of Patients with Urologic Diseases (with Roehm, 1968), Practical Urology (1969), and Vesicoureteral Reflux (1969). He made seven medical movies and four exhibits. An exhibit on Teaching Transurethral Surgery with Drs. Habib and Berger won first prize at the American Urological Association convention in 1964.

Dr. Jack Taylor was active in the North Central Section of the American Urological Association, serving on the executive as well as other committees. He presented 15 talks, published 17 papers, and had one exhibit. Dr. Habib presented 8 papers, had 2 exhibits and 2 motion pictures and published 2 articles. Dr. Lathem presented 2 papers and had 2 publications and 1 motion picture. Dr. Dorfman presented 4 papers and had 4 publications, including a textbook chapter. Dr. John P. Smith gave 15 papers, had 10 publications, and prepared an exhibit with Dr. Thomas Morse.

The residents gave 25 papers, published or co-authored 15 articles and participated in several exhibits and movies. Dr. Immergut founded the Society of University Urology Residents, and the initial meeting convened in Columbus in 1963. It has prospered since.

Postgraduate seminars sponsored by the Division were eminently successful and included: Urinary Calculi (1961), Radioisotope Urologic Tests (1962), First International Conference on Renal Hypertension (1963), Neurogenic Bladder (1964), American Urological Association Seminar (1967), and Advances and Innovations in Urology (1969). Both foreign and American

guest faculty participated. The Division plans an annual Urologic Outing with the first to be held at Hueston Woods State Park in Ohio in 1969.

The university program enjoys an affiliation with Children's Hospital of Columbus where the service chief is Dr. John P. Smith, assistant professor of urology. Dr. Smith is active in the Society of Pediatric Urology (secretary-treasurer) and the urologic section of the American Academy of Pediatrics. He also serves on the editorial board of the Journal of Urology as a representative of the North Central Section of the American Urological Association. He was general chairman of that section's convention which convened in Columbus in 1965.

Since 1966, second-year residents have served a rotation at the Veterans Administration Hospital in Dayton under the direction of Dr. Francisco Genoa (1965-66) and Dr. Benjamin Pilloff (1966 to present). Valuable experience has been their reward and we are indebted to these chiefs and their services. Currently, a Veterans Hospital urology resident also rotates through University and Children's Hospitals.

2. Urologic Research

Research projects were of a wide variety of activities in the animal laboratory, the urologic laboratories and were of a clinical nature. The division received \$570,329 in grants-in-aid during the ten-year period. A modern radioisotope urologic unit for the performance of blood clearance, renography, reflux testing, uroflometry, and bladder residual has been kept updated and is in daily use with a full-time technician. A renal scanner was also used for several years before this function was turned over to another department.

The animal laboratory included dog, rabbit, monkey and rat experiments concerned with renal hypertension (Dr. Winter), the bioassay of angiotensin (Drs. Habib and Winter), vesicoureteral reflux (Drs. Winter and Dreyer), and omento-ureteroplasty (Dr. August). Drs. Arthur Johnson and Jack Taylor experimented with regenerative capabilities of normal bladder tissue. Drs. Taylor and Doolittle, in conjunction with the hospital cytologist, studied urinary sediment and published several reports. Dr. Taylor also reported clinical entities of torsion of the spermatic cord and renal angiomyolipoma and carried on a lengthy study of the differential diagnosis of renal mass lesions, utilizing radiologic techniques. Dr. John P. Smith surveyed numerous pediatric urologic entities which served as the basis for papers and publications. With Dr. Rose, urologic birth defects were studied, including vesicoureteral reflux, exstrophy of the bladder and urinary diversion. Dr. Winter also studied pediatric problems including renal function in the newborn and methods of urinary diversion.

Dr. Henry Habib determined ways of electrically stimulating the neurogenically afflicted bladder as well as setting up the angiotensin bioassay laboratory which was continued by Dr. Winter. Drs. Habib, Berger and Winter utilized a cow's udder as a model for teaching transurethral surgery and an exhibit of this method won first prize at the American Urological Association convention (1964).

Dr. Winter inaugurated the radioisotope laboratory where eleven different procedures were developed and reported. He also conducted a 10-year clinical study of renal hypertension and a six-year cooperative

study of bladder cancer, utilizing chemotherapy and radiation as adjuvants to surgery. These two cooperative studies enjoyed the participation of the entire staff, especially Drs. Habib, Lathem, Dorfman, Pomeroy (Radiology), Schloss (Radiology), and Batley (Radiology).

Dr. Rehm, assisted by Dr. Arthur Fishman, studied urinary sediment and urinary infections and received the Travelling Fellowship Award and a stipend of \$500 from the North Central Section of the American Urological Association for his report to their society in 1962. Drs. Winter and Quilter carried on separate studies of urinary tract infections, comparing the efficiency of various drugs. Dr. Kenneth Doolittle's Master of Surgery thesis was concerned with his studies of polycystic renal disease and radioisotope renography and was published in the Journal of Urology in abbreviated form. He was assisted and supervised by Dr. Winter. Dr. Immergut devised a hypothermic unit for transurethral prostatectomy and also studied the effect of epsilon amino caproic acid on surgical blood loss.

Dr. Lionel Dorfman studied new methods for diagnosing urinary infections and neurogenic bladder disease.

Dr. Carl Dreyer innovated a methodology of using the Dermo-Jet for urologic diseases and invented an attachment for use with endoscopic instruments.

Other clinical study subjects were: renal hemangiomas (Dr. James Williams), male infertility (Dr. Mark Saylor); hyperparathyroidism and renal calculus disease and vesicoureteral reflux due to prostatic enlargement (Dr. Allen Puppel); renal transplantation (Drs. Winter, Habib and Smith); cineradiography (Dr. Winter); differential renal function

testing (Dr. Winter); priapism (Dr. Winter); urinary ostomies (Drs. Habib and Whitehouse); renal radioautographs (Dr. Winter and students); prostatic involvement by leukemia (Drs. Fishman and Taylor); ureteropelvic surgery (Dr. Winter); a new method of urethral diverticulectomy (Dr. Winter); renal calculi (Dr. Winter); and upright aortography (Dr. Winter).

The division enjoyed the cooperation of many faculty members and various departments, and special thanks is given to Drs. William G. Myers (Radiology) and N. Paul Hudson (Assistant Dean Emeritus) for their valuable assistance.

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Instr. 1947; Asst. Prof. 1952; Assoc. Prof. 1957; Instr. Dept. of
Anatomy 1949-52; Asst. Dean & Coordinator of Research 1966-69;
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1963-65; Asst. Prof. 1965-
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B.A., O.S.U. 1916; M.D., O.S.U. 1921; M.M.Sc., O.S.U. 1922; Instr. 1926;
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Prof. Emer. of Surgery and Surgical Research 1954-65 d.
- CURTISS, PAUL H. Orthopaedics
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Acting Chief, Div. of Plastic Surgery 1960-61 and 1964-65; Asst. Prof.
1964-
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1946; Instr. 1948; Asst. Prof. 1951; Assoc. Prof. 1952; Prof. 1957-58.
- ENDAHL, GERALD L. General Surgery
B.A., Augustana College 1949; M.D., U. of South Dakota 1953; Ph.D.,
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- HARDING II, WARREN G. General Surgery
B.A., O.S.U. 1924; M.A., U. of Southern California 1929; M.D., College
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- HARDYMON, Philip B. General Surgery
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1954-61; Assoc. Prof. 1961-62; Assoc. Prof. & Director 1962-64;
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- IRETON, RICHARD J. General Surgery
B.A., O.S.U. 1946; M.D., Harvard U. 1950; M.M.Sc., O.S.U. 1956;
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B.S., O.S.U. 1934; M.M.Sc., O.S.U. 1937; M.D., O.S.U. 1937; Instr. 1941;
Asst. Prof. 1947; Assoc. Prof. 1952; Prof. 1966-
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B.A., Whitman College 1949; M.D., U. of Washington 1953; M.M.Sc.,
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1965; Prof. 1967-
- KEITH, Jr., LUTHER M. General Surgery
B.S., Texas Technological College 1941; M.D., U. of Tennessee 1945;
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- KILMAN, JAMES W. Thoracic Surgery
B.S., Indiana State U. 1956; M.D., Indiana U. School of Med. 1960;
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- KINSEY, DAVID L. General Surgery
B.S., O.S.U. 1951; M.D., O.S.U. 1955; Instr. 1962; Asst. Prof. 1962;
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- KIRK, Gilman D. General Surgery
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B.Sc., Wheaton Coll. 1931; M.D., U. of Chicago 1935; Asst. Prof. 1942;
Assoc. Prof. 1950; Prof. 1953- ; Acting Chr. 1952-53 Dept. of Surgical
Research; Director, Div. of Thoracic Surgery 1953- ; Director, Dept.
of Thoracic Surgery at Children's Hospital 1967 -
- LE FEVER, HARRY E. Neurosurgery
A.B., Ohio U. 1921; M.D., Jefferson Medical College 1925; Instructor
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- LEWIS, TOM F. General Surgery
B.S., O.S.U. 1930; M.D., O.S.U. 1932; Instr. 1939; Asst. Prof. 1942-
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B.A., U. of Cincinnati 1928; M.D., U. of Cincinnati 1933; Asst. Prof.
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- MARABLE, SAMUEL A. General Surgery
B.A., Vanderbilt U. 1949; M.D., Vanderbilt U. 1952; Asst. Prof. 1961;
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- MEANS, JOHN W. General Surgery
D.D.S., O.S.U. 1906; M.D., U. of Pennsylvania 1909; Instr. in Oral
Surgery 1910-1914; Instr. 1914; Asst. Prof. 1924; Assoc. Prof. 1932;
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B.A., O.S.U. 1944; M.D., O.S.U. 1947; M.M.Sc., O.S.U. 1950; Instr.,
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- SMITH, BLANCA Pediatric Surgery
B.Sc., Universidad Mayor de San Andres 1947; M.D., Universidad de Brasil 1950; M.M.Sc., O.S.U. 1960; Ph.D., O.S.U. 1964; Instr. 1959; Asst. Prof. 1962; Assoc. Prof. 1966.
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- SMITH, PHILIP W. Thoracic Surgery
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- STEWART, WILLIAM R.C. General Surgery
B.A., Miami U. 1951; M.D., O.S.U. 1955; M.M.Sc., O.S.U. 1958; Instr. 1967; Asst. Prof. 1967-
- STONER, CLINTON D. Thoracic Surgery
B.S., South Dakota State U. 1957; M.S., South Dakota State U. 1960; Ph.D., U. of Illinois 1965; Asst. Prof. 1965-
- TAYLOR, JACK N. Urologic Surgery
B.A., O.S.U. 1940; M.D., Harvard U. 1943; Asst. Prof. 1951-60; Assoc. Prof. 1960-
- TAYLOR, WILLIAM N. Urologic Surgery
M.D., O.S.U. 1915; Teaching Staff 1919-37; Prof. 1937-60; Prof. Emer. 1960-
- TEACHNOR, WELLS H. General Surgery
M.D., O.S.U. 1919; Instr. 1930; Asst. Prof. 1947; d. 1962.
- TETERICK, JACK E. General Surgery
B.S., O.S.U. 1948; M.D., Harvard U. 1951; Instr. 1965; Asst. Prof. 1968; Assoc. Prof. 1969-
- THOMAS, CHARLES C. General Surgery
B.S., U. of Iowa 1923; M.D., U. of Buffalo 1925; Asst. Prof. 1959-62.
- THOMFORD, NEIL R. General Surgery
B.S., U. of Minnesota 1953; M.D., U. of Minnesota 1955; M.M.Sc., U. of Minnesota 1965; Asst. Prof. 1966-
- VASKO, JOHN S. Thoracic Surgery
D.D.S., O.S.U. 1950; M.D., O.S.U. 1958; Assoc. Prof. 1966-
- WATMAN, ROBERT N. General Surgery
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B.S., Duke U. 1947; M.D., Duke U. 1947; M.S., O.S.U. 1951; Instr. 1951; Asst. Prof. 1955; Assoc. Prof. 1959; Prof. 1962-65.
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OBERNOUR, STERLING W., B.A., M.D.; 1965-
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PARKER, G. WILLIAM, B.A., M.D.; 1967-
PASSI, RONALD B., M.D.; 1965-67
PORTERFIELD, H.WILLIAM, B.A., M.D.; 1961-
PRICE, PLINEY, B.A., M.D.; 1953-64
QUILTER, THOMAS, B.S., M.D.; 1958-63
REHM, ROBERT, B.A., M.D.; 1962-
RETTNER, RICHARD H., B.S., M.D.; 1953-
RIDGEWAY, JOSEPH A., B.A., M.D.; 1949-
ROSSEL, CHARLES W., B.A., M.D., M.M.Sc; 1963-
SAMPSEL, JAMES W., B.A., M.D.; 1953-
SAYLOR, MARK, B.A., M.D.; 1958-
SHAW, BYERS W., B.S., M.D.; 1950-61
SHIVELY, FRANKLIN L., B.S., M.D.; 1956-
SLAGER, RICHARD F., B.A., M.D., M.M.Sc.; 1960-
SMITH, Jr., J. LEWIS, B.S., M.D.; 1967-69
TAYLOR, PHILIP H., B.A., M.D.; 1962-
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THEODOTOU, CHRIS B., B.A., M.D., M.M.Sc.; 1958-66
TORCH, MARTIN A., B.A., M.D.; 1968
TRABUE, JOHN C., B.A., M.D.; 1951-68
TRAPHAGEN, DONALD W., B.A., M.D.; 1946-

VANCE, RICHARD, M.D.; 1943-63

WALKER, WATSON H., B.S., M.D.; 1950-

WARD, RICHARD M., B.A., M.D.: 1965-

WESTPHAL, REINHARD A., M.D.; 1963-

WILLIAMS, JAMES E., B.S., M.D.; 1957-

WILTBERGER, WILLIAM W., B.A., M.D.; 1955-61

WORSTELL, HENRY P., B.S., M.D.; 1947-

YOUNG, ROBERT E.S., B.A., M.D.; Instr. 1938; Instr. Emer. 1969-