1940

Twenty-Five Years: Washington University School of Medicine.

Washington University in St. Louis

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TWENTY-FIVE YEARS
A Note on a surgeon

Curtis Hance
TWENTY-FIVE YEARS

Twenty-five years have passed since the first patients were cared for in these hospitals.

Twenty-five classes of medical students and nurses trained in these wards and laboratories have joined the ranks of alumni now practicing in every part of this country.

The first Medical Center to be established in the Midwest, created by affiliation of the Barnes Hospital and the St. Louis Children's Hospital with the Medical School of Washington University, for the purpose of achieving by joint efforts higher standards in medical education and in medical practice, has now come of age.

Many groups have contributed to its foundation and to its support; many have had a part in its conduct. Many others have benefited from its operation. Every one of these individuals has an interest in its history and development.

This booklet reviews the origins and the establishment of this cooperative enterprise, attempts to portray its progress during the past quarter century, and expresses its outlook in facing future opportunities to serve this community and to aid in promoting the health of mankind.

THE SCHOOL OF MEDICINE OF WASHINGTON UNIVERSITY, AND AFFILIATED HOSPITALS

WASHINGTON UNIVERSITY • SAINT LOUIS, 1940
The Edward Mallinckrodt Radiological Institute, erected 1931.
The teaching of medicine west of the Mississippi River began in St. Louis in the early years of the nineteenth century to provide medical care for the rapidly growing population of the West. It was initiated by two schools, the Medical Department of Kemper College and the Medical Department of St. Louis University. In a later period both became independent institutions, bearing the names of the Missouri Medical College and the St. Louis Medical College respectively, or (to the layman) McDowell's and Pope's Colleges. In these two schools were trained many of the doctors who practiced their profession in the new towns of the West, from Texas to Washington. These two pioneer colleges of Missouri performed a service essential to the settlement of a vast territory.

In 1891, the St. Louis Medical College was affiliated with Washington University as its medical department which, eight years later, was joined by the Missouri Medical College. The single purpose of combining these two faculties, their buildings, clinical facilities and scientific equipment, was to improve the standards of medical education.

Surveys of medical schools in the United States by the American Medical Association and a report by Abraham Flexner for the Carnegie Foundation ultimately drew attention to the great need for a sweeping reorganization of medical education. The Flexner report advised the closing of many schools with inadequate facilities and the improvement of others whose aims and resources justified their development.

The medical department of Washington University was considered to be in the latter group. Robert S. Brookings, President of the Corporation, had earlier determined to strengthen the medical department and had already begun a study of ways and means. His ambition to create a model medical school in the

Members of the Class of 1881 of the St. Louis Medical College; four veteran physicians who have held an annual reunion for many years. From left to right, Dr. Max C. Starkloff, Dr. James A. Dickson, Dr. Willis Hall, Dr. Amand Ravold. A fifth member, Dr. W. V. Guttery, was too busy with his practice, at the age of 91, to be present for the picture.
West, aroused by a realization of the need, was stimulated by the Flexner report, and his plans were guided to a large extent by the constructive criticism of its author.

Brookings threw into the project his enthusiasm, his fortune, and his persuasive influence with his friends and others who joined in supporting the enterprise. Among those who responded generously Edward Mallinckrodt, father and son, deserve special appreciation for their continued interest and support. Others who made substantial contributions to early endowments were Adolphus Busch, Robert Stockton, William K. Bixby, John T. Milliken, and Mrs. Mary Culver. Besides the contributions of St. Louisans, large gifts were later received from the General Education Board of New York.

After much study and with the advice of leaders at home and abroad, with new financial support contributed by himself and his friends, and with the active cooperation of the faculty, the Medical School was wholly reorganized in 1910 under new heads of all departments.

Affiliations were formed with the Trustees of a bequest left by Robert A. Barnes for the establishment of a hospital, and with the Trustees of the St. Louis Children's Hospital, whereby these institutions would be staffed by the teachers of the Medical School and would maintain ward services for clinical instruction and study. A new site was purchased and plans were formulated for the erection of a closely integrated hospital and medical school group at the present location on Kingshighway adjoining Forest Park.

The young men who in 1910 became the new heads of departments in the Medical School were George Dock (the first dean), Erlanger, Howland, Opie, Shaffer, Terry, Edsall, and Fred T. Murphy. With the advice and cooperation of Fischel, Carson, Shapleigh and others the faculty and curriculum were reorganized, buildings were planned, and in the fall of 1914 the School was moved into the new laboratories and hospitals.

The new structures were dedicated in April, 1915. A large and distinguished gathering attested the significance of the occasion. Honorary degrees were conferred on Otto Folin, professor of Biological Chemistry at Harvard; T. C. Janeway, professor of Medicine at Johns Hopkins; W. T. Porter, professor of Comparative Physiology at Harvard; Russel H. Chittenden, professor of Physiological Chemistry at Yale; Simon Flexner, Director of the Rockefeller Institute; William C. Gorgas, The Surgeon General of the United States Army; A. Ross Hill, presi-
dent of the University of Missouri; William H. Howell, professor of Physiology at Johns Hopkins; Abraham Jacobi, wise and venerated practitioner of medicine; A. Lawrence Lowell, president of Harvard; Franklin P. Mall, professor of Anatomy at Johns Hopkins; Rudolph Matas, professor of Surgery at Tulane; Samuel J. Meltzer, head of the department of Physiology and Pharmacology, Rockefeller Institute; George E. Vincent, president of the University of Minnesota; and William H. Welch, professor of Pathology at Johns Hopkins. Dr. Welch characterized the occasion as "one of the most significant events in the recent history of medical education in America."
The Medical Group in 1915, from the southeast

The same view in 1940
As the illustrations of this brochure show, growth has been continued and vigorous around the nucleus provided by the School of Medicine and Barnes and Children's Hospitals as they existed in 1915. One of the first developments was the endowment in 1916 of three major clinical departments by gifts, in part from the General Education Board and in part from donors for whom the departments were named: The John T. Milliken Department of Medicine, The Mary Culver Department of Surgery, and The Edward Mallinckrodt Department of Pediatrics. This endowment permitted the establishment of the so-called full-time plan for the principal appointments in these departments—a policy later extended to other departments. Although the full-time plan has been limited in its application because of cost and is open to some objections, it has the advantage of protecting active teachers from the additional burden of private practice. The notable productivity of the clinical departments may be attributed in some measure to the full-time plan of their organization.

The year 1916 saw also the completion of the Nurses' Residence, the erection of the Dormitory for medical students, and the organization of the Department of Medical Social Service.

In 1917 the activities of the Medical Center were disturbed by the first World War. Base Hospital 21, of the U.S. Army, was organized from the staff, including nurses and medical students. Soon after this unit left for France, a second contingent followed. Base Hospital 21 served with great distinction at Rouen, where a class of medical students received their diplomas in 1918. Other members of the School took up military duties at home and overseas. A school of plastic, oral, and neurological surgery was conducted at the request of the War Department. Facilities in the medical school were used by the Red Cross. Although many members of the staff were absent on leave and a number of additional activities were undertaken, operation of the School and Hospitals continued without interruption, as it will again if similar circumstances arise.

The Department of Pharmacology was endowed in 1919 by a gift from Mr. Edward Mallinckrodt. In 1923 the Shriners' Hospital for Crippled Children was built. Although not affiliated with the University, its facilities are available for teaching and research. The next year saw the formation and endowment of a separate Department of Bacteriology. An informal affiliation was formed with the School of Occupational Therapy, an outgrowth of activities begun during the war.

In 1927 another hospital joined the Medical Center. The St. Louis Maternity Hospital erected a new building on ground provided by the University, to be staffed by the Department of Obstetrics, then newly endowed by the General Education Board. In the same year, Ophthalmology and Radiology received separate departmental endowments; an addition to the Nurses' Residence was completed; and the Medical Alumni Association established its loan fund for needy students.

Two years later the Jackson Johnson scholarship fund was created by a bequest from Mr. Johnson; the May, McMillan, and Bordley loan funds were established; and the LaVerne Noyes scholarships were opened to medical students. No gifts to the University are of greater benefit than
such provision for scholarship aid. It opens a career to many gifted students, otherwise unable to undertake the long and costly preparation for medicine, and permits others to avoid the necessity of outside employment for support during their training period.

Recognizing the mutual relationship of dentistry and medicine, the University built the new School of Dentistry directly opposite the School of Medicine, and opened it for work in 1928. With similar standards and policies, the two Schools have much in common and now operate in ever closer cooperation. They share the concept expressed in the review of the Rockefeller Foundation in 1938: “Until our dental schools are brought more closely into line with our medical schools, much of the mechanical brilliance of American dentists will remain that and nothing more, and the essential curative and preventive measures will go unstudied.”

Expansion came rapidly in 1931 with the erection of the McMillan Hospital, provided by the bequest of Mrs. Eliza McMillan, and the Oscar Johnson Institute sponsored by the family and friends of Mr. Johnson. The Mallinckrodt Radiological Institute, the gift of Mr. Edward Mallinckrodt and his son, was erected. The Rand-Johnson Surgical Wing of Barnes Hospital was opened. The same year saw the beginning of a reorganization of the Dispensary, now the University Clinics, which constitute the outpatient services of the hospitals and have become also an important agency in preventive medicine and public health activities in this community. Further development by expansion of their facilities to meet increasing opportunities is one of the chief needs of the School today.

With the increase of specialization in the treatment of disease and with the building of special hospitals, it has become necessary to expand the clinical facilities for teaching and investigation beyond the Medical Center itself. Increasing use is made of opportunities afforded
by the St. Louis Sanitarium, the Isolation Hospital, the Koch Hospital, and the Barnard Free Skin and Cancer Hospital. By a cooperative arrangement with the City and St. Louis University, one-third of the services in the St. Louis City Hospital has long been under the direction of the School. More recently the entire service in the Homer G. Phillips Hospital for colored patients has been staffed by the faculty of the School, in cooperation with colored physicians as junior members of the staff. In all of these hospitals teaching has been organized.

In 1938 a new full-time Department of Neuropsychiatry was established with the aid of the Rockefeller Foundation. Through its staff, in close cooperation with other departments both clinical and laboratory, greater emphasis is now given to the emotional, psychic and neurological conditions which constitute increasing factors in human disability and distress. This new department has clinical services and laboratories in the Medical Center and directs half the service of the recently completed Bliss Psychopathic Institute of the St. Louis City Hospital.
On the occasion of the dedication of the new buildings, Henry Smith Pritchett, then President of the Carnegie Corporation (and formerly a professor at Washington University) expressed the hope "that to those to whom have been entrusted these splendid facilities... there will come not only the spirit of work, but the courage to advance; not only the desire to possess the best and the latest facilities, but the ability to use to their full measure those that do exist; and that the faculty of this institution may breathe into these laboratories and hospitals a devotion, an energy, an intelligence that may make them alive, and that may result in contributions to the science of medicine which may be an honor to this city, to our country and to our generation."

What can be said after twenty-five years concerning the growth, the service rendered and the contributions to medical science from these institutions? No mere recital of figures, dollars spent, patients treated, students trained and pages of books and papers printed, will serve to answer these questions. It is the lasting influence spread near and far that will in time measure the value to society of this cooperative enterprise. The main sources of this influence are the physical plant and facilities with which the work is done, the calibre of the men and women who utilize these facilities, and the products of their efforts.

Let every reader scan the unfolded cover of this book. There he will see, better than words can describe them, the monumental structures erected by the generous gifts of citizens of St. Louis at a cost of approximately eight million dollars. By location and by inter-related construction, the group of buildings admirably serves its purpose of integrating medical care with teaching and investigation. Some younger medical centers now have larger and more elaborate plants, but none perhaps better accomplishes its purposes at lower cost and expenditure. Although it is difficult to compare accurately either costs or accomplishments, competent opinion supports the belief that this medical school is more economically built and operated than any other of its class.

In the year 1939, over forty-one thousand patients were treated in these hospitals and clinics, attracted from an ever-widening territory by the reputation of the institutions and their staffs. During the first quarter century of operation 1,791 medical students, from nearly every state in the Union, have been graduated from the Medical School; 625 young graduates have been trained as house officers in these hospitals; and 810 student nurses have graduated from the School of Nursing. A number of these graduates have sent sons and daughters to follow in their footsteps.
One way of rating scientists and professional men is by the judgment of their peers in the learned societies to which they belong. Among the greatest of distinctions for a scientist is election to the National Academy of Sciences, the total membership of which in all sections is only 310. Twenty-five years ago the faculty of this Medical School included no member of the National Academy. Now it has four; only one other medical school has a larger representation. Many national scientific societies have chosen presidents in recent years from this faculty; among them:

American Academy of Ophthalmology and Otolaryngology  
American Association for Cancer Research  
American Association of Genito-Urinary Surgeons  
American Association of Pathologists and Bacteriologists  
American Association for Thoracic Surgery  
American Board of Pediatrics  
American Board of Surgery  
American College of Surgeons  
American Congress of Physical Therapy  
American Dermatological Association  
American Gynecological Society  
American Laryngological Association  
American Laryngological, Rhinological and Otolological Society  
American Neurological Association  
American Otological Society  
American Pediatric Society  
American Physiological Society  
American Society of Biological Chemists  
American Surgical Association  
Association for the Study of Allergy  
Association for the Study of Internal Secretions  
National Research Council, Division of Medical Sciences  
Society for the Study of Asthma and Allied Conditions  
Southern Medical Association  
Union of American Biological Societies

The University takes pride in the service of former members of its staff and of its graduates who hold professorships or posts of like responsibility in other institutions. Among these are Brooks at Vanderbilt, Lehman at Virginia, Cole at Illinois, Ochsner at Tulane, Schmidt at Wisconsin, Mudd at Pennsylvania, Johnston at Detroit, Clausen and Bloor at Rochester, Jeans at Iowa, Gruber at Jefferson, Gasser at the Rockefeller Institute, Gesell, Wilson, Hodges and Barker at Michigan, Jackson at Cincinnati, Doisy at St. Louis, West at Oregon, Danforth at Stanford, Rees at Colorado, Dieckmann and Paul Hodges at Chicago, Hinsey at Cornell, Moorhouse at Manitoba, Cruickshank at Aberdeen, Allen at Yale, Chesney at Johns Hopkins, Muckenfuss at the New York City Bureau of Laboratories.
The Enlargement of Knowledge

However valuable and important may be the service of the physician to his patients, and however highly it may be appreciated by the community, a still greater usefulness is achieved by those who enlarge medical knowledge or who improve ways of treating or preventing disease, — for new knowledge and better methods enable all physicians to do more for patients everywhere. It is through study, research and the spread of knowledge that medical practice improves from year to year.

The contributions of this Medical Center to the advancement of medicine have been numerous; virtually every member of the staff conducts some form of investigation and from time to time reports his results in journals of clinical medicine or of the medical sciences. Of the thousands of papers published from departments of the School during the past quarter-century, some represent notable contributions which have made the authors eminent among their colleagues, and collectively have enhanced the reputation of these institutions.

In selecting topics of investigation for brief mention in this review of progress, it is fitting to explain that although they stand among the more notable contributions from the Medical School during this period, many others equally representative could be cited. The examples chosen are fields of continued activity from which have come results of more or less far-reaching influence, and in which a number of workers have participated. Little more than an enumeration, the listing of them can give no suggestion of the technical procedures and refinement of methods on which the researches are based and without which real advances do not occur.

One field in which pioneer investigations here have opened the way for extensive advances, is that of nerve physiology. The transmission of impulses along nerves, the nature of the impulses, how they arise, and how these messages are translated into actions in brain and tissues, have long been recognized as among the most mysterious phenomena of life. The speed of their passage is so great that the recording instruments formerly available gave distorted pictures and made analysis of the process impossible. This difficulty was overcome by the application here nearly twenty years ago of a beam of electrons as the recording instrument. Such a beam, combined with devices for amplifying small electric currents, constitutes the cathode ray oscillograph, which, because of its speed and small inertia, permits recording the electrical activity of nervous tissue, even the almost incredibly rapid action-potentials of single nerve fibres. The use of the cathode ray oscillograph has attracted the interest and activity of a large group of neuro-

First Radiograph of the Normal Human Gall Bladder, made at the School of Medicine in January, 1924.
physiologists in several departments of this School and in centers of medical research everywhere. The results here and elsewhere constitute a rapidly expanding understanding of a complex and abstruse physiological function.

The body of fundamental knowledge thus gained, knowledge of the properties and functions of individual nerve fibers, observations of the continuous electrical activity of the central nervous system, and interpretation of the meaning of this constant activity, just now in its initial stages—form the basis upon which will rest in time not only an understanding of disturbances of function in nervous tissues, but perhaps also of the nature of thought itself.

Not only physical functions, but emotional reactions and the behavior patterns we recognize as a person's individuality, are to a large extent the resultant of hormonal balance. One of the most significant advances of recent years is the realization that certain types of illness, hitherto of obscure origin, are the result of unbalanced effects of hormones, those physiological agents manufactured by the glands of internal secretion, which normally regulate and coordinate bodily functions.

To this new subject of endocrinology a number of important contributions have been made in the Medical School. Some of the earliest discoveries of the influence of one gland upon another, of the mutual stimulation or antagonism in growth and function of the pituitary and thyroid, grew out of earlier pioneer investigations of cell growth and regeneration, directed toward experimental studies of cancer. Traceable to the same
investigations was one of the first demonstrations of the influence of sex hormones on cell growth and on the appearance of cancer,—observations which have stimulated work in this field throughout the world.

The site of formation of the principal female sex hormone was first established in the laboratories of the Medical School. The work thus begun led to isolation of this hormone by the discoverers (in other universities), and to the elucidation of its effects upon the menstrual cycle, thereby establishing a cornerstone of the new science of endocrinology.

Another member of the staff has to his credit the first isolation (elsewhere) of the female sex hormone, progesterone.

The hormone of the pancreas, insulin, was first isolated in pure form in these laboratories, by methods since utilized in its commercial production. Some of the earliest cases of pancreatic tumors to be associated with hyper-insulin activity were diagnosed and successfully operated on in these hospitals. The roles of insulin and of epinephrine in the temporary storage and mobilization of carbohydrates, by which a normal level of blood sugar is maintained, have been to a large extent elucidated in another department of the School. An extension of these studies is the recent discovery of the enzymes and their action by which glycogen or animal starch is formed (synthesis of glycogen in vitro) and broken down in liver and muscles,—a clarification of reactions which have eluded explanation since glycogen was first discovered nearly a century ago by the French physiologist, Claude Bernard.

The relation of over-activity of the parathyroid glands to certain bone diseases, tetany, adrenal disease, and ovarian insufficiency are subjects long investigated in one of the clinical departments.

Studies now under way in several laboratories concern the isolation and interaction of hormones of the pituitary and adrenal, parathyroid and sex glands.

The development of chest surgery, the newest field of major surgical activity, is one of the important contributions of this Medical Center. The explanation of how an opening in the chest wall sometimes produces death, and at other times does not, was worked out here; lack of this understanding was the principal obstacle to progress in this field. The first successful removal of an entire lung in one stage, and the first successful removal of a whole lung for cancer, were performed in these hospitals. This operation, performed now throughout the world, has cured many patients otherwise incurable. Surgeons from distant countries, interested in this new field of surgery, have
come here for special training. The discovery that endometriosis of the lungs may be produced in rabbits offers a new approach to the experimental study of vicarious menstruation and to pulmonary cancer. A new method of cystometry developed here permits more accurate diagnosis of certain conditions of the bladder.

The School has become one of the outstanding centers of the world for plastic surgery; many new operations have been devised and it is a mecca to those interested in this field. In neuro-surgery important contributions have been made to the understanding of injuries of the head and of brain tumors.

The epidemic of encephalitis in St. Louis, in 1933, led to intensive studies of this newly recognized disease which have been continued in several departments of the Medical School. The causative agent, a filtrable virus, was isolated here at the time of the first epidemic. Widespread distribution of neutralizing antibodies was demonstrated in the serum, not only of convalescents, but of many individuals in the community without history of the disease, a fact indicating subclinical infection of the general population. Later investigations have dealt with the epidemiology of the disease and with various aspects of its immunology. Much detailed information has been obtained concerning the properties of the virus and its ability to infect animals when introduced by various routes. Wild mice as well as laboratory animals are found to be susceptible to the virus, a fact which may be of epidemiological significance. The study of virus diseases pursued in one of the laboratories led to an invitation from the British Colonial Office to a member of the staff to investigate East Coast fever in the government laboratories of Kenya Colony.

A systematic study of trachoma has been conducted for nearly ten years as a special research project supported by the Commonwealth Fund. Although mainly carried out in the laboratory, much field work has been done at Indian reservations in the Southwest and in regions of the Ozarks and Kentucky where the disease is prevalent. The cause of trachoma has been found to be a virus which resists cultivation outside the animal body. Trial of various methods of treatment indicates that certain varieties of the disease may be arrested by drugs. Inclusion blennorrhea, an eye infection of venereal origin occurring in new-born infants, and also the disease known as swimming pool conjunctivitis have been found to be caused by viruses of the same biological group as that of trachoma.

Prolonged investigation of the nature and mode of action of bacteriophage, another virus, has resulted in the isolation of this agent, which appears to be a relatively simple protein substance, and is therefore unlikely to be a living parasite.

Elaboration of a method for revival of the isolated human heart permits the direct study of the electrical manifestations of its contractions (electrocardiograms) and of the effect of drugs upon its activity.

Greatly simplified methods for artificial feeding of infants, developed here by the application of scientific knowledge of nutrition combined with sound clinical judgment, have secured wide adoption and in the hands of general practitioners have contributed to health and growth in infancy. The significance of dehydration and of changes of acid-base balance in diarrhoeal diseases of infancy was here emphasized and upon these concepts procedures were formulated for preventing or relieving these often serious conditions.
THE MEDICAL GROUP viewed from the northwest, 1915

THE SAME VIEW, 1940. In the foreground is the School of Nursing.
The distribution of minerals in cells and tissues has been for a number of years the subject of study by the novel methods of microincineration, histospectrography, and more recently by the electron microscope.

The subject of allergy has occupied the attention of a group of investigators, whose work has advanced our knowledge of asthma, hay fever, vasomotor rhinitis and hives by throwing new light on the nature of these conditions. Experiments with animals in another laboratory of the School have shown that a deficiency of vitamin C in the diet gives rise to a sensitization to certain foods (food allergy), and that this condition may be cured as well as prevented by administering the vitamin.

Twenty years' study of the anatomy and physical anthropology of the American negro has yielded data on structural characteristics, race mixture and demography. A collection of 1,500 documented skeletons of whites and negroes has been made available for continued research.

A technique which renders the gall-bladder opaque to x-rays, and therefore visible on the roentgen photograph, has greatly increased the accuracy of the diagnosis of gall-bladder disease. Universally adopted as a diagnostic procedure, this method has aided enormously in medical and surgical treatment.

In the field of x-rays the roentgen kymograph has been extensively used to record photographically the movements of the heart, lungs, diaphragm, or of any other moving tissue in the body that casts an x-ray shadow. Another instrument, the laminagraph, has been constructed here, the first of its kind in this country. It enables the roentgenologist to focus on a selected plane in the body in such a way as to eliminate confusing shadows of overlying and underlying structures, such as those cast by the ribs and the spine in pictures of the lungs.

Combined radiological and clinical examinations have led to a clearer understanding of what is termed masked juvenile tuberculosis. Correlated clinical and pathological studies of tuberculosis have demonstrated that infection during early years usually exerts a protective influence upon the development of the disease when infection occurs in adult years. Study in another department of factors concerned with development of the lungs led to the clinical concept of postural emphysema.

These are types of research conducted in the buildings dedicated twenty-five years ago. While recognizing teaching as its primary function, the Medical School regards productive research as an equal aim and obligation; only by combining learning with critical enquiry can success and continued progress in both be assured.
Surgical Clinic in the Amphitheatre, Barnes Hospital

A Clinic

Handball, McMillan Hospital Gym
The Advancement of Teaching

Twenty-five years ago the entering class was reduced to fourteen students in consequence of raised admission requirements. The number rose gradually until in 1930 the present limit of eighty-two was reached. The third and fourth year classes since 1931 have numbered about ninety-five, because of the acceptance of students with advanced standing from other schools.

The number of applicants is at present about ten times the number accepted; the selection of the best qualified candidates is a difficult task. Besides academic records and aptitude tests, physical condition, intellectual interests and personal qualifications are inquired into by correspondence and usually by personal interviews at the School. Every effort is made to select those students best suited for medicine and best prepared to benefit by the sort of training the School provides.

Alumni, college teachers and former members of the staff give valued assistance in this all important selection of the student body. Since 1918 women as well as men have been admitted; at present there are twenty-five women students in the School.

In recent years the opinion of the students themselves has been sought and encouraged with the purpose of making instruction more effective. Student committees have prepared memoranda embodying their views, which have aided the faculty in improving the sequence and content of courses, as well as methods of teaching.

The School is fortunate in having scholarships which make it possible to accept a few students of ability and promise who without aid would be barred from the study of medicine. Loan funds are available to tide worthy students over unex-
The Otolaryngology Clinic

Students' Lounge, McMillan Hospital

Psychiatry
pected periods of financial emergency. Scholarships amounting to $12,000 and loans totaling nearly $3,000 were awarded during the 1939-40 session.

A system of faculty advisors has proved increasingly helpful in assisting students to adjust themselves to the new environment and exacting work of the School. Another new aid to students is a plan by which advice and detailed information are made available to juniors and seniors in their choice of hospitals for intern appointment, with the object of suitable placement both to the intern and to the hospital.

Both the need and the opportunity for post-graduate education have been greatly extended in recent years. There are now seventy-four positions as house officers in the hospitals of the Medical Center. The internship experience in various forms has grown from twelve or eighteen months to five years or more for those training to meet the requirements of the several Specialty Boards. Residencies have been provided in all hospitals for prolonged training in each branch of medicine and surgery.

Systematic full-time courses for post-graduates have been organized in oto-laryngology and ophthalmology over the full academic year, and for shorter periods in obstetrics and gynecology. During the 1939-40 session these post-graduate courses drew student physicians from twenty-one states and from abroad.

Another important group of students is made up of candidates for advanced degrees in the School of Graduate Studies, working in the laboratories of the medical sciences. There are also a number of visiting investigators, many holding fellowships from foundations, research institutes, or foreign governments, who enjoy the facilities of laboratories and clinics in subjects of their individual interest. These workers are usually appointed to research fellowships in the Medical School, without stipend and without fees for their use of facilities.
The library of the Medical School is one of its most valued possessions. Since its organization in 1910 under the direction of Dr. George Dock, first chairman of the Library Committee, every effort has been made to maintain and extend the collection of periodicals and books in all branches of medicine and the medical sciences. Modest though its beginning was, there are now about 56,000 volumes, including 800 periodical sets, of which 747 are complete files. Only rarely is it necessary to call on larger libraries to meet the needs of staff and students; while others often find here books and papers not available elsewhere in this locality.

A number of notable special collections have been acquired, mostly by gift: a priceless collection of William Beaumont's manuscripts presented by his granddaughter, Lilly Beaumont Irvin; the Pagel collection on the history of medicine given by Mrs. B. B. Graham; the John Green collection on ophthalmology; those of Washington Fischel on
internal medicine, of Frank J. Lutz on history and surgery, of Nathaniel Allison on orthopedic surgery, of J. B. Shapleigh on otology, endowed by Mrs. Shapleigh, of Greenfield Sluder on laryngology, of Elsworth F. Smith and now of his son Elsworth S. Smith on clinical medicine, the M. H. Post collection on ophthalmology, and more recent gifts of incubula by M. B. Clopton and of books on pathology by Leo Loeb.

The reading room of the library has become a gallery for portraits and bas-reliefs of past and present members of the faculty. Among the subjects are William Beaumont (by Chester Harding), Gustav Baumgarten (by Richard Miller), John T. Hodgin, J. B. Shapleigh, Joseph N. McDowell, A. E. Ewing, Henry Mudd, William C. Glasgow (by Wuerpel), R. J. Terry (by Todd), Henry Schwarz (by Rose), John Green and Washington Fischel. A silver loving cup presented to the staff of Base Hospital 21 at Rouen in 1918, commemorates the service of that organization.

More commodious housing and adequate financial support are needed to preserve and to extend the usefulness of this valuable collection of information. A separate building, to contain also seminar and assembly rooms, would add much to its effectiveness and to the scholarly atmosphere of life in the School.
The Old Building of the School of Dentistry, at 21st and Locust Streets

The School of Dentistry, 1940
Any record of the Medical School during the last quarter-century must include grateful appreciation of the gifts which provided its facilities and have supported its multiplied activities throughout the twenty-five years. The three original laboratory buildings and much of their first equipment were given by Robert S. Brookings, to whose vision and generosity this Medical Center stands as a monument. The names of Edward Mallinckrodt, Eliza McMillan, and Oscar Johnson are also deeply engraved on this monument to the faith of St. Louisans in the value of medicine to human welfare. Scores—even hundreds—of others, living and dead, have contributed in proportion to their means to this enterprise. Still others have given in service and time a devotion that money could not buy. To name these Supporting Donors would be to list many public spirited citizens of this community, some of whom would prefer to remain anonymous. To them all the University expresses its gratitude and in this brochure submits a report of its stewardship, with a pride which it is hoped they will share.

Besides individual donors in this community, several Foundations have provided generous aid in the development and operation of the Medical School, including the functions performed by its staff in the affiliated hospitals. The General Education Board and the Rockefeller Foundation have given the University endowments totaling more than six million dollars, much the larger part of it as trust funds, the income of which mainly supports the clinical departments. It may be of general interest to know that most of this endowment income is spent for salaries and supplies in or closely related to the services of the affiliated hospitals in which teaching and research are conducted. Every patient thereby benefits. These Foundations and others, notably the Commonwealth Fund, the International Cancer Foundation, and the Markle Foundation, have given also generous term grants to support numerous research projects both in hospitals and laboratories.

To these educational Foundations, whose object it is to support medical research, the faculty of the School and the Corporation of the University extend their appreciation.

Acknowledgment of generous gifts should not be interpreted to mean that the Medical School is adequately supported. As a matter of fact, no department now has a budget large enough to meet its urgent needs. The total resources of the School are not sufficient, without substantial additions, to maintain its activities at the present levels, nor to permit new undertakings and improvements essential to normal growth.

Decline of yield from endowments has compelled retrenchment in all departments. The most urgent need at present is for unrestricted funds to replace this loss, in order that all essential activities may be maintained on a high level of efficiency.

Barnard Free Skin and Cancer Hospital
Beyond 1940: The Recognition of Usefulness

This booklet, a brief survey of twenty-five years, is not the place for a discussion in detail of the needs of the School for its future development, but a few may be mentioned. New endowment, or support to the extent of forty thousand dollars a year, would permit full operation of the McMillan Hospital for Eye, Ear, Nose, and Throat, thereby utilizing existing facilities to strengthen the Medical Center as a whole. The diagnostic and research laboratories located in the Oscar Johnson Institute are likewise hampered by inadequate financial resources.

A new building to house the Library, and more adequate quarters and funds for the University Clinics, are opportunities for important additions to the Medical Center. Preventive Medicine and Public Health are subjects most in need of development, and looking toward the future, most worthy of support. The new Department of Neuropsychiatry, now maintained on a generous term grant from the Rockefeller Foundation, is pioneering in new approaches to an old and increasingly important field of medicine. It will soon need other contributions for a large part of its proper support.

Important progress is being made in several fields which require close cooperation in different techniques by personnel of diverse training, assembled as a team. For example, work in endocrinology needs chemists, physiologists, pharmacologists, pathologists, as well as clinical investigators. Other examples are the new field of chemotherapy for bacterial infections, and the subject of anaesthetics and anaesthetics. In each of these areas of study, work is now under way in various laboratories and clinics of the School. Greater progress could be made if funds permitted the formation of cooperative groups of
specialists with their assistants, supplementary to the teaching staffs, to attack by concerted efforts some of these fundamental problems. Such groups would unite and energize much talent and experience in a number of somewhat isolated departments, and thereby increase their productivity.

Medical education is expensive. In money outlay it is more costly than any other educational enterprise. But judged by its returns in the improvement of health, the relief of disease and the prolongation of life, medical education combined with competent medical research is one of the most profitable undertakings of society.

To conduct the type of Medical School and Medical Center now established in St. Louis may by some be thought too costly an undertaking for this community, especially now when energies and resources seem needed to meet even more vital demands. Any who may have this doubt are asked to reflect a moment upon the old world and the new, and then to ask themselves what role St. Louis is to play — what the function of medical education in St. Louis is to be — during the next quarter-century.

All will today agree that this country must attempt to keep vigorously alive and growing the advance of knowledge and its transmission to coming generations, a process now faltering elsewhere in this world. The centers of density in America from which the dissemination of knowledge radiates are moving westward. Many believe that within a generation our most potent foci of progress will be found in the Mississippi valley.

Because of its aims and form of organization, because of its contributions to the advancement of knowledge, because it attracts students and investigators from a wide region, a large part of the Medical School’s endowment and support has been contributed by foundations outside of St. Louis whose policy it is to aid this type of institution. But the continuance of this Medical Center at its present scale and with its present high aims and ambitions for wide influence, will call for a much larger measure of support than has yet been provided. It is hoped that this booklet may bring the institution, its progress and its needs, to the attention of friends upon whose continued interest depends very largely the measure of its performance in the years to come.

In St. Louis, Washington University has for a quarter-century maintained one of the pioneer radiating centers in medicine. Whether it can maintain the position it has so fortunately achieved, and become a still greater influence for the promotion of health and the growth of knowledge — or whether other cities to the north or south or east or west will take away from St. Louis its distinction in medical education, will be decided by many factors, one of which is the continued interest of our citizens in this enterprise.

Much will depend also on the institution itself. If it can continue highly productive in research and can cultivate the vision to see new spheres of usefulness, the future will be bright.
The 2,545 living graduates of the School of Medicine and of the schools from which it sprang, the Missouri and the St. Louis Medical Colleges, are engaged in practice and teaching throughout the United States, and, indeed, throughout the world: of the six continents only South America and Australia have no representatives of this school. These alumni have brought honor—some of them signal distinction—to themselves and to their Alma Mater.

The entire body of alumni and the faculty form the Medical Alumni Association which was organized before 1900 as the Alumni Association of the Washington University Medical Department. The first meeting of the Association held in the present Medical School building was in January, 1915, when Charles Armin Gundlach ('08) was president, and Leland B. Alford ('12) was secretary. In that year the Association established the Alumni Scholarship Fund, the interest from which supports the annual award of $100 to a member of the senior class who has done outstanding work.

At a later date, the Association established the Alumni Student Loan Fund, maintained from the annual dues paid by alumni, from which loans are made to needy and deserving students. Through these contributions many promising students, now alumni, have been enabled to complete their medical education. The Alumni Association contributes also from its dues to maintain the Alumni Room in Barnes Hospital.

In 1937 the Medical Alumni Quarterly was inaugurated under the editorship of Dr. R. J. Terry, professor of Anatomy since 1900, and a member of the class of 1895, Missouri Medical College. The Quarterly keeps alumni and friends regularly informed of the work of the School, and maintains contact between the alumni themselves.

Geographical Distribution of the 2545 living alumni of the School of Medicine, as of March, 1940. In each state, the upper figure represents alumni there resident; the lower figure represents graduates therefrom since 1930. Medical Alumni Quarterly map.
Milestones of Twenty-Five Years

Twenty-Five-Year Men
The portraits following are those of men who were faculty members in 1915 and have continued in that capacity up to the present. In many cases, their service spans an even longer period than the twenty-five years.

1915
- Dedication and occupation of new buildings
- Gift of Beaumont manuscripts
- Philip A. Shaffer succeeds E. L. Opie as dean

1916
- John T. Milliken Department of Medicine endowed
- Mary Culver Department of Surgery endowed
- Edward Mallinckrodt Department of Pediatrics endowed
- Completion of Nurses’ residence

1917
- Completion of dormitory for medical students
- Frederick Alden Hall appointed Chancellor
- W. McKim Marriott appointed head of Pediatrics
- Base Hospital 21, U.S. Army, organized within the Faculty, and sent to France

1919
- Evarts A. Graham appointed head of Surgery
- Edward Mallinckrodt Department of Pharmacology endowed
- E. Kennerly Marshall, Jr., appointed head of Pharmacology
- S. Canby Robinson appointed dean

1920
- Nathaniel Allison appointed dean

1921
- Herbert S. Gasser appointed head of Pharmacology

1923
- W. McKim Marriott appointed dean

1924
- Herbert Spencer Hadley appointed Chancellor
- General Education Board endowment for Department of Bacteriology and Immunology
- Stephen W. Ranson appointed head of Histology and Neuroanatomy
- Leo Loeb appointed head of Pathology
- Separate department of Bacteriology and Immunology established, with Arthur I. Kendall as head
- David P. Barr appointed head of Medicine

1926
- Otto H. Schwarz appointed head of Obstetrics and Gynecology

1927
- Construction and occupation of the St. Louis Maternity Hospital under the Board Chairmanship of Mrs. Benoist Carton
1927 Obstetrics and Ophthalmology endowed by General Education Board, and established as full time departments
Harvey J. Howard appointed head of Ophthalmology
Completion of new building for School of Nursing
Radiology endowed by General Education Board, and established as a full time department with Sherwood Moore as head
Medical Alumni Loan Fund established

1928 New building of the School of Dentistry
E. V. Cowdry appointed head of Cytology
J. J. Bronfenbrenner appointed head of Bacteriology and Immunology
Otolaryngology established as a full time department, with L. W. Dean as head
John V. Lawrence appointed director of the University Clinics

1929 Jackson Johnson Scholarship Fund established
David May and Eliza McMillan Loan Funds established
George Reeves Throop appointed Chancellor

1930 Commonwealth Fund grant for research on Trachoma
Erection of the Rand-Johnson Surgical Wing of Barnes Hospital

1931 Mallinckrodt Radiological Institute opened
McMillan Hospital and Oscar Johnson Institute erected
Central Institute for the Deaf affiliated with Washington University
Carl F. Cori appointed head of Pharmacology

1933 Lawrence T. Post appointed head of Ophthalmology

1936 Alexis F. Hartmann appointed head of Pediatrics
1937 Howard A. McCordock appointed head of Pathology
Philip A. Shaffer appointed Dean.

1938 Establishment of Department of Neuropsychiatry, with David McK. Rioch as head

1939 Homer Phillips Hospital and Bliss Psychopathic Hospital staffed by the Medical School
Robert A. Moore appointed head of Pathology

1940 Willard M. Allen appointed head of Obstetrics and Gynecology
Theodore E. Walsh appointed head of Otolaryngology
Construction of a cyclotron commenced under a grant to the Mallinckrodt Radiological Institute from the Rockefeller Foundation

The following members of the clinical staff acted as heads of departments at some time during the period 1915-40:
Harry Sturgeon Crossen (Gynecology) 1923-29
Sidney Isaac Schwab (Neurology) 1918-38
William Ewing Shahan (Ophthalmology) 1921-27
Frederick Joseph Taussig (Obstetrics) 1926-27

The following heads of departments were in appointment prior to 1915, and served during the periods indicated:
Martin Feeney Engman (Dermatology) 1910-
Arthur Eugene Ewing (Ophthalmology) 1910-21
Francis Rhodes Fry (Neurology) 1910-18
Henry Schwarz (Obstetrics and Gynecology) 1910-27
John Blasdel Shapleigh (Otolaryngology) 1910-22
Greenfield Sluder (Laryngology and Rhinology) 1910-28
George Marvin Tuttle (Pediatrics) 1910-16
Borden Smith Veeder (Pediatrics) 1916-17
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Evarts A. Graham
David P. Barr
Otto H. Schwarz
Sherwood Moore
Lee W. Dean
Edmund V. Cowdry
Jacques J. Bronfenbrenner
Carl F. Cori
Lawrence T. Post
John V. Lawrence
Alexis F. Hartmann
David McK. Roich
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W. M. Allen
Theodore E. Walsh

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1 Died 1940