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UNIVERSITY OF *Minnesota*



in this issue

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- TUBERCULIN TEST
- REHABILITATION
- AMPUTEE MANAGEMENT

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Special Article

The Department of Radiology

Constant improvement in diagnosis, treatment, and total patient care are the prime goals of the Department of Radiology, which serves 70,000 patients and takes more than 350,000 X-ray films each year at the University of Minnesota Medical Center. It is probably the busiest single department in terms of patient visits.

Headed by **Dr. Harold O. Peterson**, the department has seven faculty members specializing in X-ray diagnosis and five others concentrating on radiation therapy, nuclear medicine and radiation biology. This team of 12 full time staff men directs a training and research program which presently involves 34 graduate students and approximately 30 student X-ray technicians. The Department also provides complete X-ray service for

This is the second in a series of articles about the departments and divisions of the University of Minnesota Medical School. Next: The Department of Otolaryngology.

inpatients and outpatients at University Hospitals, utilizing the latest methods and most modern radiological equipment, including closed-circuit television.

"The volume of radiologic practice is increasing steadily everywhere, including here at University Hospitals," declared Dr. Peterson, a 1934 graduate of the Medical School. He attributes the widespread increase to the impact of new techniques, new equipment, new indications, and increasing reliance on X-ray procedures by the medical profession. Although the latter development concerns him somewhat, Dr. Peterson's department has been quick to adopt and to develop the latest methods in radiology.

Closed circuit TV image amplifiers, a fairly recent innovation, were introduced into use at Minnesota two years ago. Today the department is equipped with eight such devices. In many cases, TV screen monitors can be wheeled right up to a patient undergoing a radiologic examination, enabling him to see for himself, for example, the physiologic action of his own stomach in the digestive process. "Judiciously used, self visualization may contribute to the welfare of the patient," Dr. Peterson says.

New TV equipment in the department has made the old standard fluoroscopic equipment nearly passe. It was largely replaced in the postwar years by the electronic image intensifier, which itself is now used in combination with the newer TV image amplifier. The latter actually takes a TV picture of the X-ray image itself and projects it on a portable TV viewing monitor.



A young patient checks in at X-ray, becoming one of the 70,000 patients seen annually in the Department. X-rays have been in use in the State of Minnesota since shortly after first being described in 1895 by the German physicist Roentgen.

Radioactive isotopes, available in quantity as a product of World War II technology, are an invaluable new tool for radiologic research and diagnostic studies in the department. They are also used for clinical treatment of some conditions, such as certain thyroid abnormalities, some blood dyscrasias and some metastatic malignancies. Isotopes are a part of the armamentarium of the "new generation of bright young radiologists," along with other research techniques in radiation biology and are "not readily understood by some of us oldtimers," according to Dr. Peterson.

A shortage of practicing radiologists exists, he says, even though 7,000 U.S. physicians are now practicing full time in the field. "There are excellent opportunities in radiology. Each week we receive at least one help-wanted inquiry," he said.

Today's fairly typical radiologist divides his practice between a hospital staff appointment and an office practice, but some

radiologists spend virtually all their time on one or the other. "They all spend about half their time consulting with the rest of the medical staff, hearing about the problem, and later, interpreting the results," Dr. Peterson remarked. The University's Department of Radiology receives and reads many films mailed in by Minnesota's private physicians. "Sometimes these films are hard to interpret," Dr. Peterson said. "The average general practitioner is usually not equipped with the newer more powerful machines and usually does not have highly trained technical assistance. However, he usually is able to do certain procedures such as more fracture studies and some routine chest examinations very satisfactorily.



One of the TV image amplifier X-ray units used in the Department of Radiology. Sophisticated equipment is a costly but essential tool of modern radiology. Portable TV monitor screen on wheels stands at left.

Are X-rays overused in medical practice? Dr. Peterson thinks this may be so. He believes in their thriftiest possible use, discourages the indiscriminate, almost "automatic" X-ray usage, and was not enthusiastic about the routine chest X-ray for all newly admitted hospital patients. However, he thinks the admission chest X-ray is here to stay. He applauded the legislation a few

years ago which stopped the use of X-rays in the fitting of shoes.

Dr. Peterson's concern is shared by the U.S. Public Health Service, which recently began a survey of the extent of the American public's exposure to X-rays. Members of 10,000 families are to be interviewed and thousands of doctors and dentists will be polled by mail. The results are expected to yield the first firm information on the potential national hazards involved.

THE DEPARTMENT AND ITS STAFF

The University's Department of Radiology includes two divisions: Roentgen Diagnosis, headed by Dr. Peterson; and Radiation Therapy. The Department utilizes about 40 other teachers, who are on the clinical staff on no-salary appointments.

Staffing of the Division of Radiation Therapy will be complete on July 1, 1964 with the arrival of **Dr. Giulio J. D'Angio**, Boston, Mass., who will become professor and new director of the Division. Now on the staff at Harvard Medical School and Boston Children's Hospital, he will bring a strong background in research and pediatric radiotherapy. Dr. D'Angio recently completed a year's study and research at Donner Laboratory in California, and will fill a post which has been vacant at Minnesota since July 1, 1963 when Dr. Donn Mosser resigned to enter private hospital practice in Minneapolis.

Two other new appointees in the Division are **Dr. K. K. N. Charyulu**, native of India, who received his graduate medical training in England and at New York Memorial Hospital for Cancer and Allied Diseases, and **Dr. Yosh Maruyama**, a Californian who did graduate training at the Massachusetts General Hospital in Boston and is now on the staff at Stanford University. Both will be assistant professors.

THE RADIOLOGY TRAINING PROGRAM AT MINNESOTA

Undergraduate Study

Freshman students at the Medical School receive initial instruction in the fundamentals of X-ray diagnosis and treatment during a 12 week period. Junior and senior students participating in the Comprehensive Clinic program get three weeks of part-time study, diagnosing the common types of films encountered in the general practice of medicine. They view films emphasizing chest conditions, common diseases of the abdomen, and fractures. They make their own diagnoses, and discuss them in group sessions.

A one-to-three month elective course is taken later by some of the students. The elective course includes studies of slide collections which compare laboratory and clinical data with X-ray

findings. Students also observe patients in a clinical setting in diagnosis and therapy. In addition, a series of weekly lectures for three quarters are given to the seniors covering basic principles of roentgen diagnosis, radiation therapy and nuclear medicine.

The medical student is exposed almost daily to conferences with all the clinical services in which radiology plays an important role.

Graduate Study

The typical radiology residency at Minnesota takes 3½ years. Most graduates go into private practice but a substantial number become teachers and research investigators. The majority of the more than one-hundred full-time radiologists in Minnesota practice in the Twin Cities, and a large percentage of them are graduates of the Medical School program.

There are usually about 15 full time radiology residents in training at University Hospitals, and another 20 at Minneapolis V.A. Hospital, where **Dr. Joseph Jorgens**, chief radiologist, directs an affiliated program. The V.A. training program, supported by the federal government, covers four years, part of it spent at University Hospitals. The Hennepin County General Hospital and St. Paul Ancker Hospital also participate in the graduate program.

A major problem, according to Dr. Peterson, is finding funds to provide for radiology resident salaries at University Hospitals.

ROENTGEN DIAGNOSIS AND RESEARCH

A well known member of the Roentgen Diagnosis Division is **Dr. Kurt Amplatz**, 40-year-old associate professor, whose special



Dr. Harold O. Peterson

field is cardiovascular radiology. Dr. Amplatz, who received his medical education in Europe, came to Minnesota as a fellow in 1957, and was appointed an instructor in 1958. He has designed special equipment for this field, including power injectors, a seriograph for cerebral angiography, and a special chair for pneumoencephalography. He recently developed a new technique for detecting cardiac shunts which involves the use of isotope-labeled gases. His research in cardiovascular hypertension led to the devising of a new screening test, a simple modification of the intravenous pyelogram.



Dr. Kurt Amplatz interprets X-ray films as part of a busy daily routine. He is in charge of all radiology at Variety Club Heart Hospital, and contributes frequently to the radiological scientific literature.

Dr. Eugene Gedgaudas, assistant professor, is the only department member who was a student of Dr. Leo G. Rigler, former head of radiology at Minnesota. Dr. Gedgaudas' specialty is cardiac roentgenology. He is also in charge of the resident training program, "which we try to balance between the theory of X-ray physics and technique, and practical clinical training."

"The senior resident," Dr. Gedgaudas believes, "should be capable of conducting any procedure under close supervision."

Dr. Leonard Langer's current research is in the field of human dwarfism. An assistant professor, he believes the best means of

accurately classifying chondrodysplastic dwarfism is by using roentgen pictures of the bone structure. Dr. Langer and his associates have enlisted the cooperation of more than 3,000 members of "Little People of America" in carrying out a combined radiological-clinical study.

Dr. John Tobin, an instructor, also serves as radiologist for the University's Student Health Service, and is consulting radiologist for the Anoka State Hospital, the referral center for all chest disease patients from the state's mental hospitals. He and Dr. Peterson have developed a new technique for performing renal cyst punctures. The technique enables them to differentiate between tumors and renal cysts, is often more certain than other roentgen measures, and does not require sophisticated equipment. The developers exhibited films of their new techniques before the American Roentgen Ray Society meetings in 1962.

RADIATION THERAPY AND RESEARCH

In the division of Radiation Therapy, headed by Dr. K. Wilhelm Stenstrom until his retirement in 1956, **Dr. Merle K. Loken** has developed several new techniques of scanning with radioisotopes. His studies have included examination of the brain, liver, heart, pancreas, and spleen for metastatic disease. His studies of the brain have been especially rewarding, the radioisotope "pictures" yielding valuable diagnostic information. Dr. Loken and **Dr. Charles Hewel**, an instructor, are presently reviewing cases accumulated during the last two years in an attempt to correlate X-ray and radioisotope findings.

Radioisotope scanning is especially useful in locating cranial tumors not evident on routine X-rays, and in determining the position of the parathyroids in patients who are to have a thyroidectomy.

Radioactive, labeled microspheres are also being employed experimentally in the treatment of cancer and certain blood dyscrasias and as an adjunct to chemotherapy in the treatment of leukemia. Dr. Loken and his associates are also interested in the problems of radiation biology.

Dr. Baruch Jacobson, assistant professor, is working on cell recovery after irradiation. He is using three strains of algae and has found an inverse relationship between radiation dosage and cell recovery. His studies show that there is a greater recovery after administration of intermittent doses of a given intensity, rather than after an entire dose given at one time. The algae cells killed by irradiation are oversized and always found either singly or in clumps of four or eight. The distribution of colony sizes indicates that two or three normal mitotic divisions usually

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precede irradiation deaths. The flagella typically found on undivided, non-irradiated cells disappear after irradiation.

In addition to its research activities, the Division is the home of the Medical Center's cobalt machines for deep radiation therapy. A total of 829 patients received 19,804 deep therapy treatments last year.

THE LEADERS

The American Roentgen Ray Society will hold its 1964 annual meeting Sept. 29-Oct. 2 at the University of Minnesota. Dr.



Dr. Merle Loken adjusts radioisotope renogram equipment to perform renal exam on a patient. Radioactive materials were used in more than 250 isotope renograms performed by the Division of Radiation Therapy.

Peterson is president-elect of the organization. He received his radiology training at Massachusetts General Hospital, joining the full-time staff at Minnesota in 1937 as an instructor. In 1940 he began private practice in St. Paul, but remained at Minnesota as a clinical teacher for 17 years. He was named head of the Department of Radiology on a full time basis in 1957, and is best known for his work in neuroradiology, especially myelography, and his interest in postgraduate medical education. The annual continuation medical education course in radiology at Minnesota is one of the nation's largest, attracting an average of more than 400 physicians each Fall. It will be held Oct. 26-30 this year.

When Dr. Peterson took over at Minnesota, he succeeded **Dr. Leo G. Rigler** (Med. '19), a highly respected and internationally famous radiologist and teacher, who headed the department for 30 years. Dr. Rigler became executive director of Cedars of Lebanon Hospital, Los Angeles, Calif. He was preceded at Minnesota by **Dr. R. G. Allison**, a clinical professor who was the first chief of Radiology at Minnesota when it was under the Department of Medicine. **Dr. K. Wilhelm Stenstrom**, now retired, became head of radiation therapy during Dr. Allison's tenure, and Dr. Rigler was named chief of X-ray diagnosis in 1927 and continued as head of the Department in 1935 when Radiology received separate departmental status.

Dr. Rigler, after whom an annual lecture at Minnesota is named, was responsible for a number of "firsts" in X-ray diagnosis: Linkage of stomach carcinoma and polyps in patients with pernicious anemia; first description of the movement of pleural effusions; and the "coffee bean" sign of strangulation obstruction. Dr. Rigler won the University of Minnesota's Outstanding Achievement Award in 1960, and was honored August 23, 1963 on "Leo Rigler Day" at a meeting of the Rocky Mountain Radiological Society by his former students and present colleagues. There is also a Leo G. Rigler research laboratory in Israel and an annual Leo G. Rigler Lecture is now established in Tel Aviv. Dr. Rigler has "retired" once more to a very active position as Professor of Radiology at UCLA, in charge of graduate training in Radiology.

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Assistant Professor

K. K. N. Charyulu
Baruch S. Jacobson
Merle K. Loken
Yosh Maruyama

Clinical Assistant

Professor

Solveig M. Bergh

Research Associate

Robert Salmon

Staff Meeting Report

Variability In Tuberculin Test Reading*

Jacob E. Bearman, Ph.D.,† Herman Kleinman, M.D.,‡
Violet V. Glycer, B.S., R.N.,§ and Orpha M. LaCroix, B.A., R.N.¶

Whether made directly on the patient or in the laboratory, every procedure and measurement in medicine is subject to variability; an example is the variation inherent in all phases of the tuberculin testing procedure. The size of the reaction elicited is dependent on many factors in addition to actual sensitivity. These include, among others, the amount of test material injected, the site of the injection, the depth of the injection, the source and method used in preparing the antigen and the physiological state of the patient. Finally, and of prime importance, are the differences in the interpretation of results by different observers. This last variable is the subject of the present study.

In the course of a school-wide tuberculin testing survey in one of the St. Paul high schools during late April and early May, 1963, 24 known tuberculin positive students and 12 students of unknown reactor status were chosen for study. These 36 students were given the same routine test and reading as all others. Then the experimental observations were made under these conditions: (1) the reaction of each student was read four times by each of four experienced readers. (2) Each reaction was read for only the transverse diameter, in millimeters, of the indurated area. (3) The readers were not told at what size a reaction would be considered positive. (4) The sequence in which each student presented himself to the readers for his series of readings (4 to a student) was completely randomized. (5) The readings were done in as completely a blind fashion as possible. (6) No reader was told that he would read any student more than once; rather, each was told only that he would read a series of tuberculin reactions.

*From a report presented at the Staff Meeting of University Hospitals on April 10, 1964

†Professor of Biostatistics, School of Public Health, University of Minnesota.

‡Chief, Section of Chronic Diseases, Minnesota Department of Health. (Deceased)

§Supervisor, Tuberculosis Division, Bureau of Health, St. Paul, Minn.

¶Consultant, Tuberculosis Nursing, Minnesota Department of Health. (Retired)

The results of the study show that the variability of each reader is small on repeated readings on the same subject. However, there is a large amount of variability among different readers reading the same induration and nearly as much as there is among the subjects themselves. This fact may seem surprising as well as discouraging. But variability among readers must be considered an individual matter: one can attempt to describe and define induration, but one cannot by decree demand that all fingers have equal tactile sensitivity nor that all eyes have equal visual acuity.

Nothing that has been found should be inferred as impugning the value of the tuberculin test. Despite a history of ups and downs in popularity, it remains, one of the most valuable tools in all of Medicine. But for purposes of accumulating quantitative data, the measurements should be taken and recorded in millimeters rather than as "positive" or "negative." A record of one, two, three or four plus, based on opinion alone, is not quantification enough. In addition, it is not unreasonable to expect that workers in particular regions would set their own discriminating point for positivity based on their own testing, clinical, and epidemiological experience.

The tuberculin test, then, as with all measurement procedures in Medicine, must be approached with respect, administered with care, read with deliberation and interpreted with sentient discrimination.

ACKNOWLEDGMENT

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St. Paul Department of Education: Mr. Forrest E. Connor, Mr. R. Engbretson, Mrs. Helen Callahan.

St. Paul Bureau of Health: Dr. R. B. J. Schoch, Mr. Boris Levich, Miss Catherine Withrow, Miss Leona Waligora, Mrs. Eva Olson, Mrs. Joan Murray.

The four readers will, for obvious reasons, remain anonymous.

Staff Meeting Report

Follow-Up Study of Two Selected Groups of Cerebral Vascular Accident Patients After Intensive Rehabilitation*

Eleanor M. Anderson, R.N., R.P.T., M.P.H.†

In 1958, under the sponsorship of the Department of Physical Medicine and the School of Public Health, a follow-up study of a group of rehabilitated patients was carried out in an effort to learn (1) the extent to which these patients had been able to maintain maximum physical capacity in their home environment and (2) the extent to which the local public health nursing services in conjunction with the family physician had supported these patients and families. Twenty-three patients, each with a diagnosis of cerebral vascular accident with resultant hemiplegia, were interviewed in their homes in the period of up to three years following an intensive program at the University of Minnesota Rehabilitation Center.

The findings of the 1958 study showed that, although patients had been well instructed at the Center, there had been no specific counseling for their families. Very few patients had been referred to community public health nursing agencies. The study also showed that patients and families had multiple health needs and problems, that many patients were not able to retain their maximum potential in the home environment, and that a wide gap existed between the hospital plan and the care at home.

As a consequence, in 1960, a Continuity of Care Plan was developed between the University of Minnesota Rehabilitation Center and community public health nursing services covering both urban and rural Minnesota. This plan has been used since that time. The steps in the plan follow:

1. On admission, the patient and family are promptly introduced and involved in the plan for rehabilitation.
2. Contact is made with the public health nursing agency,

*From a report presented at the Staff Meeting of University Hospitals on April 17, 1964

†Assistant Professor, Public Health Nursing, School of Public Health

requesting that a home visit be made while the patient is still undergoing treatment at the Center. The report of the public health nurse's first visit to the family is quite vital to the physician and other members of the rehabilitation team.

3. A complete and detailed discharge referral is provided to the public health nursing agency and to the referring physician at the time of the patient's discharge.

In 1963, 33 patients were evaluated in their homes utilizing the 1958 criteria for selection of patients and an identical interview schedule. All of these 33 patients were participants in the Continuity of Care Plan. An analysis of findings from the 1958 study and the 1963 study is shown in the following paragraphs with study groups identified as Group I and Group II.

Criteria for Selection of Patients

In the selection of patients in both studies an attempt was made to control all factors which were considered to be related to care of patients with this kind of diagnosis and residual disability. All of the factors which could not be controlled are believed to have entered equally into each of the two study groups. In commencing both studies a review was made of the records available in the Department of Physical Medicine and Rehabilitation on patients with a diagnosis of cerebral vascular accidents. The etiology of the cerebral vascular accidents in the two groups included cerebral thrombosis, meningioma, hemorrhage, and embolism. From a group of 68 records in 1958 and 60 records in 1963, 23 and 33 patients, respectively, were selected for the study groups. Excluded from each study were patients who had physical or emotional complications that deterred progress toward maximum rehabilitation or those living beyond a stated mileage radius. The referring physicians and the public health nurses in the local community were contacted through correspondence and by telephone before the interviews with the patients.

Findings of the Study

An overall assessment was made of the patient at interview in comparison to his discharge status. In making this assessment, the total well-being and functional activity of each patient were evaluated. This meant that the patient might require assistance in one or more areas in his activities of daily living, but that, in general, he was quite self-sufficient and an active participating member of his family. In other words, the total values of physical and emotional health were assessed. Table 1 indicates the comparison of the rehabilitative status of the two groups.

TABLE 1
REHABILITATIVE STATUS OF GROUP I AND GROUP II AT INTERVIEW

	1958	1963
Regressed	22%	12%
Remained the Same	52%	15%
Progressed or Improved	26%	73%

Twenty-two percent in Group I and 12 percent in Group II regressed. A second cerebral vascular accident or other physical and emotional problems accounted for the regression in both groups. In Group I 26 percent of the patients improved beyond their capabilities at discharge, but in Group II 73 percent had attained more independence than at the time of discharge, were more self-sufficient, and were adjusting realistically to the limitations of their activities. The promotion of activities of daily living, the mobility of the patient, and the utilization of necessary equipment are important parts of the rehabilitative process. The second study revealed a definite increase in ambulation from discharge to interview, far greater willingness to wear the prescribed braces, and a marked utilization of environmental adaptations which foster independence.

In Group I, appraisal of the health needs of the patients and families indicated that 83 percent were in need of further assistance and guidance in one or more of the following areas: assistance in accepting disabilities, help with walking and stair climbing, equipment adaptations, homemaking, self-care activities, nutrition, family health guidance, safety measures, crafts, and social activities.

By contrast in group II, appraisal of health needs indicated that only about 35 percent of the patients were in need of further guidance. Some, but not all of these patients, had been followed by a public health nurse. Of the remaining 65 percent, about half were relatively self-sufficient or were in the process of becoming so with the assistance from the public health nursing service. Twelve percent of the patients in Group I were known to public health nursing services. Ninety percent of the patients were known to public health nursing services in Group II.

SUMMARY

An effective Continuity of Care Plan can markedly influence the patient's maintenance of his maximum rehabilitative status. Early involvement of the family, the private physician, and the

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public health nurse in the plans for home management of the patient encouraged active participation and continuing supervision. Families reported that the public health nurse's visit to their home during the patient's treatment in the Center gave them support and encouragement. The discharge referral which provided adequate information and orders for the nurse enabled her to provide the kind of home care which assists the patient and his family to cope with this long-term problem and to make the necessary adjustments at home and in the community.



Staff Meeting Report

Amputee Management*

Glenn Gullickson, Jr., M.D.†

Loss of a limb has been a problem as long as man has been in existence. An indication of the magnitude of the problem in the United States is that one out of every 200 persons has had a major amputation, and that 35,000 additional amputations are performed annually. Continuing supervision of these amputees is a medical responsibility.

In the management of the amputee the essential goal is to provide a substitution for the function of the part removed. However, amputee management involves more than just surgery and restoration of function through the fitting of a prosthesis. Of equal importance are biomechanical factors, skin hygiene, pain and phantom sensation, psychological factors, and social and occupational adjustment.

This presentation reviews some of the present concepts of amputee management particularly with regard to experiences obtained from the Rehabilitation Center and from the Amputation Clinic at the University of Minnesota. Because about 80 percent of amputations are of a lower extremity, discussion will be limited to this group of amputees.

The rehabilitation program for the amputee starts with the surgeon who has the responsibility of selecting a level of amputation which will result in a satisfactory functioning stump from a prosthetic standpoint. The development of new devices has made the classical "sites of election" obsolete and current recommendations are to "save all possible length." However, our experiences indicate four exceptions to this recommendation: (1) If it is not possible to perform a transmetatarsal amputation, then the amputation should be at the ankle or below the knee. (2) An amputation should not be done through the lower one-third of the leg. (3) A below-knee amputation that will result in two inches or less of the tibia should not be done but rather an above-knee amputation. (4) An above-knee amputation

*From a report to the Staff Meeting of University Hospitals on April 24, 1964

†Associate Professor, Department of Physical Medicine and Rehabilitation, and Director, Rehabilitation Center, University Hospitals

should be above the distal four inches of the femur unless the stump is to be an end-weight-bearing type.

Following surgery, the preparation of the patient and his stump for the wearing of a prosthesis is started as soon as possible. An ideal amputation stump is one which is the maximum functional length, free from pain, is firm and strong, tapers distally, has freely movable skin with a non adherent distal scar, and which the patient can control through a full range of motion. While the basis for the ideal stump is determined at the time of surgery, to achieve all the stated attributes, a well planned regime of physical therapy is required.

The fitting of a prosthesis is arranged for as soon as possible after the patient and his stump are ready for the wearing of an artificial limb. However, since the post-prosthetic management phases depend upon the performance of activities with relative high energy costs, it is necessary to recognize that many amputees, particularly those over the age of 50, will not have the physical capacity to use a prosthesis. In general it is our practice not to prescribe a prosthesis for an amputee who is unable to develop independent ambulation with underarm crutches.

In the last two decades great progress has been achieved in the design of prostheses. Today a wide variety of lower extremity prostheses may be procured from a prosthetist which will fit any stump and provide maximum functional substitution for the amputated part. Thus a prosthetic prescription can be individualized for each amputee to fit his particular needs. Some of the more recent significant developments in lower extremity prosthetics are the quadrilateral socket, the suction socket, and the total contact socket for the above-knee amputation; the patellar-tendon-bearing prosthesis for the below-knee amputation; the Canadian hip-disarticulation prosthesis and the Canadian Syme's amputation prosthesis. Other developments are a variety of knee joints that provide better control, the use of plastic laminates, and better designed foot pieces such as the solid-ankle cushioned-heel foot.

Following the fitting of a prosthesis the amputee must be trained in its use. Every amputee needs careful guidance and advice in this post-prosthetic phase of management. During the post-prosthetic phase the lower extremity amputee is taught to walk with his prosthesis in as close to a normal pattern as possible. To obtain the maximum functional ability the ambulation training must be done gradually until safety and confidence are certain.

Not discussed but of great importance in amputee management are the psychological and social adjustments an amputee

must make during his rehabilitation, as well as the vocational rehabilitation programs for those amputees in the wage earning ages.

In conclusion it should be emphasized that the complexities of rehabilitation of the amputee from surgery to self-sufficiency requires a correlated program under competent medical supervision and involving many persons with special skills.

*"This time, like all times, is a very good one
if we but know what to do with it."*

EMERSON

Medical School News

MEDICAL SCHOOL ACCEPTS 152 FRESHMEN FOR 1964

The Medical School has accepted 152 students for its freshman class which will enroll in September, Dr. H. Mead Cavert, assistant dean and secretary of the Medical School admissions committee, announced.

A total of 689 applicants sought admittance to the class which will enroll on the occasion of the Medical School's 75th anniversary. Of those accepted, 135 (89 percent) are residents of Minnesota. The remaining 17 (11 percent) are from 12 other states, including a substantial number from those Upper Midwest states which historically have been supplied with physicians by the University of Minnesota.

The University of Minnesota has the only four-year medical school within Minnesota, the Dakotas, and Montana. North and South Dakota have two-year medical schools. Annually, several of their graduates transfer to the University of Minnesota to complete the third and fourth (clinical) years of medical education.

The 1964 freshman class, Dr. Cavert noted, was selected on a competitive basis by the Medical School's admissions committee. It includes 13 women (9 percent of the class). Nearly two-thirds of the incoming freshmen have undergraduate grade records of B or above. Fifty percent of the class received its pre-medical college education at the University of Minnesota, and another 32 percent attended other Minnesota colleges. Sixty-nine percent of the total will have completed four years of college.

The application period for prospective students is open until Oct. 1 of the year preceding the actual matriculation of entering students. If any students who have been accepted fail to enroll, Dr. Cavert said, their places are filled subsequently by qualified alternate applicants who also are selected by the admissions committee on a competitive basis.

The number of applicants to the Medical School has increased steadily since the class which entered in the Fall of 1958, for which a post-World War II low of 282 sought admission. For the 1959 entering class, applicants totaled 319; for 1960, 337; for 1961, 392; for 1962, 504; and for 1963, 612. A national trend of increasing numbers of applicants to U.S. medical schools has developed during the last two years.

Total present enrollment at the Medical School is 605 students. A class of 131 seniors will graduate on June 13, 1964.

FIRE DAMAGES HOSPITALS RESEARCH LABORATORY

An explosion in a fraction collector was the apparent cause of a fire the night of February 16 at the Variety Club Heart Hospital which caused \$60,000 damage to a fourth floor research laboratory. It was the worst fire in the history of University Hospitals, but no one was injured and patients were safely evacuated from the adjoining floor.

An investigation revealed benzol vapors ignited and exploded in the fraction collector, traveled up the side of a wooden cabinet, contacted other inflammable solvents, and set off a series of explosions that blew out windows and blanketed the scene with heavy black smoke.

University of Minnesota police spotted smoke and flames pouring from the research laboratory windows. Firemen, aided by fast-acting hospital personnel, brought the blaze under control, but fire, smoke, and water damage was extensive.

Physiology research laboratories were a highlight of a tour of the Medical Center recently by representatives of Group Health Mutual, Inc., St. Paul unit which sponsors scholarship awards at the Medical School through its George Feller Foundation. Dr. Maurice B. Visscher, (right), was a guide for Louis Lerman, Group Health secretary, and Paul Carlson, Medical School sophomore and scholarship recipient.



MEDICAL FOUNDATION DISTRIBUTES \$11,320 IN RESEARCH GRANTS

Eight faculty members and three students at the University of Minnesota Medical School will share in 1964 research grants worth \$11,320.00 awarded recently by the Minnesota Medical Foundation.

Their studies in the fields of heart disease and cancer are underwritten by gifts for these purposes made to the Foundation in 1963, and by income from the Foundation's permanent endowment funds. The research endowment fund was established in 1961 by a \$200,000 bequest of the late Arvid Olson, New Town, N.D.

Now in its third year, the program has the purpose, said Dr. Corrin H. Hodgson, Rochester, Minn., Foundation president, of providing a local source of funds for students interested in research, and for younger faculty members "with promising research ideas but a lack of resources." Since the program began in 1962, 27 grants have been distributed amounting to \$28,070.

The 1964 grantees are:

FACULTY

D. Scott Clark, M.D. Medical Fellow Dept. of Surgery	\$700.00 for support of work in the "Pathogenesis of Homograft Rejection"
Joanne Finstad, M.S. Research Fellow Dept. of Pediatrics	\$1,000.00 for study of "Sea Lamprey Cells and Cancer Therapy"
Lorraine M. Gonyea, M.S. Asst. Professor Dept. of Lab. Medicine	\$750.00 for "Prothrombin Studies"
Roswith Lade, M.D. Instructor Dept. of Pediatrics	\$2,000.00 for studies in "Cardiovascular Disease - Infants with Down's Syndrome"
James C. Pierce, M.D. Medical Fellow Dept. of Surgery	\$470.00 to support studies in "Cellular Proliferation in the Rat Thymus"
Terence J. Scallen, M.D. Research Fellow Dept. of Medicine	\$1,000.00 to support "Studies in Cholesterol"
Seth T. Shaw, M.D. Research Fellow Dept. of Lab. Medicine	\$800.00 for "Assay of Alterations Involving the Kidney"
Thomas O. Swallen, M.D. Medical Fellow Specialist Dept. of Lab. Medicine	\$1,000.00 for study of "Serum Activity of O.C.T. in Liver Disease"

THE MEDICAL BULLETIN

STUDENTS

Nils Rune Forsen
Sophomore

\$1,200.00 fellowship for study of "Biochemical Aspect of 6-mercaptopurine in the Immune Mechanism"

Ralph R. Grams
Freshman

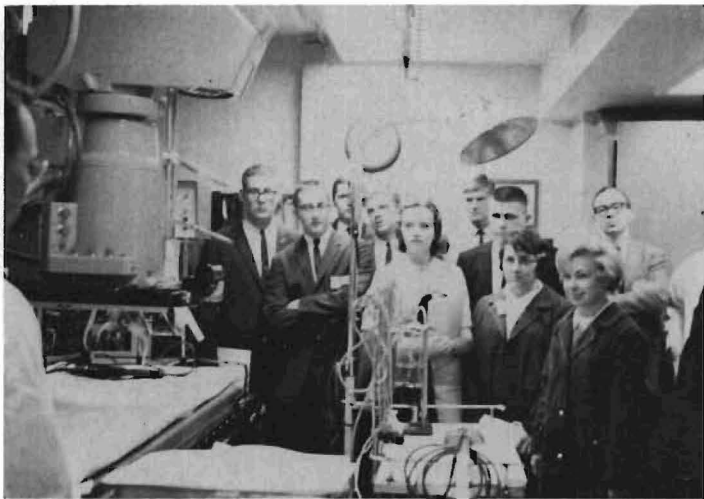
\$1,200.00 fellowship for study of "Infrared Spectrophotometry"

Bernard L. Mirkin
Senior

\$1,200.00 fellowship for study of "Plasma Protein in Neonates"

The students will conduct their studies under the guidance of experienced investigators.

The Minnesota Medical Foundation is a nonprofit organization of 2,000 alumni and laymen providing special types of assistance to the Medical School of the University of Minnesota.



More than 130 students interested in medical and allied fields toured the laboratories and facilities of the University of Minnesota Medical Center on Saturday, April 4, during the 10th annual Medical Sciences Day program. The program was sponsored by the Medical School and the Medical School Student Council, under the direction of Dr. Raymond N. Bieter, director of the Medical School's division of special educational services.

Alumni Notes

◆ 1920

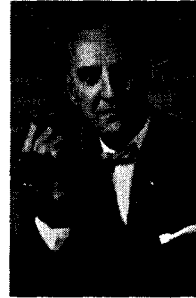
Ruth E. Boynton, Miami, Fla., was recipient of the 1963 Albert J. Chesley Award of the Minnesota Public Health Association "for distinguished service in public health." Dr. Boynton retired in 1961 from the University of Minnesota faculty. She was a professor of preventive medicine and director of the Students Health Service, and is now serving actively with the American Student Health Association.

◆ 1922

Norval W. Haddow retired from medical practice at the end of 1963, completing 40 years of general practice. The last 30 years were spent in Hollywood, Calif., where he lives at 7770 Firenze Ave. "I enjoy reading the MEDICAL BULLETIN very much," he writes.

◆ 1928

Herman E. (Tiny) Drill was elected vice president and chairman of the board of directors of the American Academy of General Practice at its 1964 annual meeting this month in Atlantic City, N.J. He has long been active in Academy affairs, and had served as president of the Minnesota chapter. He practices in Hopkins, Minn., in association with his son **Dr. David K. Drill** (Med. '59) and **Dr. J. D. Lyon** (Med. '38).



Herman E. Drill

◆ 1936

George N. Aagaard, Jr. has announced his resignation as Dean of the University of Washington School of Medicine, effective June 30, 1964. He will remain on the staff as a professor of medicine. Dr. Aagaard has been Dean of the Seattle, Wash. school for the last ten years, and formerly was Dean of Southwestern Medical College, University of Texas. He was director of Continuation Medical Education at the University of Minnesota from 1948 to 1951.

◆ 1939

Eva-Jane Larson is new chief of staff at Mounds Park Hospital, St. Paul, succeeding her brother-in-law, **Dr. Kenneth Nimlos** (Med. '45). She is the only woman doctor on the staff, where her father, **Dr. Edward W. Ostergren** (Med. '09), was affiliated for 54 years as a surgeon. Like her sister, **Dr. Lenore Nimlos** (Med. '45), Eva-Jane is in general practice. A daughter, June, is in the premedical curriculum at the University of Minnesota, and a son, Bert, a high school student, works part-time in the hospital records room. Eva-Jane is married to Dr. Bert R. Larson, a St. Paul dentist.

◆ 1944

Donald E. Hoganson, Bemidji, Minn., was appointed Beltrami County Coroner.

◆ 1947

Ben P. Owens, a general practitioner in Hibbing, Minn., served seven weeks in February-March aboard the hospital ship, S.S. Hope, which was at that time providing medical education and medical care to the citizens of Guayaquil, Ecuador, under the People-to-People program.

◆ 1950

John B. O'Leary has returned to his practice in Brainerd, Minn. after recovering from a coronary attack in 1963.

◆ 1952

Donald W. Klass is new president of the Central Association of Electroencephalographers. He is associated with the EEG Laboratory at the Mayo Clinic, and is an instructor in physiology at the Mayo Foundation, Rochester, Minn.

Jerome J. DeCosse, Syracuse, N.Y., was among 25 young faculty members at U.S. and Canadian medical schools to be named 1964 Markle Scholars in Academic Medicine. He is an assistant professor of surgery and coordinator of the cancer teaching program at State University of New York Upstate Medical Center.



JEROME J. DE COSSE

Under terms of the award, S.U.N.Y. will receive \$30,000.00 over a five year period to support Dr. DeCosse's teaching and research "and to assist in his development as a teacher, investigator, and administrator." The Markle Foundation was established in 1927 and has granted more than \$11 million to 380 medical scholars at 84 medical schools.

Dr. DeCosse, 35, is a native of Valley City, N.D. He graduated from St. Thomas College, St. Paul, Minn., and from the Medical School, *magna cum laude*. He was an intern and resident in surgery at New York City's Roosevelt Hospital, and Memorial Center, and was a fellow in surgery at Sloan-Kettering Institute. He served on the faculty of Cornell University Medical College in 1962 and 1963, and joined the S.U.N.Y. faculty last year.

Dr. DeCosse is a member of Alpha Omega Alpha, and a diplomate of the American Board of Surgery. He lives with his wife and four children at 509 Maple Drive, Fayetteville, N.Y.

◆ 1954

Russell Thompson has established an ophthalmology practice in Willmar, Minn. He formerly was in general practice in Minneapolis and in Cosmos, Minn.

Bernard Sandler left the University of Minnesota January 1, 1964 to become professor of physical medicine and rehabilitation at Temple University School of Medicine, Philadelphia, Pa. He completed residencies in physical medicine and rehabilitation (1958) and neurology (1961) at the University of Minnesota and had been an assistant professor in both departments at Minnesota for the last two years.

Appointed residents at the Mayo Foundation on January 1, 1964 were: **James C. Trautmann**, (Med. '54) ophthalmology; **Harold D. Gambill**, (Med. '60) ophthalmology; and **Douglas D. Mair** (Med. '62) pediatrics.

◆ 1955

Kenneth H. Neldner is now practicing dermatology in Boulder, Colo., after completing a residency at the Mayo Foundation, Graduate School, Rochester, Minn. He was awarded the M.S. degree in dermatology from the University of Minnesota on December 14, 1963.

Kenneth A. Osterberg, instructor in pathology at the University of Minnesota Medical School, has won a two-year Medical Faculty Award totaling \$19,341 from Lederle Laboratories. He was among 15 young medical school faculty members in the U.S. to be honored in 1964 for their progress in teaching and research.



KENNETH OSTERBERG

In addition to instructing sophomore medical students and pathology graduate students, Ken is collaborating with Dr. Lee Wattenberg of the Department of Pathology on a research problem dealing with development of astrocyte cells in brain tissue caused by tumors and epilepsy. He received his pre-medical and medical education at Minnesota. Following an internship at Minneapolis General Hospital and Army service, Ken was a resident in neurology at University Hospitals. He has been a USPHS

fellow in the Pathology Department since 1960.

Ken is 32 years old. He lives at 2028 Sheridan Ave. S., Minneapolis, with his wife Joan, a former nurse at University Hospitals. They are parents of two daughters.

◆ 1960

Wendell G. Geary, his wife, and two sons, age 4 and 2, will embark June 1, 1964 for Indonesia, where Wendell will begin his first assignment as a medical missionary for the American Baptist church. He expects to spend 4 years in the remote interior of Borneo, where he will re-establish the Bethesda Hospital and serve the native population. Going with him will be more than \$20,000 worth of donated equipment, including medical supplies, a diesel generator, and a jeep.



WENDELL GEARY

After Medical School, Wendell interned at the USPHS Hospital in Seattle, Wash., and has been associated in practice and training for two years with a physician in Michigan. The Gearys have been preparing for the missionary assignment since 1961.

Both are from southern Minnesota, and Mrs. Geary is a graduate of the University of Minnesota School of Nursing. Wendell was a visitor at the Medical School on April 3.

Fred Mecklenburg is practicing obstetrics-gynecology at the U.S. Army Hospital at Aberdeen Proving Grounds, Md.

Alan R. Johnson, former flight surgeon with the Navy in California, is now in practice with the Windom Clinic, Windom, Minn.

Richard E. Olson is now associated in practice with the Valley Medical Center, Chaska, Minn., and is also practicing in nearby Jordan, Minn. He is a native of Willmar and recently completed military service.

Donovan L. Beckman, who is a resident in internal medicine at Ancker Hospital, St. Paul, will be married June 20, 1964 to Miss Gloria Mae Anderson of Minneapolis. Their engagement was announced recently.



PATRICK SCANLAN

◆ 1961

Patrick Scanlan and his wife, Charlotte, are parents of their sixth child, a daughter, Teresa, born December 10, 1963. They now have four girls and two boys. Pat is in the first year of a residency in anesthesiology at the University of Minnesota Hospitals. They recently moved into a new home in Edina, Minn.

◆ 1962

G. Nicholas Rogentine is completing the first year of residency in internal medicine at Massachusetts General Hospital, but will enter the U.S. Public Health Service on July 1, 1964 for two years of duty. He will be engaged in research at the National Cancer Institute, Bethesda, Md. Nick visited the Medical School recently. He and his wife, Carole, will be living at 263 Congressional Lane, Rockville, Md., during his USPHS appointment.

Capt. C. Arthur Anderson visited the Medical School recently after completing a two weeks course in Tropical Medicine at Walter Reed Army Hospital, Washington, D. C. A flight surgeon stationed at Travis AFB, Calif., Art flew around the world in February on a routine Air Force mission completed in six days. In Tripoli, Libya, he met **Capt. David Alexander**, a classmate, who is practicing pediatrics at an Air Force hospital there. Art will remain in military service until 1966, when he hopes to return to general practice in Minnesota. He brought news of other Class of '62 members, still in military service:



C. ARTHUR ANDERSON

Capt. Phillip Reierson is in general practice at the Second Army Division Headquarters, Ft. Meade, Md., as is **Capt. Jay Ballhagen**.

Phil and his wife, Carol, are parents of a new son, Eric, born seven months ago.

Lt. Robert Baker is in the Navy, stationed aboard the *USS Union*, a supply vessel in San Diego, Calif., and **Lt. Bruce C. Bayley** is assigned aboard a Navy LST, also at San Diego. **Capt. Roger Jackman** is a pediatrician at the Air Force Hospital at Travis AFB, Calif.

John Sutherland remains in general practice at Marshall, Minn. in association with three other physicians. He recently attended a medical continuation course at the University of Minnesota.

MEDICAL ALUMNI EXCHANGE

WANTED: LOCUM TENENS for July and August, 1964, or permanent associate. Contact F. C. Closuit, M.D. (Med. '41), Aitkin, Minn.

**COMBINED APPEAL TO MEDICAL ALUMNI
RECEIVES GIFTS TOTALING \$9,954.61**

Alumni of the Medical School contributed \$9,954.61 to the 1963 Combined Appeal sponsored by the Minnesota Medical Foundation. A total of 375 gifts were sent, of which \$3,974.00 was earmarked for the unrestricted use of the Foundation; \$4,745.62 was designated for various medical projects at the University of Minnesota; and \$1,234.99 was specified for the Medical Alumni Student Center Project.

The total amount contributed was nearly 36% higher than in 1962, and there were 6% more donors. The Combined Appeal is carried out each Fall by the Minnesota Medical Foundation to stimulate interest and support of approximately 40 special medical funds at the University. Alumni can contribute to the aid of the entire program, or designate their gift to the fund of their choice.

The 5th annual Combined Appeal will be conducted in October, 1964.

MEDICAL ALUMNI

Send your personal news to the MEDICAL BULLETIN on the form below. Your contribution to "Alumni Notes" will be welcome.

Name _____

Address _____

Class of _____

Detach and mail to: The Editor

University of Minnesota MEDICAL BULLETIN
1342 Mayo Memorial
University of Minnesota
Minneapolis, Minnesota 55414

Alumni Deaths

◆ 1898

Dr. Harry M. Guilford, Madison, Wis. Died December 27, 1963 at the age of 91 years. A native of Minneapolis, he was city health officer here from 1915 to 1921. In 1921, Dr. Guilford became epidemiologist for the state of Wisconsin, and served until his retirement in 1948.

◆ 1900

Dr. Bert V. Lares, Minneapolis, Minn. Died Feb. 14, 1964, aged 89. Dr. Lares had practiced in the Minneapolis area for more than 50 years.

◆ 1902

Dr. Harold L. Lamb, Tucson, Ariz. Died Sept. 21, 1963, of arteriosclerotic cardiovascular disease, at the age of 85. He was a veteran of World War I.

◆ 1903

Dr. Theodore F. Bevans, Waterbury, Conn. Died Oct. 13, 1963, aged 87, of cerebral arteriosclerosis. A graduate of the University of Minnesota College of Medicine and Surgery, he was a veteran of World War I, and on the staff of the Waterbury Hospital.

◆ 1906

Dr. John T. Litchfield, Sr., Minneapolis, Minn. Died July 13, 1963, in University Hospitals of respiratory failure and metastatic carcinoma of the prostate. A graduate of the Minneapolis College of Physicians and Surgeons, veteran of World War I, he was on the staffs of Abbott, Eitel, and St. Mary's Hospitals.

Dr. Harry W. Miller, Van Nuys, Calif. Died Jan. 19, 1964, at the age of 81. He had practiced in Casselton, N.D. from 1911 until his retirement in 1949.

◆ 1916

Dr. John L. Haskins, Roseburg, Ore. Died Feb. 3, 1964, aged 74, of carcinoma of the lung. He was a veteran of World War I; had served on the teaching staffs of Reed College and Portland University; was the former medical director of the Morningside Hospital in Portland; and was for many years associated with the U.S. Veterans Administration Hospital of Portland.

◆ 1921

Dr. Bernard H. Simons, Chaska, Minn. Died on Nov. 8, 1963, at the age of 67. In private practice for over 42 years, he had also served many years as Carver County coroner.

◆ 1925

Dr. Donald G. Tollefson, Los Angeles, Calif. Died Dec. 31, 1963, aged 65, of myocardial infarction and generalized arterio-

sclerosis. He was president of the Pacific Coast Obstetrical and Gynecological Society; on the faculty of the U.S.C. School of Medicine; and a member of the executive board of the California Hospital.

◆ 1926

Dr. John A. Moga, St. Paul, Minn. Died February 28, 1964. He was 67 years old, and had practiced in St. Paul for 33 years. Survivors include his wife, Catherine, two sons, three daughters, and 13 grandchildren.

◆ 1927

Dr. Robert D. Evans, Minneapolis, Minn. Died February 16, 1964, age 64 years. An allergist, he was a member of the Hennepin County Medical Society, and is survived by his wife, a daughter, and two sons.

◆ 1930

Dr. Robert C. Thompson, St. Croix Falls, Wis. Died Jan. 3, 1964, aged 63, of a cardiovascular accident. A veteran of World War I, he was on the staff of the Cumberland, Wis., Memorial Hospital.

Memorial Gifts

The Minnesota Medical Foundation acknowledges with gratitude recent contributions made in memory of:

William A. Basom
Dallas, Texas

Dr. Percy A. Ward
Minneapolis, Minn.

Carson F. Jamieson
Minneapolis, Minn.

Dr. John A. Moga
Anoka, Minn.

Dr. E. J. Hollern
Minneapolis, Minn.

Dr. T. L. Birnberg
Los Angeles, Calif.

H. Willett Ankeny
Minneapolis, Minn.

Mrs. Emil Silverman
Minneapolis, Minn.

Memorial gifts are a thoughtful means of honoring the memory of a relative, friend, or colleague. They serve the living by strengthening medical education and research at the University of Minnesota Medical School. Gifts may be designated for specific purposes. The Minnesota Medical Foundation acknowledges all gifts to both donor and next of kin.

COMING EVENTS

University of Minnesota Medical School

CONTINUATION COURSES FOR PHYSICIANS

1964

University of Minnesota
Center for Continuation Study

April 23 - 25 Gynecology

May 4 - 6 Ophthalmology

May 14 - 16 Surgery

June 3 - 5 Anesthesiology

The University of Minnesota reserves the right to change this schedule without notification.

Courses are held at the Center for Continuation Study or the Mayo Memorial Auditorium on the campus of the University of Minnesota. Usual tuition fees are \$45 for a two-day course, \$65 for a three-day course, and \$80 for a one-week course.

Specific announcements are sent out about two months prior to each course to all members of the Minnesota State Medical Association and to any physicians who request information for a specific course. For further information write to:

DIRECTOR
DEPARTMENT OF CONTINUATION MEDICAL EDUCATION
THE MEDICAL CENTER (Box 193)
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA 55455

legacies and bequests

Legacies and bequests to the Minnesota Medical Foundation are an important source of long range financial strength for medical education and research at the University of Minnesota Medical School.

Alumni and friends who wish to name the Foundation as a beneficiary in their wills may use the following form:

"I give to the Minnesota Medical Foundation, established in 1939 and incorporated by the Legislature of the State of Minnesota, and having its principal office at the University of Minnesota, Minneapolis, Minn., the sum of _____ dollars, to be applied to the benefit and use of the Foundation in such manner as may be directed by its Board of Trustees, in order to increase its efficiency and general usefulness."

Funds may be bequeathed for specific purposes within the Foundation. In such case, it is a wise provision for the future to add a statement that, in case a time comes when funds are no longer needed for this specific purpose, the Foundation's trustees may transfer the sum to support its other objectives.

Specific information can be obtained by contacting the Executive Director, Minnesota Medical Foundation, 1342 Mayo Bldg., University of Minnesota, Minneapolis, Minn. 55455.