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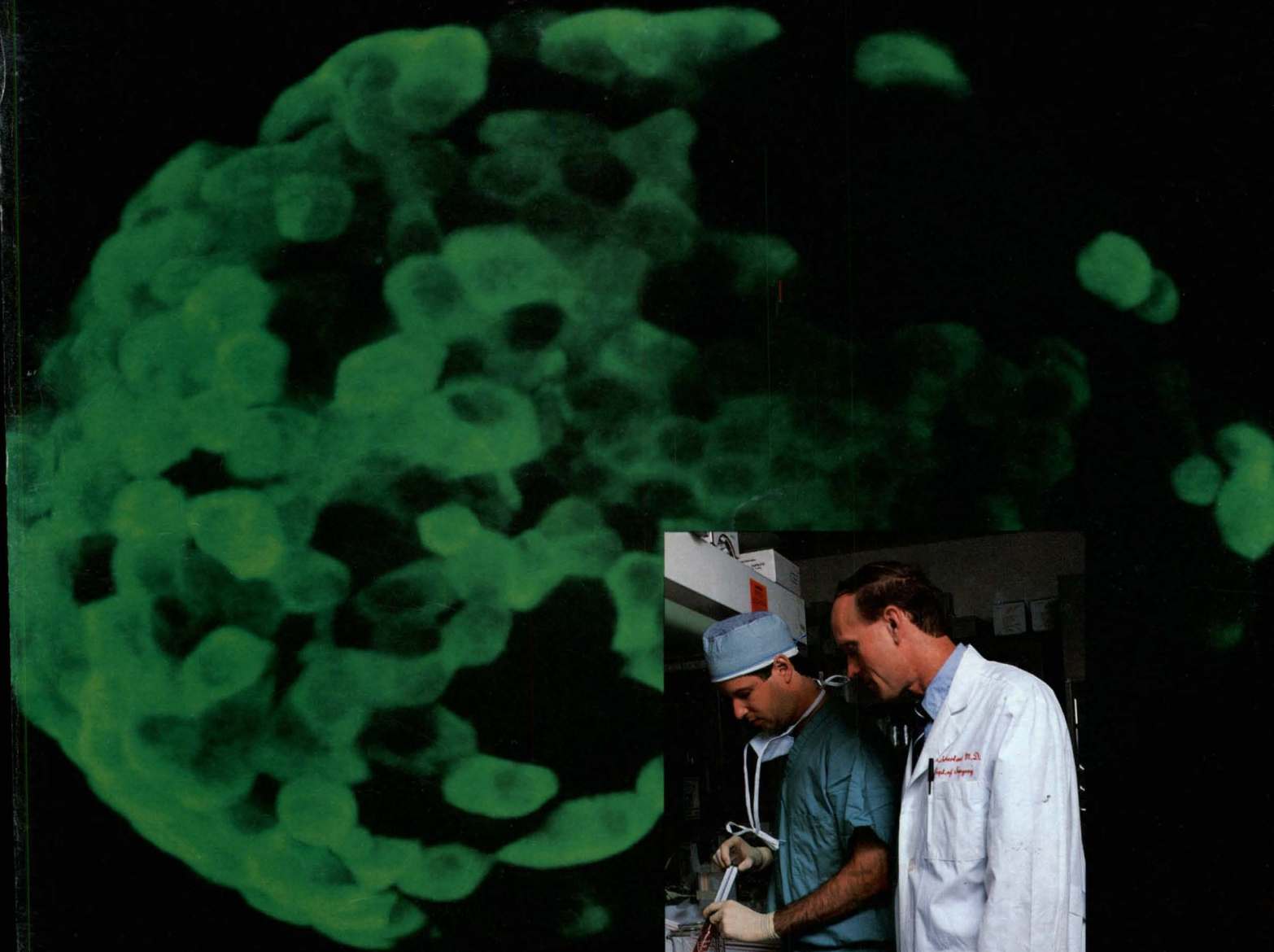

Islets of Life

A PUBLICATION OF THE MINNESOTA MEDICAL FOUNDATION

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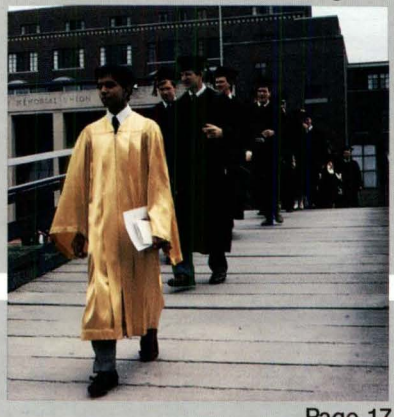

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On the Cover: Drs. Dixon Kaufman, left, and David Sutherland are involved in pioneering research in the Medical School's pancreas transplant program. In the background is an actual islet as seen through the confocal scanning laser microscope.

The Minnesota Medical Foundation was founded in 1939 by a dedicated group of faculty members and medical alumni who saw the need for private support to build a strong future for the Medical School. A non-profit organization, MMF raises and disburses funds for medical education and research at the University of Minnesota Medical Schools in the Twin Cities and Duluth.

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The Minnesota Medical Foundation supports the research and educational missions of the University of Minnesota Medical Schools by encouraging private contributions.

Providing Optimal Patient Care

The ability to provide excellent health care is the ultimate objective of medical education. All of our efforts to improve the quality of basic and clinical sciences education are focused upon improving our abilities as physicians to understand the bases for health and the mechanisms of disease. This knowledge base is developed, along with skills in eliciting patients' histories and physical findings, so as to be able to better pursue diagnostic and therapeutic measures. These indeed are time-honored and irreplaceable primary facets of medical education. They have not, should not, and will not change.

Sound clinical judgment based upon a careful history and physical examination is invaluable to providing optimal patient care. Classical examples illustrate this principle. The patient who complains of an uneven or quavering speech who also seems expressionless is a likely candidate for Parkinson's disease. The complaint of blurred vision which may, upon close questioning, be unilateral may represent the earliest sign of carotid artery insufficiency. The child who shows exceptional fear of examination and whose extremities seem particularly tender to touch may have fractures and be a victim of child abuse. The person who is having difficulty with absenteeism at work may have family problems and may need alert and careful listening with extra patience.

The fine art of heart auscultation is in danger of being lost because of excessive reliance upon various imaging techniques despite recent evidence of the diagnostic value of auscultation, equal in some instances to the more expensive alternatives. By the same token, a careful evaluation of fine motor coordination, gait analysis, muscle strength and cranial nerve function testing are likely to provide critical clues which will indicate the need or lack of need for an expensive magnetic resonance image analysis in pursuing CNS lesions.

We should question how much of what we do in terms of omission or commission could be avoided were we to adhere first to tried and true principles of clinical medicine. Certainly we should give our patients the benefits of diagnostic technology. We owe it to them to include the best measures in the most effective manner. Cutting corners which places the patient at risk must be avoided. We should also avoid unneeded costs and anxiety about excessive testing when prudent judgment deems this approach to be unnecessary.

Clearly there are times when nothing short of the most sophisticated diagnostic measure would suffice. I can recall a recent dramatic example of a woman working closely with me who had complained of headaches for years. She ascribed them to migraines. She was certain that the numbness and tingling extending down the lateral portion of her arm which developed after four years of the headaches was the first sign of multiple sclerosis. It was only after she had a magnetic resonance image analysis, despite a negative computerized tomogram, that a space occupying mass of the cervical spinal cord was found. Its removal was curative. One could hardly be faulted for not having turned to image analysis earlier when headaches were the lone symptom. However, the neurologist quickly recognized the significance of the change in her symptoms and pursued the diagnosis to a successful outcome. Absent the prudent use of high technology, her outcome likely could have been less favorable.

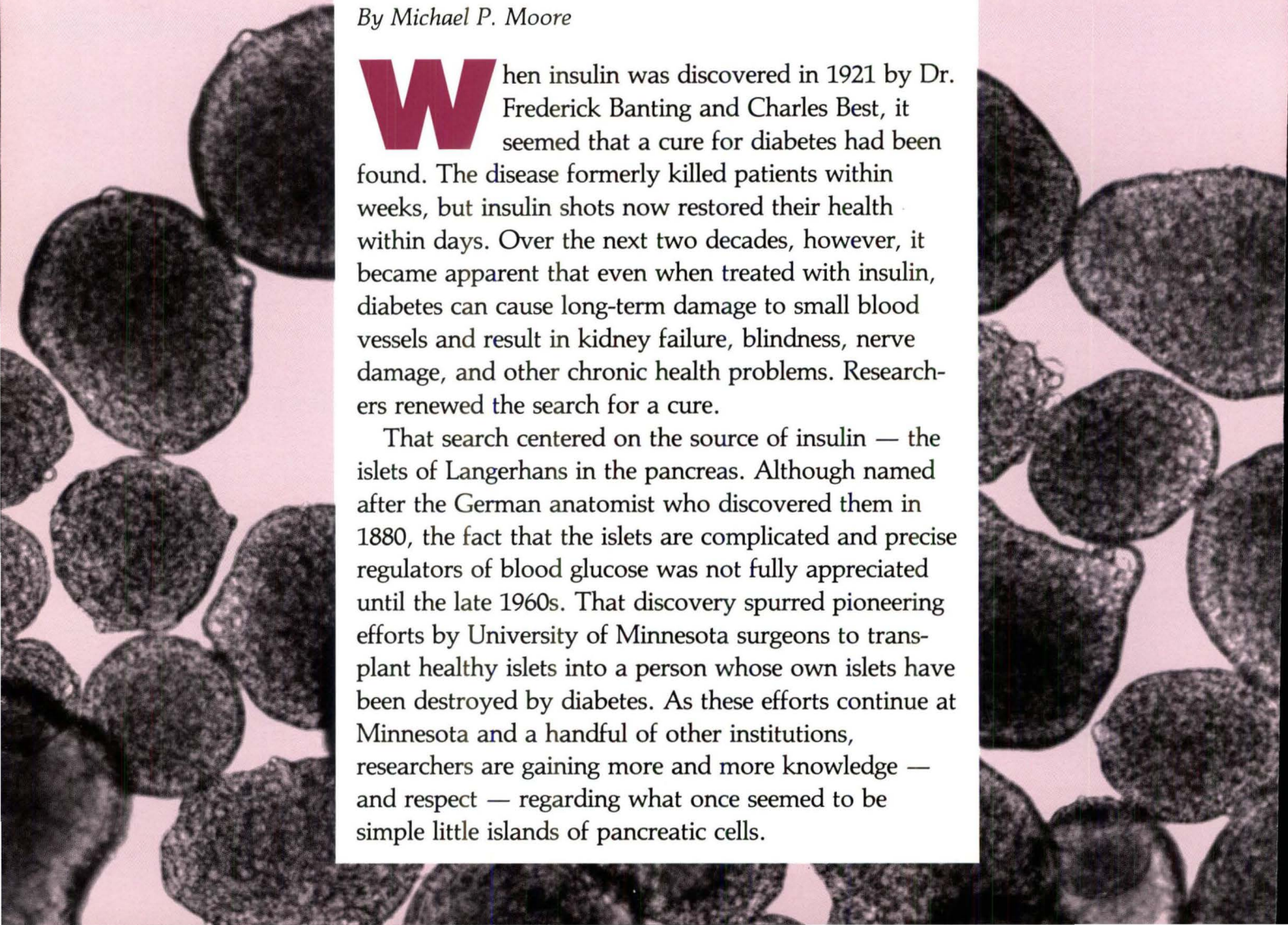
The resolution to dilemmas of when and how to use technology in diagnosis lies with our turning first to the patient for clues. We have to use all of our senses to be "tuned in" to the patient. We have to know enough to be informed listeners and critical thinkers. Our knowledge and skills will provide us with the best approach to optimal, cost-effective medicine with which this and future generations of physicians can serve their communities as they have in the past.

David M. Brown, Dean
University of Minnesota Medical School

ISLETS OF LIFE

The secret to reversing insulin-dependent diabetes may be hidden somewhere in the islets of Langerhans.

By Michael P. Moore



A light microscope view, magnified approximately 700 times, of the islets of Langerhans, which secrete insulin and other hormones. The islets were prepared in the laboratory of Dr. Orion Hegre, professor of cell biology and neuroanatomy.

Photo by Sue Marshall

When insulin was discovered in 1921 by Dr. Frederick Banting and Charles Best, it seemed that a cure for diabetes had been found. The disease formerly killed patients within weeks, but insulin shots now restored their health within days. Over the next two decades, however, it became apparent that even when treated with insulin, diabetes can cause long-term damage to small blood vessels and result in kidney failure, blindness, nerve damage, and other chronic health problems. Researchers renewed the search for a cure.

That search centered on the source of insulin — the islets of Langerhans in the pancreas. Although named after the German anatomist who discovered them in 1880, the fact that the islets are complicated and precise regulators of blood glucose was not fully appreciated until the late 1960s. That discovery spurred pioneering efforts by University of Minnesota surgeons to transplant healthy islets into a person whose own islets have been destroyed by diabetes. As these efforts continue at Minnesota and a handful of other institutions, researchers are gaining more and more knowledge — and respect — regarding what once seemed to be simple little islands of pancreatic cells.

Exploring the islands

The human pancreas contains approximately one million islets, dispersed throughout the organ but representing only 1 to 2 percent of its total tissue. Each islet is a cluster of several different types of cells. About 80 percent are called beta cells; they sense when the level of blood glucose is rising and secrete insulin in response. Insulin enables cells throughout the body to take up the available glucose and use it for energy or store it.

About 19 percent of the islet cells are called alpha cells; they sense when the blood glucose level is dropping below the normal range or when glucose is needed quickly by the body, and they secrete glucagon in response. Glucagon is a hormone that triggers the liver to release stored glucose into the bloodstream.

The function of the remaining one percent of islet cells is poorly understood, other than that they secrete small amounts of somatostatin (a growth-hormone inhibitor) and other pancreatic polypeptides.

In insulin-dependent diabetes, the islets are damaged by an autoimmune attack and stop secreting insulin. This prevents the person's body from using glucose for energy, and it starts in motion a cascade of abnormal events related to food metabolism. Injecting insulin one or more times daily and eating a healthy diet can keep the glucose level within or close to the normal range. However, many people with diabetes are unable to achieve good blood glucose control, and diabetes continues to damage the blood vessels of many of these people. (The University of Minnesota is one of 27 centers involved in the Diabetes Control and Complications Trial, a ten-year research project to test the hypothesis that strict blood glucose control lessens the incidence of diabetic complications.)

The kidneys are one of the prime targets of diabetic damage; people with diabetes are 17 times more likely to develop kidney disease than are people without diabetes. Prior to the availability of kidney transplantation in the 1950s, the only treatment for kidney failure was permanent kidney dialysis procedures. When kidney transplants proved to be successful, the way was opened for an attempt at curing diabetes — pancreas transplantation.

The first attempt to transplant a human pancreas was made on December 17, 1966, when Drs. William D. Kelly and Richard C. Lillehei of the University of Minnesota performed a simultaneous kidney and pancreas transplant in an attempt to save the life of a woman with very advanced diabetic complications. The patient's blood glucose level immediately normalized and insulin shots were discontinued, but she died two months later of pre-existing diabetic complications.

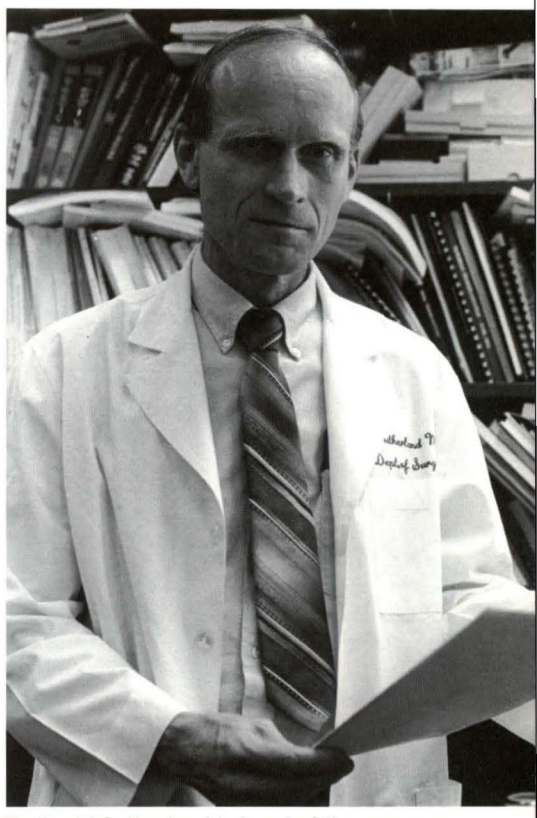
Over the next seven years, Lillehei and Dr. John S. Najarian, chairman of the Department of Surgery and now regents' professor and holder of the Jay Phillips Chair in Surgery, performed a total of 14 pancreas transplants (10 with a kidney), using cadaver donor organs. They were the first surgeons to consider patients with diabetes for transplantation — other centers considered them to be too medically fragile for major surgery. Although all 14 procedures temporarily reversed the patient's diabetes, only one transplanted pancreas functioned for more than a year. The program was put on hold in 1973 while surgeons tested new ways of prolonging graft function in animals.

"Pancreas transplants then and now are really just a way of transplanting islets as part of an immediately vascularized graft," says David E.R. Sutherland, M.D., Ph.D., head of the pancreas transplant program at the University of Minnesota. The non-islet pancreas tissue secretes digestive enzymes that can be replaced orally, unlike the hormones secreted by the islets.

A pioneering trial

The islets themselves, then, became a logical target for transplantation, and in 1974 Drs. Najarian and Sutherland began the first human trial of islet transplantation. As with the pancreas transplants, the patients' diabetes had made a kidney transplant necessary, so the risk of anti-rejection therapy was already present. "We weren't sure whether islet transplantation could be done with a rejection response more, less, or equal to that of the kidney," says Sutherland.

The unfortunate answer, as the surgeons learned in a series of 20 patients who received transplanted islets from 1974 to 1980, was that the islets are more



Dr. David Sutherland is head of the pancreas transplant program at the University of Minnesota.

susceptible to rejection than is the kidney. "A few patients were able to come off insulin for a few days, and some had reduced need for insulin for a few weeks. But the islets were either very rapidly rejected, or there wasn't enough of them to cure the diabetes in the first place," Sutherland says. "We didn't think it would be simple, but on the other hand the procedure itself is simple enough [compared to transplanting the whole or partial pancreas], and we hoped it would be successful."

The Minnesota team has since gained additional proof that rejection is the main barrier to islet transplants. "We've done about 20 islet transplants in which we didn't have to worry about rejection, because the patients received their own islets," he says. That was possible because these patients didn't have diabetes, at least not until their pancreases were removed. They opted to accept the penalty of becoming diabetic as a price for relief from the severe pain of chronic pancreatitis. But they also hoped to escape diabetes by receiving their own islets after being isolated from the infected pancreas. Because the islets were

their own, antirejection therapy was unnecessary.

"By doing an islet autotransplant we have about a third of the patients off of insulin, about a third have very mild diabetes, and in another third it was not successful at all," Sutherland says. "Those in which it was unsuccessful or partially successful are the patients in which it was difficult to get a large yield of islets, but when we were able to get enough islets we indeed were successful. This indicated to us that in the allograft situation [from one person or cadaver to a patient with diabetes], in which we're trying to cure de novo diabetes, if we can get enough islets and prevent rejection we would succeed."

Through extensive experimentation in a canine model of diabetes, Sutherland and colleagues in his research laboratory believe they have solved the problem of being able to get enough islets out of the pancreas. That leaves the complex problem of preventing rejection. Until animal research, mostly in rodents, provides a better anti-rejection strategy, the Minnesota team has suspended clinical islet allografts in favor of transplanting the whole pancreas from a cadaver donor or a partial pancreas from a tissue-matched relative.

"We did 58 pancreas transplants here last year and we've done 15 so far this year; worldwide there's been more than 2,000 done," says Sutherland, whose office staff maintains the International Pancreas and Islet Transplantation Registry. In more than 80 pancreas transplants at the University of Minnesota since 1984, the one-year patient survival rate for simultaneous kidney and pancreas recipients was 100 percent, with 78 percent of the patients off dialysis and insulin at one year post-transplant. The Minnesota program also is the leading center for transplanting the pancreas alone. Among these patients, 96 percent were alive after one year and 52 percent were off insulin.

Despite this increasing success with pancreas transplantation, Sutherland agrees that if the rejection problem can be solved, "islets would be preferable because it's a simpler operation." Two other major trials of islet transplantation have been attempted, a continuing trial at Washington University in St. Louis and another that has been suspended at the University of Miami. "I'd say the results are somewhat better, but they're disappointingly similar to our results 12 years ago, even though they have the added benefit of cyclosporine, which wasn't available for antirejection therapy when we did our trial," Sutherland says.

Laboratory trials and tribulations

For the past three years, research in Sutherland's laboratory has been directed by Dr. Dixon Kaufman, a sixth-year surgery resident, assisted by Jane Field, head technician in the laboratory for the past 12 years. The laboratory serves many roles, including developer of new strategies for islet isolation and transplantation, scrutinizer of successful results reported by others, and trainer of a continuing stream of would-be islet researchers from around the world.

Kaufman says that the clinical challenges of islet transplantation break down into two areas: 1) isolate and store enough islets in ways that keep them viable for transplantation; and 2) prevent rejection by either altering the islets in some way so that they are not recognized by the recipient's immune system, or by providing immunosuppressive agents that are more effective than those currently used to prevent rejection of whole organs. Dogs and other larger animals are crucial for the first area of research, while tissue cultures and rodents provide the testing grounds for the immunology studies.

Through techniques that are the modern-day counterpart of the methods used by Banting and Best to extract insulin from the pancreases of dogs, the laboratory team has developed a highly successful process for isolating viable canine islets. "There's very little machinery involved in our process — we call it the KIS technique, for "keep it simple," Kaufman says. Despite its simplicity, "we get about 60 to 75 percent of the islets, and those islets are quite pure," he says.

The key to determining the success rate of different attempts at canine islet transplantation is the method used by the laboratory to measure the quantity and quality of each batch of islets before they are transplanted. Two stains are used to evaluate samples of islets from each batch. "These stains let us estimate the number of viable islets in the whole isolation batch, see what their size is, and see how much contaminating tissue we have. These hard numbers enable us to compare different isolations from day to day," Kaufman says.

Research in the pancreas transplant laboratory is directed by Dr. Dixon Kaufman.

"When we correlate these numbers to the outcome of the transplant, we find that they are very consistent. When certain parameters exist, the outcome is good; if we fall below those parameters it just doesn't seem to work," he says. Many strategies have been tested in the laboratory, including different transplant sites and different antirejection therapies. "We've had some dogs normal for almost two years, and I think we're finally to the point where if something doesn't work we can go back and figure out why," Kaufman says.

The success with dogs is qualified somewhat by the fact that their diabetes is induced by removal of the pancreas, which necessitates daily doses of digestive enzymes. Both of these factors make them different from the people with diabetes who are the potential beneficiaries of the research. The dogs also require antirejection therapy, which may entail more risk in terms of liver and kidney toxicity than the risk of long-term complications of diabetes.

If immunosuppressant agents are eventually successful in preventing islet rejection, Kaufman predicts that the drugs and the regimen will be more selective and sensitive than what is used in trans-

planting large organs. "If you transplant islets you're only talking about 2 grams of tissue, compared to the liver — about 1,500 grams — and the kidney — about 500 grams. If you knock out one gram of liver or kidney tissue you probably wouldn't even be able to detect it, but if you knock out one gram of islet tissue you've knocked out the graft," he says.

Ideally, immunosuppressants would be avoided entirely. Islet encapsulation is being tested at Minnesota and other centers as one potential method of making antirejection therapy unnecessary. The theory driving attempts at encapsulation is that islets might be placed inside a protective coating that would hide them from immune system cells, while allowing glucose to diffuse in to the islets and insulin to diffuse out to the bloodstream. However, no one has yet come up with a coating that can exist within the body for long enough without being corroded with fibrotic tissue or being rejected itself.

Also, Kaufman points out that "there are other mechanisms that could damage islets that don't require cell-to-cell contact. For example, the influx of materials the islets need to function may carry with it immune system substances that are toxic to the islets, such as tumor necrosis factor or interleukin-1. So even though you hide the islets, the body is still clever enough to know how to ruin them."

Kaufman and Sutherland agree that the key to preventing rejection will probably come through better understanding of the genetics and molecular biology of foreign-tissue rejection. To study the complex immune system mechanisms involved, Dr. Peter Stock, a resident in Sutherland's laboratory, developed a tissue culture system called the mixed lymphocyte-islet co-culture system. Kaufman explains that "the islets are the stimulators and the lymphocytes [activated white cells] are the responders, so you see what you can do to the islets to inhibit the response of the lymphocytes, and you test that in a cell culture system. If you get something there, then you go ahead and try it in an islet transplant in a rodent system."

Sutherland points out that although a great deal of basic knowledge has been gained about the immune system from rodent studies, the results of islet transplants have been too inconsistent to apply to humans. "In our laboratory we can transplant islets between two strains of mice and in some instances we can get them to function long-term without any anti-rejection treatment at all; in others the islets are rejected immediately. So we're faced with these paradoxes, but the fact that we can get it to work in some cases indicates that it's a solvable problem. Our focus now is to try to solve the immunological aspects of islet transplantation using primarily the mouse model as a stepping stone to large animal models and then eventually back to humans again."

Kaufman says that there is no shortage of ideas for solving islet transplantation problems. "With so many people involved in islet transplantation research — diabetologists, immunologists, surgeons, laboratory medicine scientists — I'm confident that we're getting close to the answers. There are a number of things that have to be tried alone and in combination, and that's why the rodent and canine trials are so important. I think it looks very promising, and I hope that by the time I finish my transplant fellowship I'll be involved in the renewed clinical trials of islet transplantation," Kaufman says.

Down on the islet farm

While the activity in Sutherland's laboratory concentrates on isolating and transplanting adult islets, in another part of the Medical School neonatal islets are being grown and transplanted in what amounts to a laboratory farm. Directed by Dr. Orion Hegre, a professor in the Department of Cell Biology and Neuroanatomy, the research is concentrating on rat islet tissue that is still in a state of transition.

"The basic principle we're working on is that one may be able to start with a relatively small amount of tissue that has an inherent capacity to grow, and use that as the initial transplant and rely on it to eventually provide an adequate amount of tissue to reverse the symptoms of diabetes," Hegre says.

The real innovation in Hegre's laboratory, however, is in the painstaking efforts made to ensure that no contaminating tissue or non-insulin-secreting cells are transplanted with the islets. That's where the farming concept comes in. Rather than isolating islets from adult pancreases, the researchers isolate a small number of islets from newborn rats and allow the islets to grow in a tissue culture just as they would have in the growing rat. But because they are removed from the rat's immune system, which would have introduced white cells capable of causing rejection, they grow into a very pure population of insulin-producing islets.

"Our hypothesis is that a pure population of endocrine cells — that is, cells that can produce insulin in a regulated fashion in response to changes in blood glucose level — is transplantable even across genetically different members of the same species," Hegre says. He explains that as blood travels through the islets as a necessary part of their function in the pancreas, it brings with it cells called antigen-presenting cells, or APCs. These cells survey the environment, and if they detect an antigen, such as a bacteria or a virus or any other foreign body, they recognize it and present it to the immune system in a way that causes other white cells to attack it.

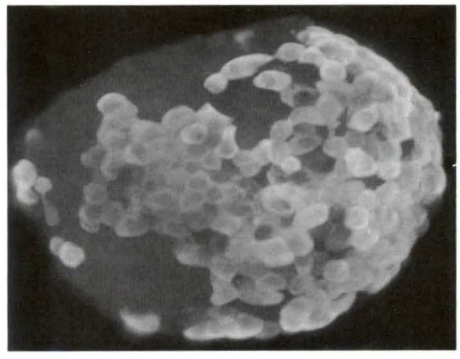
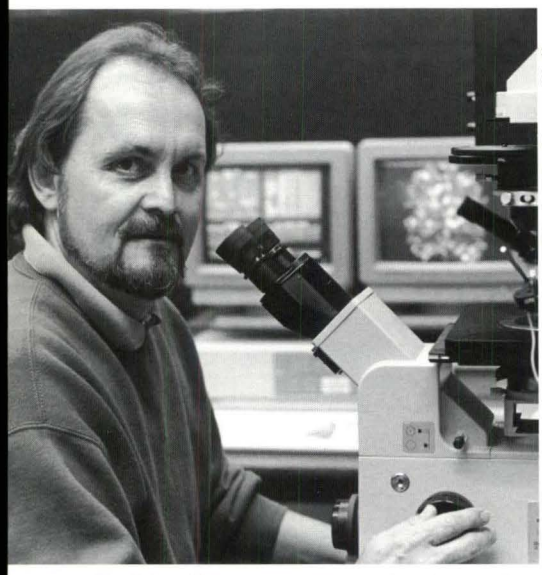


Photo by Todd Brelje

An image of a single islet created by overlaying numerous computer images from a confocal laser scanning microscope.

The task in Hegre's laboratory, therefore, is to produce islets that are as free of APCs as technology and human ingenuity can make them. Current methods include use of antibodies that detect and kill only APCs, and cell-culture techniques that favor the growth of islets while causing APCs to die.

The many tasks involved are handled by a team of research technicians, each with a specific role. Anthony Weinhaus and Kristen Sueppel are responsible for dissection and culture of the islets from neonatal rats. Sue Marshall purifies the islets derived from the cultured tissue, and transplants them beneath the kidney capsule of recipient animals. Weinhaus is also the primary animal care technician,



Photos by Nancy Mellgren

Dr. Orion Hegre uses the confocal scanning laser microscope in his islet research.

and the surgeon for the transplants. Kris Sueppel and a graduate student, Robert Ketchum, use staining techniques to detect APCs and other contaminants in the islet preparations. Dr. Albert Enriquez, a medical resident, has performed some of the surgeries and has studied the immune mechanisms of the special strain of spontaneously diabetic rat used to test the success of transplanted islets.

The team's ability to detect APCs has been greatly enhanced by the new confocal scanning laser microscope purchased by the Department of Cell Biology and Neuroanatomy last year with partial funding from the Minnesota Medical Foundation. "The confocal microscope helps us more efficiently assess the purity of the tissue we are going to use," Hegre says.

"With the ordinary light microsope we have to cut about 60 sections of an islet, and it's difficult to get every section perfect to look at. That means you're forced to sample only a few sections, which reduces your ability to find the needle in a haystack — the one or two APCs that could cause rejection. With the confocal microscope we still have to sample a small percentage of the islets, but we can look through the entire islet and be confident that if we have the right fluorescent labels for the cell surface markers on APCs, and if there are any of those cells there, we'll see them."

Hegre reports that he and his laboratory colleagues have gotten the number of APCs down to a low enough level so that "in 50 to 75 percent of the time we can without immunosuppression transplant between genetically different rats and get lifetime freedom from diabetes. And when we transplant islets from a rat to a mouse, instead of the transplant failing within four days as it does when you transplant without removing APCs, we can get graft function for an average of 40 days and sometimes for three to four months. The reason we can't yet get lifetime reversal between species may be that we still have some of these APCs that we can't detect, and the further away you get from the donor genetically the more important they become."

That's an important hurdle, because Hegre and others think that the only adequate supply of islets for humans will be from another species, such as pigs or cows, both of which are now used to supply some insulin for human use. Special strains of miniature and even "micropigs" have been developed for cross-species organ transplantation (xenograft) research. "If it's true that xenografts will work if you have an absolutely pure preparation, then we're just a step away from that," Hegre says.

The other potential supply of islets would be islets obtained from miscarried fetuses and perpetuated with the islet farming methods Hegre's laboratory is developing. But that requires a great deal more knowledge of cell biology, he says. "If we learned to manipulate the growth and maturation of islet cells — to accomplish the same thing that is done as an animal grows — then the islet farming method might be practical." He reports some early success with inducing islet growth by transplanting neonatal islets early in the onset of diabetes in the spontaneously diabetic rat. "Apparently the gradual decline of natural insulin stimulates the islet growth and actually prevents diabetes," he says, but further experimentation is necessary to confirm that possibility.

Hegre is collaborating with other researchers in the Department of Cell Biology and Neuroanatomy to improve his laboratory's ability to improve islet farming methods, to grow purer islets, and to detect any APCs that may remain. Professor Eric Bauer is improving methods for breaking down islets into individual cells that can be sorted and selectively transplanted. And Professor Robert Sorenson and Ph.D. student Todd Brelje are using the confocal microscope to study how islets are formed during fetal development and the factors that affect their growth, maturation, and function in the growing and adult rat.

"Our goal is to produce a totally innocuous treatment for insulin-dependent diabetes," Hegre says. "There would be no need for immunosuppression, because we would get rid of all the APCs. It would not be a complicated surgical procedure, because it really doesn't matter where you put the islets as long as they have a good vascular supply. We're investigating subcutaneous and intramuscular sites in rats, which would mean that it would be an outpatient procedure in which the person would just come in for an injection of islets."

All systems go

Sutherland says that for the immediate future, pancreas transplantation will be the preferred form of islet transplantation, because it has the best record of clinical success. The attempts by Kaufman and Hegre and many others to improve islet transplantation are crucial, he says, because "if one could devise a way to prepare islets so that they wouldn't incite a rejection response, then of course that would be a significant advantage over the pancreas transplant.

"But I think if anything will make pancreas and islet transplants obsolete it will be the development of an artificial beta cell — an insulin pump coupled to a glucose sensor," Sutherland says. Just such a system is being developed by Dr. Henry Buchwald, a professor of surgery at the University of Minnesota who teamed with biomedical engineers to develop and license the first implantable drug infusion pump. His pump has been used to deliver insulin on a closely regulated schedule. To function like a huge beta cell, it needs to be driven by a device that can monitor the amount of gluocse in the person's blood and direct the pump to deliver just the right amount of insulin throughout the day.

Whatever the outcome of the search for a cure to insulin-dependent diabetes, the increasing understanding of the pancreatic islets is sure to play a pivotal role. "It's been said that you don't know anything about an organ until you try to transplant it," Kaufman says. "That's certainly been true of the islets."

Minnesota's Distinguished Researchers

University of Minnesota investigators receive prestigious awards which will fund state-of-the-art research into critical disease areas.

By Jean Murray

MERIT awards

Two distinguished University of Minnesota Medical School researchers have recently been awarded the prestigious MERIT award from the National Institutes of Health (NIH). Drs. Leo T. Furcht and Ashley T. Haase join seven other MERIT awardees previously profiled in the *Medical Bulletin*.

Past winners include Khalil Ahmed, Ph.D., professor of laboratory medicine and pathology at the Veterans Administration Medical Center; Robert J. Bache, M.D., professor of medicine; Harry S. Jacob, M.D., professor of medicine and of laboratory medicine and pathology; Horace H. Loh, Ph.D., professor and head of the Department of Pharmacology; Robert F. Miller, M.D., head of the Department of Physiology; Chang Won Song, Ph.D., professor and director of the Radiation Biology Section of the Department of Therapeutic Radiology; and James G. White, M.D., regents' professor of pediatrics and laboratory medicine and pathology.

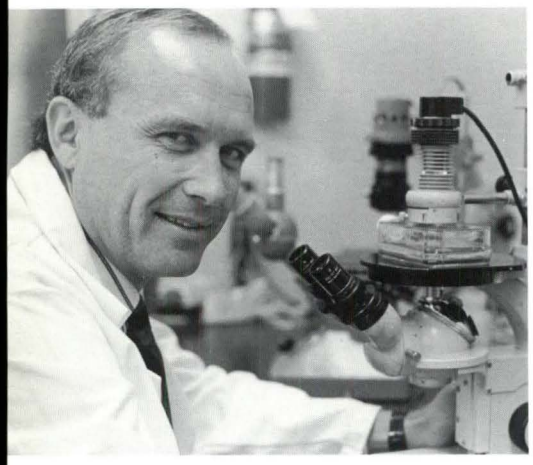
Beginning in 1986, NIH began offering a limited number of MERIT (Method to Extend Research in Time) awards to investigators who had demonstrated superior competence and outstanding productivity during their previous research endeavors.

The purpose of these awards is to provide long-term stable support to those whose research performances have been distinctly superior. Long-term support fosters continued creativity and spares these researchers the administrative burdens associated with preparation and submission of research grant applications.

Investigators do not apply for MERIT awards. After submitting research proposals in accordance with conventional NIH procedures, candidates are singled out for MERIT award consideration by NIH staff or members of the National Advisory Council.

Criteria for selection include: a regular research project grant application that is deemed highly meritorious by the initial review group; a past record of scientific achievement and demonstrated leadership in the research area addressed by the grant application; and an area of research of recognized importance or of special promise.

MERIT awards are granted for an initial period of three to five years. Based on review of accomplishment, the award may be extended for an additional three to five years.



Dr. Leo T. Furcht

Leo T. Furcht, M.D.

Dr. Furcht, a professor of laboratory medicine and pathology, received a MERIT award for his research on tumor metastasis. Metastasis, the widespread dissemination of cancer cells, is the major cause of death in cancer patients. The ability to modify or regulate this process of metastasis, says Furcht, would have tremendous beneficial effects on the outcome of patients with cancer.

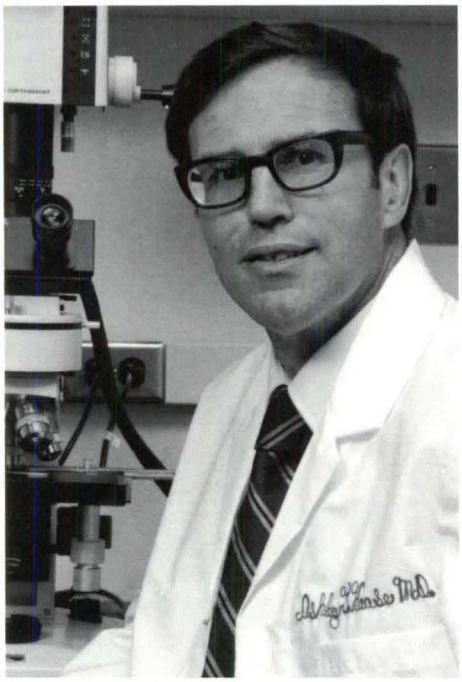
"This work has focused on molecular mechanisms involved in metastasis and the processes of tumor cell adhesion, migration, and invasion," reports Furcht. "Key to these processes are molecules involved in the basement membrane of blood vessels and extracellular matrices. These molecules include fibronectin, laminin, and type IV collagen.

"Approaches involve molecular engineering to create chemically synthesized peptides which mimic portions of the biological activity of these basement membrane and matrix molecules. These studies have led to discoveries which have been patented where peptides and other agents have been created which will inhibit tumor cell migration, invasiveness, and prohibit experimental metastasis in animals."

The work involves a team of scientists, including Drs. Charonis, McCarthy, Skubitz, and Tsilibary.

Furcht received his medical training at State University New York, Upstate Medical Center, Syracuse, New York. He served his internship and postdoctoral fellowship and residency at the University of Minnesota Hospital and Clinic. In 1974 he was appointed instructor of laboratory medicine and pathology at the University of Minnesota Medical School. He was named full professor in 1982.

From 1983 to 1987, Furcht served as the Minnesota Medical Foundation Stone Research Professor in Pathology. In 1988 he was selected as chairholder of the W.W. Allen and Elsa U. Pardee Land-Grant Chair in Cancer Biology, based on his extensive research into the mechanisms of metastasis and tumor spread.



Dr. Ashley T. Haase

Ashley T. Haase, M.D.

Dr. Haase, professor and head of the Department of Microbiology, received his MERIT award for his research on the pathogenesis of HIV-induced immunodeficiency. The proposal is directed to the molecular pathogenesis of infection by the human immunodeficiency virus (HIV) and in particular to the basis for its cardinal manifestation, the acquired immuno deficiency syndrome (AIDS).

"We describe longitudinal analyses of lymph node and bone marrow by *in situ* hybridization and cognate single cell methods to define the number and type of cells which harbor HIV, and the extent of virus gene expression vis-a-vis viral and regulatory genes and stage of disease," says Haase. "We think this analysis will provide support for a war of attrition hypothesis which accounts for the profound loss of T helper lymphocytes despite the relatively low frequency of cells in which viral RNA can be demonstrated.

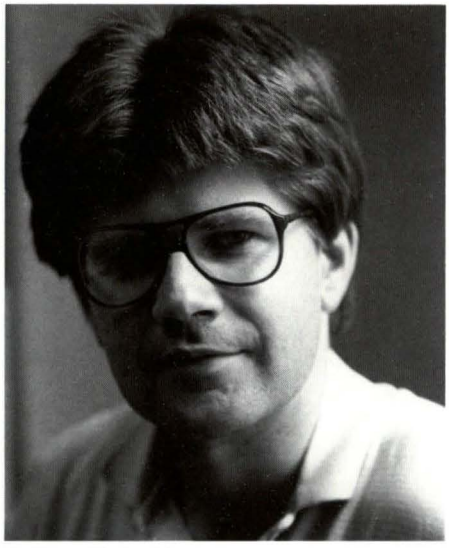
"We also will look for a mutant virulent virus in the later stages of disease. If one is found we will characterize the genome of the virus for comparisons with earlier isolates with the aim of identifying viral genes with a critical role in pathogenesis."

Haase received his medical degree from Columbia College of Physicians and Surgeons in New York. Prior to coming to the University of Minnesota in 1984, he was a professor of medicine and microbiology at the University of California in San Francisco. He has served as a clinical associate at the National Institutes of Health in Bethesda, and as a visiting scientist at the National Institute for Medical Research in London. Haase was also the chief of the Infectious Disease Section of the Veterans Administration Medical Center, San Francisco, from 1971 to 1984.

Pew Scholars Program

The Pew Scholars Program in the Biomedical Sciences is designed to support young investigators of outstanding promise in basic and clinical sciences relevant to the advancement of human health. The funding for these awards is provided by The Pew Charitable Trusts. Support is focused around three themes: strengthening the health professions; collaborative efforts between individuals, institutions, and disciplines; and investment in the human potential.

Twenty scholars are selected annually from around the country, and are supported for four years. Awardees are selected on the basis of their promise as outstanding investigators as indicated by their accomplishments during their education and training and the evaluation of their capabilities by those with whom they have previously worked, as well as the scientific merit of their research proposals and their previous work.



Dr. Marc K. Jenkins

Marc K. Jenkins, Ph.D.

Dr. Jenkins received his Pew Scholars award for his research into the effects of Cyclosporine A on T cell development. Cyclosporine A (CsA) is an immunosuppressive drug that is widely used in transplantation medicine. Many of its suppressive effects appear to be related to inhibition of the function of T lymphocytes, cells critical to a normal immune system's ability to respond to foreign stimuli.

However, in certain situations CsA does not suppress but actually induces a T cell response against the host's own proteins, i.e., an autoimmune response. Jenkins' research will study the unexpected properties of CsA to gain new information on T cell development and autoimmunity.

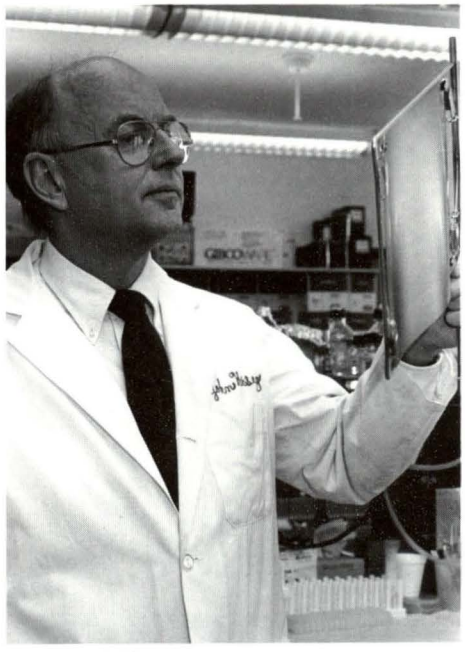
"Successful completion of these experiments should increase our knowledge of the cellular mechanisms underlying autoimmunity," says Jenkins. "In addition, these studies may improve our understanding of the physiological effects of CsA on human bone marrow transplant recipients who are treated with the drug."

Jenkins received his Ph.D. in immunology from Northwestern University in 1980. He held a postdoctoral fellowship with the National Institutes of Health in 1988. He has been an assistant professor in the University of Minnesota Medical School's Department of Microbiology since 1988.

Outstanding Investigator Grant

Beginning in 1985, the National Cancer Advisory Board has annually approved the award of National Cancer Institute (NCI) Outstanding Investigator Grants (OIG), each continuing for a period of seven years. The OIG is a competitive, peer-reviewed grant that supports investigators who have had an outstanding record of accomplishments in cancer research for at least five years in the recent past. Fewer than 25 such awards have been given annually nationwide.

To relieve the investigators of frequently applying for grants, the OIG awards are made for up to seven years instead of the usual three to five years for grants. The maximum seven-year period for this award is renewable. NCI believes that sparing these highly productive researchers the time and energy required for the usual grant application process will encourage them to conduct innovative research of considerable potential.



Dr. John H. Kersey

John H. Kersey, M.D.

Dr. Kersey received his Outstanding Investigator Award from the National Cancer Institute in recognition of his leadership in cancer research and bone marrow transplantation.

In describing the aims and objectives of his current work Kersey writes: "Research progress in our studies of the differentiation of the immune system with emphasis on genes and surface molecules of leukemic cells has been very encouraging. Our progress and those of others is to the point where monoclonal antibodies against very restricted determinants including idiotypic determinants on these cells are becoming increasingly available. The cloning of genes for antibodies of these interesting specificities has now begun. Cloning of immunoglobulin genes for therapeutic specificities of interest is a logical extension of my research activities."

Kersey received his M.D. degree from the University of Minnesota Medical School in 1964. He has been associated with the Departments of Laboratory Medicine and Pathology and Pediatrics since 1971, and has been a professor in those departments, as well as in the Department of Therapeutic Radiology-Radiation Oncology, since 1977.

He is director of the University's Bone Marrow Transplantation Program, director of Laboratory Medicine and Pathology's Immunopathology Training Program, and a member of the Institute of Human Genetics. Kersey has served on numerous national and international scientific committees, has lectured worldwide on leukemia, bone marrow transplantation, and related subjects, and is on the editorial boards of a number of scientific journals. He was recently named to be the holder of the Children's Cancer Research Fund Land Grant Chair in Pediatric Oncology.

TRACKING THE BR

UMD researchers are unravelling the mysteries of brain biochemistry.

By Jane Brissett

The basic question in Dr. Lester Drewes' research is simple: How does the brain get its nutrients?

Only selected molecules are allowed to pass from the blood into the brain, and Drewes wants to find out how one of the chemical transporters that does that work is formed and functions.

The blood-brain barrier phenomenon, first observed by German scientists who injected blue dye into blood vessels and watched all organs except the brain turn blue, allows only certain substances to reach brain cells. One of them is the organ's main nutrient, glucose.

Drewes, professor and head of the Department of Biochemistry at the University of Minnesota, Duluth (UMD) School of Medicine, has been awarded a $193,298 grant from the National Institutes of Health to study how glucose travels through blood vessel walls into brain cells. Assistant Scientist David Z. Gerhart, Ph.D., is working with Drewes.

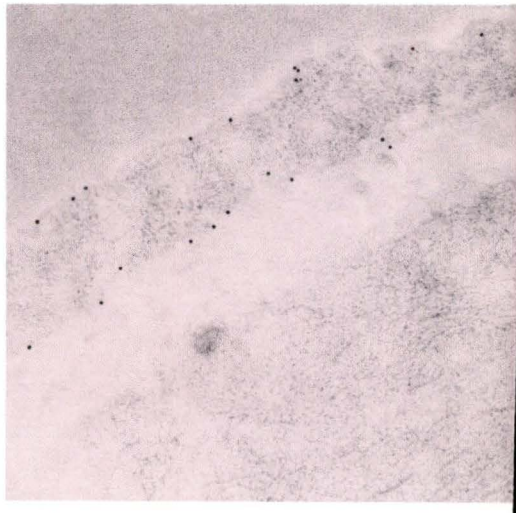
The project, titled "Modulation of Glucose Transporters in Brain Endothelium," is funded for two years and could have implications for victims of diabetes, epilepsy, and strokes.

Glucose is the brain's chief nutrient, although it also needs choline and amino acids. Drs. Drewes and Gerhart are investigating how glucose passes through the endothelial cell lining of brain blood vessels that is so tightly packed there seems to be no place for anything to leave the system.

In reality, special transporters allow the blood sugar — glucose and only glucose — to travel through the endothelial cell layer.

Transporters are well-known in biochemistry, and researchers have found similarities in the amino acid makeup of glucose transporters and red blood cell transporters. One goal of the UMD team is to purify and characterize further the protein, which is the main substance of the glucose transporter.

The study's first accomplishment, Drewes says, was to make the transporters microscopically visible and then photograph the transporters on the blood vessel lining, using light and electron microscopy. The photographs show equal numbers of them, looking like tiny dark dots, lying on each side of the microvessels. The results were published in the April issue of the *Journal of Neuroscience Research.*

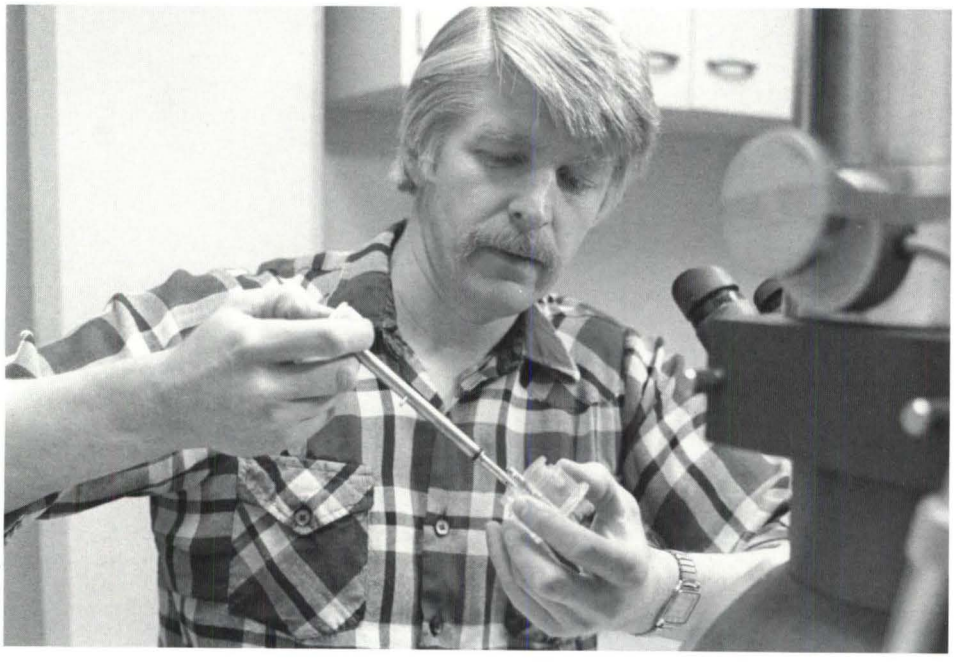


An electron micrograph of part of the wall of a single blood vessel in the brain. The black dots indicate sites on the endothelial cell where the glucose transporter protein has bound the antibody.

It's not only a question of how the transporters work. Researchers want to know, as Drewes says, "What makes the endothelial cells produce all these transporters?" To find out, the team is growing its own cultured endothelial cells and is submitting them to various conditions, such as toxic substances, elevated glucose, and lack of oxygen.

The team also hopes to find out by laboratory and animal testing how stroke and illnesses such as Alzheimer's Disease, hypertension, and diabetes change the formation and function of glucose transporters.

Drewes likes to point out that the five-member UMD Department of Biochemistry has a research-oriented faculty that has an excellent publication record and brings in a large share of the school's grant money. Research at the UMD School of Medicine, which opened in 1972, has mushroomed in recent years. Federal research grant money to the School has increased by 160 percent since 1983, which is five times the nationwide



Photos by Ken Moran

Dr. David Gerhart is working with Dr. Drewes to learn how glucose travels to the brain cells.

AIN'S NUTRIENTS

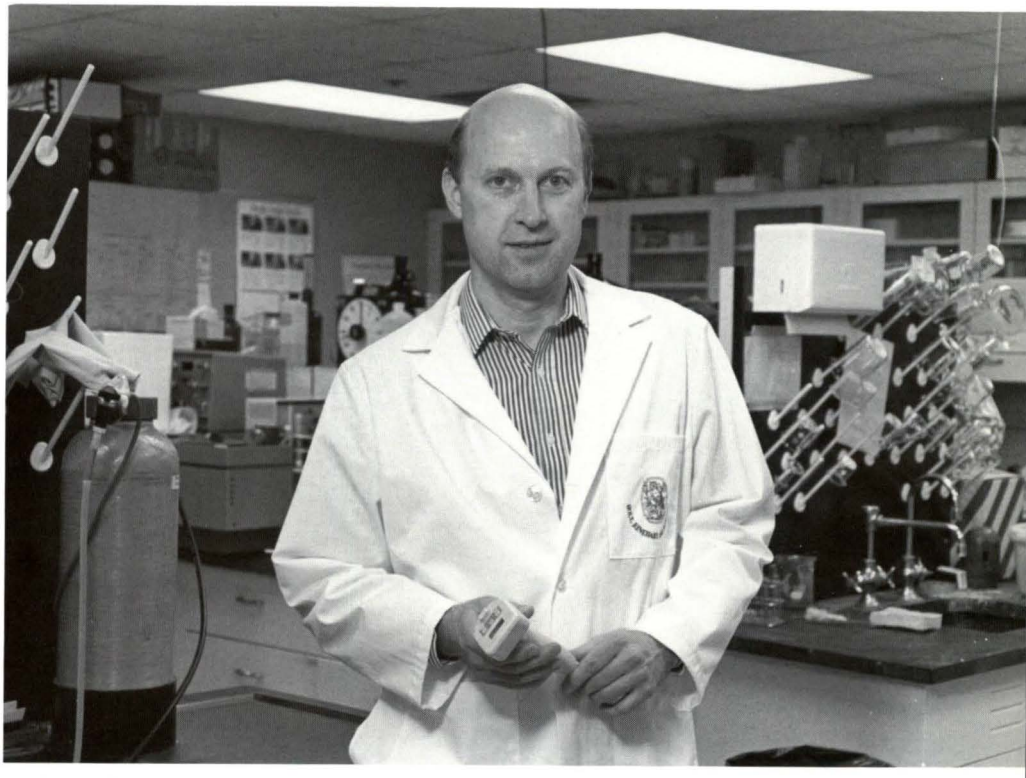
increase in funds available.

Studying brain biochemistry is nothing new for Lester Drewes. He became interested in that field as a postdoctoral fellow at the University of Wisconsin during the early 1970s after earning his Ph.D. at the University of Minnesota.

"I think that when I finished my Ph.D. I tried to step back and see what was interesting to me and where I thought major advances were to be made in the next couple decades," he says. Drewes believes it is important to modern medicine to understand how to protect the brain and help it recover from disease and injury.

Although there have been major advances in areas such as the cardiovascular system, a successful heart resuscitation "doesn't do society a bit of good if the brain isn't working."

Bioscience research, Drewes says, "is sometimes considered the last frontier."



Dr. Lester Drewes' research in brain biochemistry could impact victims of diabetes, epilepsy, and strokes.

Funding from MMF advances UMD research

Help from the Minnesota Medical Foundation is one reason the UMD School of Medicine, though young and small, has been able to establish itself as a research institution.

MMF has contributed $60,000 to the Department of Biochemistry alone for the purchase of equipment basic to the department's research. "What has really helped is to be able to say if you (MMF) will supply matching monies, another source or agency will pay part as well," says Lester Drewes, Ph.D., professor and head of the Biochemistry Department.

Full funding for purchase of a $25,000 atomic absorption spectrometer was provided in 1980 to help set up a new faculty member, Dr. Joseph Prohaska, in his research in nutritional studies of trace metals. Since that time the spectrometer has played an essential role in other projects, including studies of exposure of ancient civilizations to various metals.

In 1981, MMF awarded a $30,000 grant to the department for a gas chromatograph/mass spectrometer that is not only a mainstay, but its availability has been used as a basis for additional equipment grant proposals and service contracts with the Minnesota Pollution Control Agency, Natural Resources Research Institute, and Legislative Commission on Minnesota Resources. Some two dozen published research papers have also resulted from use of this instrument.

Five thousand dollars for ultraviolet and fluorescent detectors for high performance liquid chromatography was provided last year by MMF to monitor trace amounts of biologically important chemicals. "It's sometimes difficult to get this kind of equipment from research grants these days," says Paul Anderson, Ph.D., professor of biochemistry.

"I view this instrumentation as part of the infrastructure necessary to contemporary research," Drewes says. "The availability of these instruments has contributed to the biochemistry faculty's ability to conduct a large number research projects." Currently the department of five has 20 active contracts and grants.

Jane Brissett is senior information representative at the University of Minnesota, Duluth, School of Medicine.

100 YEAR

The Medical School and the Minnesota Medical Foundation celebrated 100 and

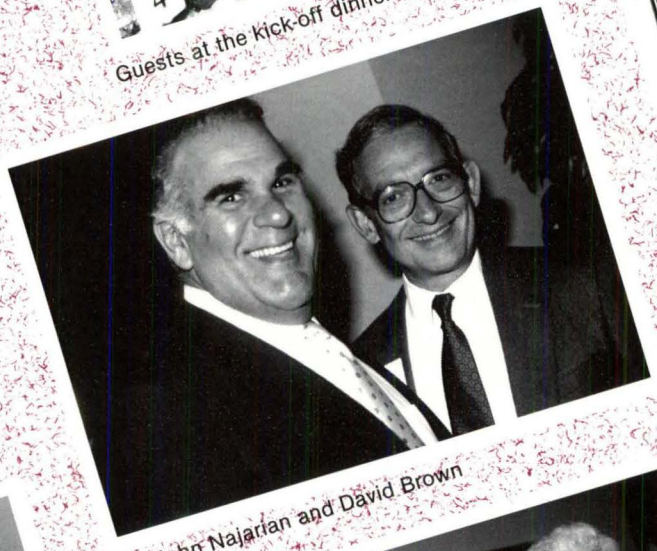
Gala dinner kicks off the celebration

The festivities began on September 22, 1988, with the Centennial Celebration kick-off dinner. Faculty, alumni, and guests were welcomed by Dean David Brown and Dr. Neal Vanselow, former vice president for health sciences.

Special guest Ellen Goodman, columnist for the *Boston Globe*, addressed the audience, and entertainment was provided by pianist Butch Thompson and comedienne Marit Smaby-Nowlin.

Guests at the kick-off dinner

Ellen Goodman



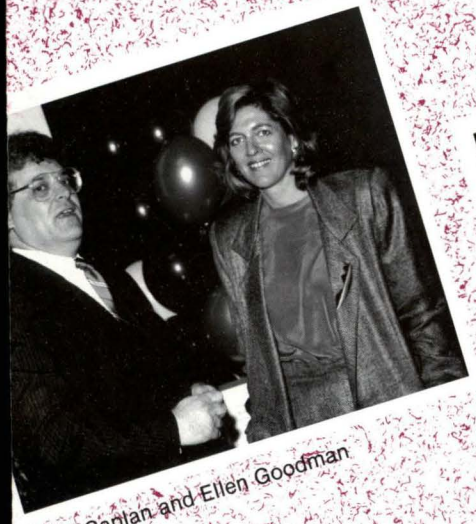
Drs. John Najarian and David Brown

Regent Peggy Craig and former University President Richard Sauer

Hallie Wannamaker, Sarah Wangensteen, and Elizabeth Spink

Of achievement for tomorrow

50 year anniversaries with gala dinners . . . thought-provoking lectures . . .



Arthur Caplan and Ellen Goodman

Surgeon General C. Everett Koop

Surgeon General tackles health issues

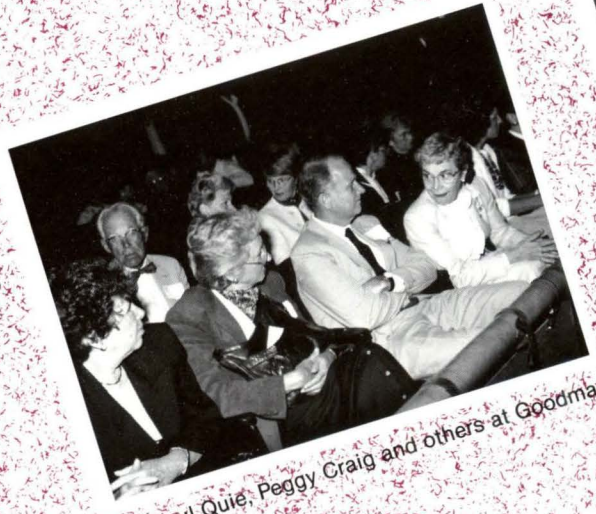
Surgeon General C. Everett Koop addressed a crowded Westminster Town Hall Forum audience on October 5 on the subject of "Confronting Major Health Issues." The largest problem in medicine today and for the immediate future will be keeping affordable care available for all, he said.

Koop called for the formation of a national panel to examine the American health care system and recommend to Congress alternative solutions to the financial access problem.

Ellen Goodman comes to town

On September 23, *Boston Globe* columnist Ellen Goodman spoke on "Making Babies: Ethical Issues in Reproductive Technology" at Northrop Auditorium. Arthur Caplan, director of the University's Center for Biomedical Ethics, responded to Goodman's remarks, and the two answered questions from the audience.

Goodman and Caplan discussed various controversial technologies, including *in vitro* fertilization, artificial insemination, and surrogate motherhood. More than 1,000 listeners attended the lecture.



Drs. Paul Quie, Peggy Craig and others at Goodman lecture

Surgeon General Koop and Dean David Brown

Photos by Tim Rummelhoff

a heart-warming mentor event . . .

Students honor their mentors

The University of Minnesota Alumni Club in the IDS Center was the setting for a February afternoon filled with laughter, tears, and memories, as 113 senior medical students honored the people who provided their inspiration and support.

Students selected spouses, parents, medical school staff members, doctors, and even elementary school teachers to be their special guests at the festive occasion. The Medical School and MMF sponsored the first-ever event as part of their anniversary celebrations, with contributions from 3M's Medical Products Group.

Editor's note: We wish to thank Minnesota Medicine *and writer Michael Moore for the stories on students and their mentors.*

The art of medicine

Katherine Knudson came to the Medical School via classical piano lessons. That's why she chose as her mentor her piano teacher, John Moss. "As a teen I hated piano practice, but John was so excited about teaching that it was like an infectious process," says Knudson.

Eventually, Moss had her memorizing classical works and performing them at recitals. "That's the mark of a good teacher, bringing you much further than you ever thought you could go," Knudson says. Before she chose medicine, she had aspirations of becoming a concert pianist.

Knudson doesn't think it was that great a step from music to medicine, because "there's an art to being a good physician," she says.

A long road

Deborah Strand grew up with visions of being an oceanographer, just like Jacques Cousteau. She pursued that vision through a degree in biology from Concordia College, and then to Florida, where she earned a master's degree in marine biology. However, "the closest I got to marine biology was counting bugs in a swamp," she recalls.

After teaching high school science in the Virgin Islands, Strand returned to Minnesota where she got a job at Medtronic. "I guess it was that exposure to biomedical engineering that convinced me to apply to medical school," she says.

Just before starting at the Medical School in 1985, Strand married Bob Marszalek. She named him and her parents, Marlow and Yvonne Strand, as her mentors. Throughout her several career changes, "my parents were always supportive. They let me know that they were behind me whatever I wanted to do."

Hard work and patience

Financial difficulties caught up with Julie Drier during her second year of medical school. "My parents taught me I could do anything I want if I work hard enough and am patient. I decided to take some time off and get my feet under me."

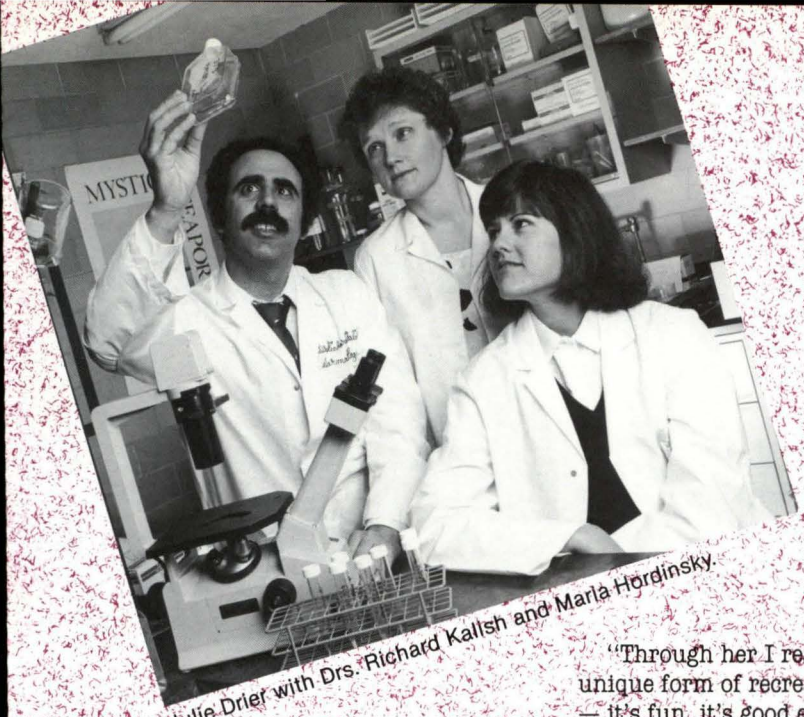
Drier was fortunate to be able to do research in surgical pathology at the University, and to then find a job at 3M where she was involved in the industrial side of medical research.

She returned to medical school in 1987, where an interest in dermatology led her to become involved in research projects being conducted by assistant professors of dermatology Richard Kalish, M.D., and Maria Hordinsky, M.D.

"Because of Julie's research experience in pathology and at 3M, we were able to involve her in research that was quite a bit more

Katherine Knudson with her piano teacher, John Moss.

Photos by Tim Rummelhoff



Julie Drier with Drs. Richard Kallsh and Marla Hordinsky.

involved than what most medical students can do," says Hordinsky. Drier's time with Hordinsky and Kalish was so memorable that she named them as her mentors, and plans to specialize in academic dermatology. She also named Paul Quie, M.D., her first adviser. "He is as close to the traditional image of a physician as I can imagine," says Drier.

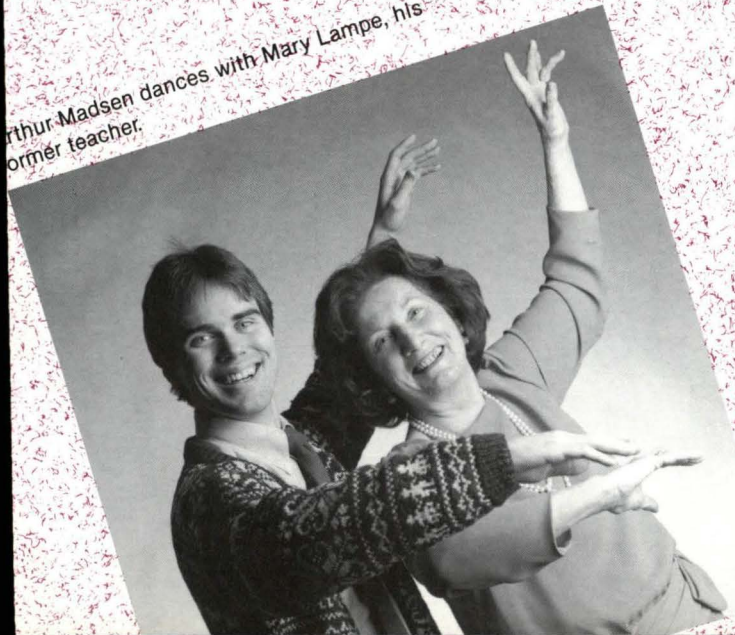
Rejuvenated by dance

Arthur Madsen says there is one special teacher who has influenced him since 1978, when he first took one of her ballroom dance classes. Associate Professor Mary Lampe has been teaching dance in the College of Education since 1944.

"Through her I realized what a unique form of recreation dance is — it's fun, it's good exercise, it facilitates social interaction, and it is a form of artistic expression. I chose Mrs. Lampe as my mentor because dance rejuvenates me, and I go back to work with a new perspective," says Madsen.

"Last year I wanted to exercise my own teaching skills, so I organized a ballroom dance class for medical students. It's rewarding to use what I've learned from Mrs. Lampe about how to communicate movements, and to see people who are feeling trepidation about dance gain confidence and go on to have fun and develop their own style.

"I think dance is especially important in medicine, because everyone works so hard, but they often don't really know the people around them. It helps break down social and professional barriers, and it sends you back to your work rejuvenated."

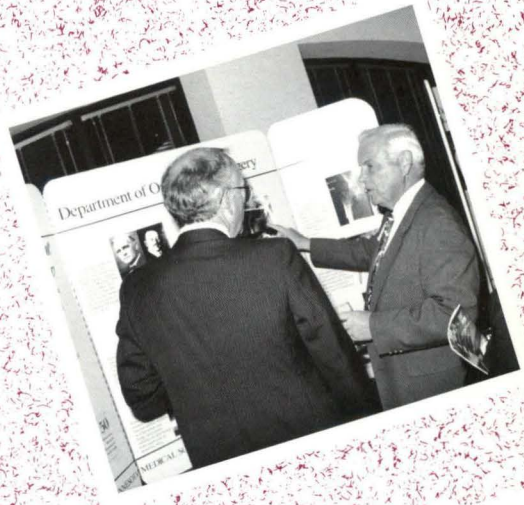


rthur Madsen dances with Mary Lampe, his ormer teacher.

colorful displays . . .

Displays portray Medical School history

The second-floor corridors of the Phillips-Wangensteen building took on a new look as the Centennial began. Medical School departments and the Minnesota Medical Foundation were represented in beautifully designed, wall-mounted displays portraying the past, present, and future of the various Medical School units. The displays were created courtesy of the 3M Company.



. . . and an All-Class Reunion.

Reunion participants celebrate 100 years

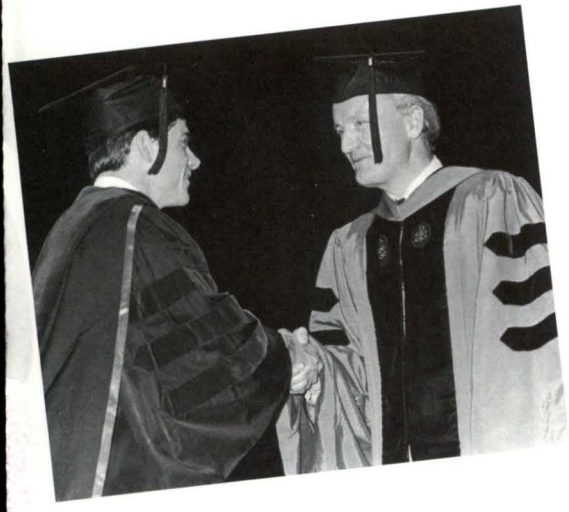
Centennial All-Alumni Reunion activities were a fitting finale to a memorable year. Graduates from all Medical School classes were invited to be part of the festivities, and special events were held for the reunion classes of 1930-32, 1939, 1949, 1959, 1964, 1969, and 1979.

The St. Paul Radisson Hotel was the site for the All-Alumni reunion dinner, held Friday, June 2. A reception for all attendees kicked off the evening, followed by individual receptions for the regular reunion classes.

Alumni and friends gathered for a festive dinner and program in the balloon-decorated dining room, and were greeted by Dr. Frank Lushine, Medical Alumni Society president; Dr. John O'Leary, reunion chair, and Dr. David Brown, dean of the Medical School. After-dinner speakers included Dr. Peggy Craig, University regent; Margaret Carlson of the Minnesota Alumni Association; David Teslow of the Minnesota Medical Foundation, and Dean David Brown.

The evening ended with a closing toast in honor of the Medical School's 100-year anniversary, followed by dancing to the Wolverines, socializing, and good conversation.

Medical School Graduation:
The Class of 1989



June 2 marked the culmination of four years of hard work for the 242 medical students who received their degrees at a memorable commencement ceremony highlighted by awards, speeches, and the oath for new physicians.

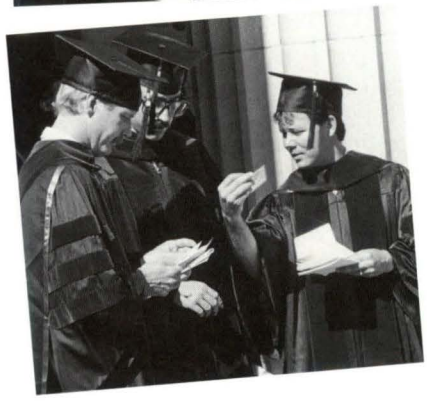
Nadine Smith, M.D., president of the Minnesota Medical Foundation, recognized the recipients of awards sponsored by MMF: **Roger Day,** MMF Undergraduate Research Award, **Julie Drier, Roberto Pineda, Gregory Plotnikoff,** and **J. Pablo Villablanca,** MMF Medical Student Achievement Awards; **L. Dean Jansen** and **Chris Longbella,** Nicollet Clinic Founders Scholarship; **Paul Sovell,** American Cancer Society Scholarship; **Roger Day,** Richard C. Horns Memorial Award; **Chris Longbella,** George E. Williams Scholarship; **Lisa Bucholz,** Daniel A. Coyle Memorial Award; **Julie Drier, Jessica Nelson,** and **Tereasa Simonson,** Ruth Boynton Memorial Scholarship; **Stephanie Hedstrom,** Nicollet Norton Memorial Scholarship; **Jeffrey Balke,** J. Thomas Livermore Award; and **E. Renee Petty,** Delia Tenille Hobbs Scholarship.

Other award-winning graduates included: **Randal Pilgrim,** Southern Minnesota Medical Association Outstanding Senior Award, and **Margaret Kirkegaard,** Maxine Nelson-AEI Foundation Award.

Three honorary degrees were awarded this year. **Dr. Robert Good** received the Doctor of Science degree; **Dr. Harold Scheie** received the Doctor of Humane Letters degree, and **Dr. Lewis Thomas** received the Doctor of Science degree. (See page 26 for more information on the honorary degree recipients.)

Degrees were conferred upon the new physicians by University President Nils Hasselmo, Regent Peggy Craig, and Acting Vice President for Health Sciences, Cherie Perlmutter. Class President Greg Plotnikoff represented his class in responding to the degree presentation. Featured speaker of the afternoon was Dr. Edmund Pellegrino, director of the Kennedy Institute of Ethics, Georgetown University.

Following the Oath for New Physicians, administered by Dr. Cassius Ellis, the graduates joined with colleagues, friends, and families at a reception in front of Northrop Auditorium to offer congratulations and best wishes.



MEDICAL SCHOOL NEWSBRIEFS

New members elected to AOA

Alpha Omega Alpha (AOA) is a national medical honor society whose purpose is to promote scholarship, to encourage high standards in character and conduct, and to recognize high academic achievement. Election to AOA is a distinction that accompanies young physicians throughout their professional careers.

The Alpha chapter of AOA was established at the University of Minnesota in 1908, making it one of the oldest chapters in the country.

Students do not apply for election to AOA. Each year student members of the chapter, assisted by faculty advisors, apply the criteria set forth by the society to select students in their last two years of medical school. Academic excellence is not the only criterion for election: integrity, capacity for leadership, compassion, and fairness in dealing with one's colleagues are also given consideration in order to select those medical students who will most likely follow AOA's motto of "Worthy to Serve the Suffering."

Under the by-laws of the society, election is limited to those individuals whose scholastic achievements (pre-clinical, clinical, and National Board scores) place them in the upper 25 percent of their class.

AOA also sponsors a number of other programs including the AOA visiting professorship, AOA student essay award, and AOA student research fellowships. The Alpha chapter at the University of Minnesota also sponsors a scholarship that is awarded through the Minnesota Medical Foundation to a promising medical student in the first two years of medical school.

This year's initiates to AOA from the 1989 graduating class include: Mark E. Anderson, Rochester; Robert J. Andruss, Maple Grove; Bethel M. Averbeck, New Ulm; Emily K. Bergsland, Rochester; Mark T. Cunningham, Blaine; Preston S. Gable, Minneapolis; Karen D. Krenik, Plainview; Eric T. McFarling, Mankato; Lisa A. Miller, Rochester; Kenneth R. Mitchell, Duluth; Gregory A. Peters, Mahtomedi; Randal L. Pilgrim, Springfield; Roberto Pineda II, Minneapolis; Sandy S. Popham, Woodbridge, Virginia; Vicky L. Rholl, Wadena; Tereasa M. Simonson, Sauk Centre; Matthew D. Volm, Iowa City, Iowa; Drake B. White, Long Lake; and Pamela J. Wymore, Minneapolis.

Initiates from the 1990 graduating class include: Sally A. Booth, Indianapolis; John M. Caspers, Melrose; Lynn D. Derby, Spokane, Washington; Michael J. Dorle, St. Paul; Michael D. Eichler, Minneapolis; Jeffrey N. Elder, Edina/Eden Prairie; Stephen P. Garrity, Moorhead; Bret C. Haake, Moundsview; John Y. Hendricks, Clear Lake; Kristine M. King, Jamestown, North Dakota; Mark S. Lantz, Le Sueur; Brian D. Larsen, East Grand Forks; Michael P. Murphy, Fridley; Verlyn J. Nykamp, Edgerton; Johann M. Piekert, Forest Lake; Robert D. Roettger, Stillwater; Catherine R. Ryan, LaCrosse, Wisconsin; James J. Ryan, West St. Paul; Sanjaya Saxena, White Bear Lake; Anthony A. Stans, Bloomington; Julie A. Teskey, Fridley; Gordon B. Urbi, South St. Paul; and Paul B. Westling, New Brighton. □

Gene defects yield clues to cancer treatment

A genetic study of patients with cancer of the lymph glands may enable doctors to forecast which patients can be cured with chemotherapy, according to University of Minnesota researcher Jorge J. Yunis, laboratory medicine and pathology professor.

Certain chromosome-gene defects in patients with aggressive large-cell lymphoma were found to be associated with successful treatment. Yunis also found genetic defects that forecast a poor outlook for patients with aggressive lymphoma. Patients with these defects were not helped by chemotherapy.

Yunis and his colleagues published their findings in the April 20 issue of the *New England Journal of Medicine.*

The researchers studied 74 patients with aggressive diffuse or follicular large-cell lymphoma — two of the most common types of non-Hodgkin's lymphoma — before they were treated for their disease. They found different patterns of chromosome-gene defects among the patients and then compared the patterns with how the patients responded once they were treated.

"We found that a patient's prognosis depended on whether he or she had a certain type of defect," Yunis says. "For example, an extra piece of a chromosome 3 was found in patients who were subsequently cured or have been in lengthy remission. An extra piece of a chromosome 2 is a bad sign because patients with this defect did not have a remission."

Besides identifying chromosome defects through the microscope, Yunis also used a DNA test to analyze whether defects in a cancer gene called *bcl*-2 could help forecast how patients would respond. He found that 23 patients had a rearrangement defect of the *bcl*-2 gene and they were less likely to have a remission from chemotherapy than the patients without a defect of *bcl*-2.

More than 10,000 new cases of aggressive large-cell lymphoma are diagnosed in the United States each year. Advances in chemotherapy have meant that half of these patients can now be treated successfully, but doctors do not know which ones benefit from chemotherapy or why the others do not respond to standard chemotherapy. These patients may benefit from a new and more aggressive drug combination, Yunis says. He also says the presence of certain genetic defects in the patients cancer cells may hold answers. □

Dr. Jorge J. Yunis

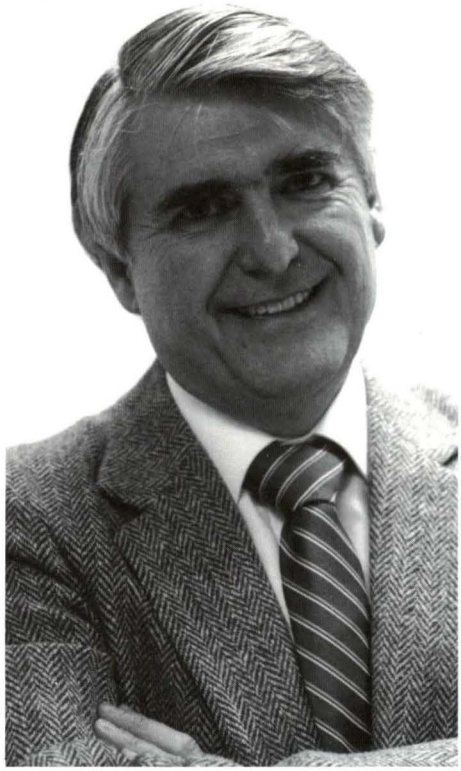
Dr. Levitt gives Janeway Lecture

Dr. Seymour H. Levitt, professor and head of the Department of Therapeutic Radiology - Radiation Oncology at the University of Minnesota Medical School, presented the 1989 Janeway Lecture at the American Radium Society's Annual Meeting at St. Thomas, Virgin Islands, on April 18, 1989.

This prestigious annual lecture is sponsored by the American Radium Society in memory of Dr. Henry H. Janeway, a great American pioneer in the therapeutic use of radium. Each year a special committee of the Radium Society chooses the lecturer based on his or her outstanding scientific contributions.

Levitt has been chairman of the Department of Therapeutic Radiology - Radiation Oncology since 1970 and has led the department in establishing it as an innovator in radiation therapy both nationally and internationally. He is recognized as an authority in radiation therapy and is well known for his studies of breast cancer and Hodgkin's disease. Levitt has published more than 200 scientific articles in leading journals. In 1988, he was awarded the Distinguished Service Award from his alma mater, the University of Colorado. □

Dr. Seymour H. Levitt



Dr. Douglas A. Fenderson

Dr. Fenderson named to national committee on disabilities

Dr. Douglas A. Fenderson, professor in the Department of Family Practice and Community Health, has been selected as a member of the Executive Committee of the Institute of Medicine (of the National Academy of Medicine) on A National Agenda for the Prevention of Disabilities.

The Centers for Disease Control, in conjunction with the National Council on Disability, has requested that the National Academy of Sciences/Institute of Medicine conduct a study to develop a national agenda for the prevention of disabilities. The study will be conducted by a committee with expertise in disability, health promotion and disease prevention, epidemiology, public health, medical care, rehabilitation, economics, product design and engineering, and public policy.

The purpose of the study is to summarize the state of knowledge about the nature and scope of disability in America, consider preventive intervention strategies, and make recommendations for a national agency for the prevention of disabilities. The audience for the report will include scientists, clinicians, government agencies, and policy-makers interested in the prevention of disability. □

Dr. Rowe honored for excellence in teaching

A recognition dinner hosted by the Occupational and Physical Therapy faculties was held on May 4 to honor Dr. Clarence Rowe. This year marks the 40th year that Rowe has taught Descriptive Psychiatry to occupational and physical therapy undergraduates. He designed the course and has written a book, *An Outline of Psychiatry*, which is now in its ninth edition. Rowe has donated his time for the entire 40 years.

Rowe graduated from the University of Minnesota Medical School in 1943. In addition to serving as a clinical faculty member at the University from 1954 to the present, he is one of the founders of the Hamm Clinic, providing mental health services for persons with limited incomes, and one of the founders of the Minnesota Psychiatric Society.

In 1984 the Clarence J. Rowe Building was dedicated at the Wilson Center in Faribault. In 1985, Rowe received the Distinguished Service Award from the Minnesota Psychiatric Society, and in 1986 he received the Outstanding Service Award from the Medical School's Department of Psychiatry. □

Dr. Loh named to national drug abuse committee

Dr. Horace H. Loh, professor and head of the Department of Pharmacology, has been appointed to a four-year term as chair of the Drug Abuse AIDS Research Review Committee of the National Institute of Drug Abuse.

Loh was appointed head of Pharmacology last July. He came to Minnesota from the University of California School of Medicine where he was a professor in the departments of psychiatry and pharmacology. For the past ten years, Loh's research has been in the areas of neuropharmacology and biochemical pharmacology. Specifically, he has focused on the neurochemical mechanism of narcotic actions; opioid receptor identification, purification, and cloning; and the pharmacology of endorphins.

Last year Loh received the prestigious MERIT award from the National Institutes of Health for his project entitled: "Structural and Functional Studies of Mu Opioid Receptor." □

Match Day means suspense, excitement

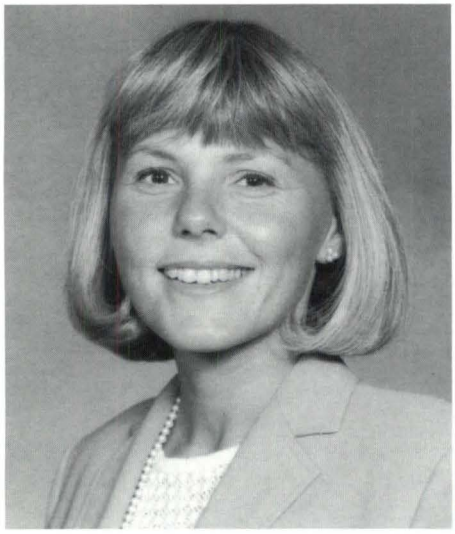
On March 22, approximately 14,000 graduating medical school seniors from around the country learned where they would be spending the next few years of their lives. At the University of Minnesota, more than 240 anxious students gathered for National Resident Match Day.

The program matches medical students with the available resident positions in hospitals throughout the country. Students rank their choices of residencies, and institutions, in turn, rank their preference of candidates. The computer does the rest.

This year, 77 percent of the medical school seniors at Minnesota got either their first or second choice. Forty-nine percent, or 113, will be in programs in Minnesota. The next largest group, 10 percent, will head for California, and 6.4 percent will be in Wisconsin.

Internal medicine and family practice were the specialties chosen most often, accounting for 25 percent each of the graduates, followed by surgery with 8 percent, pediatrics with 6.5 percent, and obstetrics-gynecology with 5.6 percent. □

Students congratulate each other at Match Day.



Dr. Carole J. Bland

Dr. Bland receives honors

Carole J. Bland, Ph.D., professor in the Department of Family Practice and Community Health, has received a Certificate of Excellence from the Society of Teachers of Family Medicine (STFM), and has also been named to the 1989-90 class of the American Council on Education Fellows Program. The Program identifies future leaders in higher education and prepares them for positions in college and university administration.

Bland is known for her landmark research on the needs of faculty development, and her book, *Faculty Development Through Workshops,* has provided the foundation for family medicine faculty development nationally. She has made unique contributions to the discipline through her active participation in the Society and on national funding review boards. She has been chair of the STFM Research Committee, the Task Force on Faculty Development, and a National Faculty Development Conference.

Bland has represented the discipline as an active member of the National Peer Review Panel for NIH for training grants in primary care research, and has studied and written extensively on the characteristics of successful faculty members in academic environments. □

Symposium on facial and muscle pain held

The first international symposium on facial pain and muscle pain was held May 8-10 in Minneapolis.

The symposium, co-sponsored by the University of Minnesota's School of Dentistry, Medical School, and hospital and clinic, included presenters from physical medicine, rheumatology, neurology, dentistry, and psychology examining the epidemiology, characteristics, pathophysiology, management, and future research of muscular pain disorders. Chronic pain is estimated to cost the United States $70 billion annually in lost wages, medication expenses, and other health care costs.

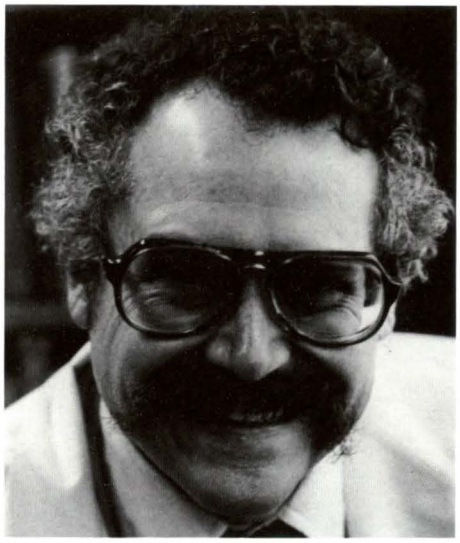
Former White House physician Dr. Janet Travell, professor emeritus of the George Washington University School of Medicine and Health Sciences, was a presenter. Travell was physician to Presidents Kennedy and Johnson, and is best known for helping Kennedy deal with chronic back pain. She discussed myofascial pain syndromes and dealing with facial pain. □

Acyclovir prevents a serious infectious disease in kidney transplant patients

The most common infectious disease in kidney transplant patients can be prevented by acyclovir, a drug best known for its effects against genital herpes, according to a University of Minnesota study reported in a May issue of the *New England Journal of Medicine*.

Cytomegalovirus (CMV), a member of the herpes virus family, is the leading cause of infectious complications following kidney transplantation, affecting almost 30 percent of these patients. More than 9,000 kidney transplants were performed in the United States last year, according to the United Network for Organ Sharing. CMV causes many patients to be hospitalized with flu-like symptoms, muscle pains, gastrointestinal ulcers, and even pneumonia. This viral illness can lead to loss of the kidney and death.

Scientists have known for some time that acyclovir can prevent herpes infections after transplantation, but its effect in patients against CMV infections — which are potentially more serious than other herpes infections — surprised researchers because acyclovir appeared to have little effect against this virus in the test tube.



Dr. Henry H. Balfour Jr.

"The impact of this study is that it will reduce hospitalization for many patients and save lives," says Henry H. Balfour Jr., the study's chief author, a professor of laboratory medicine and pathology and pediatrics and head of clinical virology at the University.

Several transplant centers around the country have indicated they will institute a program of CMV prevention using acyclovir based on the Minnesota study. □

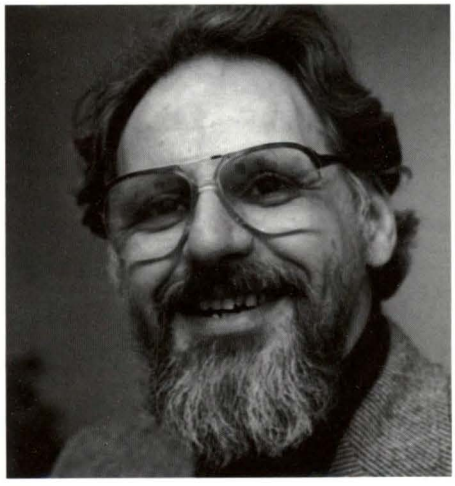
Dr. Haller wins minorities grant

A $151,000 grant renewal has been awarded Edwin W. Haller, Ph.D., associate professor of physiology at the University of Minnesota, Duluth (UMD) School of Medicine for an honors research training program in biomedical sciences called Indians Into Research Careers.

This grant falls under the Minority Access to Research Careers Program, sponsored by the National Institute of General Sciences at the National Institutes of Health, which awarded the grant. The program has operated at the School of Medicine since 1977. The School has received $2.6 million for the program, and has involved 34 American Indian junior and senior college students in medical school research projects since the first grant was given.

Currently six American Indian students are enrolled in the program, which pays all tuition and fees, as well as a monthly stipend. Students must have and maintain a 3.0 grade point average to qualify for selection. Each works under direct supervision of a faculty member, takes an active part in a research project and writes about findings, possibly for publication in research journals.

The goal of the program is to encourage students to pursue careers in biomedical science. Several students who have participated in UMD's program have subsequently attended medical school; others are pursuing doctorates and advanced degrees in pharmacology, psychology, biology, and science-related fields. □



Dr. Edwin W. Haller

Dr. Kottke invited lecturer at Ohio State

Dr. Frederick J. Kottke

Dr. Frederick J. Kottke, recently retired professor and chairman of Physical Medicine and Rehabilitation (PMR) at the University of Minnesota, presented the third Richard W. Stow, Ph.D., Visiting Lectureship at the Ohio State University Department of Physical Medicine in March.

Topics for the two-day seminar ranged from "The Organization of the Nervous System for Motor Function" to "The Relationship of Muscular Metabolism to Types of Muscular Activity."

During his years at Minnesota, Kottke was a frequent contributor to PMR literature, and earned many awards and honors. He has been chairman of the American Board of Physical Medicine and Rehabilitation, president of the American Congress of Rehabilitation Medicine, and president of the American Academy of Physical Medicine and Rehabilitation. □

MMF REPORT

MMF Grant Recipient: Stanley A. Thayer

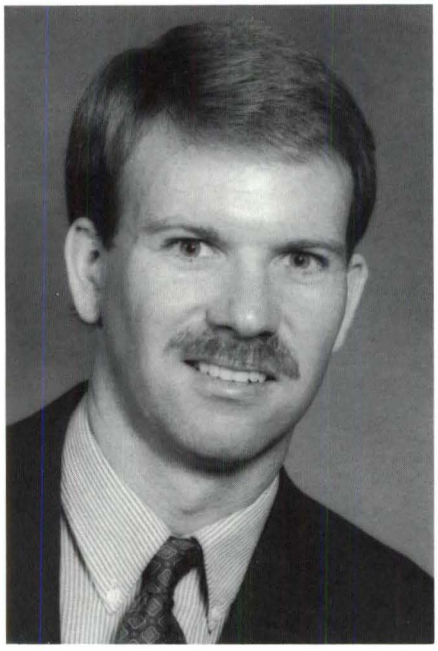
Dr. Stanley A. Thayer of the Department of Pharmacology was one of 21 faculty members to receive a grant at the Minnesota Medical Foundation's spring meeting of the board of trustees. In all, the MMF board approved more than $162,000 in faculty research grants, student research grants, and special grants (see adjacent article).

Thayer received $15,000 for support of his project titled "Subcellular resolution of intraneuronal ion concentrations." His laboratory is investigating the processes by which nerve cells convert chemical signals presented to the cell exterior to changes in their electrical and biochemical properties. These signalling mechanisms are of fundamental importance to the processing of information in the brain, are the molecular targets for many drugs, and when gone awry may be responsible for certain neurodegenerative disorders such as strokes.

The grant will fund a dye laser to enable the measurement of the electrical properties of nerve cells while simultaneously recording the concentrations of ions (such as calcium or pH) in parts of single cells.

In describing the instrumentation, Thayer explains, "The use of a laser to excite the dye detecting the intracellular ions will provide the intensity and resolution necessary to enable recordings from a small portion of the cell. When the complex morphology of neurons is considered with their elaborate processes and axons it becomes clear that the ability to measure ion concentrations in discrete subcellular locations will be extremely useful.

"The laser will be incorporated into a combined patch-clamp and dual emission microfluorimeter. Neurons growing in primary culture are positioned on the stage of an epifluorescence microscope and a micropipette is attached to a single cell. The membrane under the pipette is ruptured making a small hole in the cell through which a fluorescent dye can be injected. This hole also provides electrical access to the cell interior allowing the measurement of the electrical properties of the cell.



Dr. Stanley A. Thayer

"The cell is then illuminated with ultraviolet light which causes the dye to fluoresce. This fluorescence is dependent on the local ionic environment of the dye molecule. Thus, when the light emitted by the dye is detected with a very sensitive photon counting system, subtle changes in dye fluorescence and hence ion concentrations can be detected.

"The light source in the present instrument bathes the entire cell with ultraviolet light; replacing it with a laser will enable the illumination of a subcellular area with sufficient intensity to generate enough fluorescence to make the very fast measurements required for these studies. This instrumentation is not commercially available and does not exist anywhere."

Project collaborators include Drs. David Ann, Ping-Yee Law, and George Wilcox.

Stanley Thayer received his Ph.D. in pharmacology and toxicology in 1985 from the University of California at Irvine. He was a postdoctoral fellow at the University of Chicago from 1986 to early 1989, and was named an assistant professor of pharmacology at the University of Minnesota in February of this year. □

MMF approves $162,092 in research grants

The Minnesota Medical Foundation board of trustees approved $162,092 in research and special grants at its spring quarterly meeting. The amount includes $56,950 in faculty research grants, $7,200 in student research grants, and $97,942 in special grants for research equipment and salary support.

Faculty grants include: **Ruth Bolton, M.D.**, family practice, $1,000 for immunotherapy of warts by candida injection; **Paul Camara, M.D.**, neurosurgery, $3,000 for neural tissue grafting in a model of parkinson's disease; **Dennis Confer, M.D.**, medicine, $6,000 for studies of a cell protein which disarms human killer cells; **Earl Dunham, Ph.D.**, pharmacology, $3,840 for renal antihypertensive lipids; **Richard Eisenberg, Ph.D.**, pharmacology - UMD, $5,700 for research of the tolerance to the anxiogenic effects of beta-carbolines; **Maria Hordinsky, M.D.**, dermatology, $5,000 for research which looks at the characterization of unique epithelial proteins in pachyonychia congenita and coffin-siris syndrome; **Michael Koopmeiners, M.D.**, family practice, $1,500 for study of present standard of care of family practitioners; **William Krivit, M.D., Ph.D.**, pediatrics, $7,500 for a study to determine if endothelial cells in the microvessel wall are derived from bone marrow monocyte-macrophage cells; **Gary Marchand, Ph.D.**, physiology - UMD, $6,500 to study inhibition of neurogenic vasoconstriction by ANF; **Martha Nance, M.D.**, pediatrics, $3,000 to study x-linked testicular dysgenesis; **David Steinhorn, M.D.**, pediatrics, $2,250 to measure surfactant profiles in bone marrow transplant patients; **Bradford Stone, M.D.**, medicine, $7,500 for research project looking at a noninvasive biochemical marker for cholesterol synthesis for breath isoprene; and **Lucile Wrenshall, M.D.**, surgery, $3,000 to study the role of extracellular matrix in induction of major histocompatibility complex.

Special grants include: **Henry Buchwald, M.D., Ph.D.**, surgery, $10,000 for emergency equipment for a spectrophotometer; **Ronald Edstrom, Ph.D.**, biochemistry, $15,000 for scanning tunneling microscopy of the muscle glycogenolytic complex; **Glenn Geisler Jr., Ph.D.**, cell biology and neuroanatomy, $17,642 for

studies of spinohypothalamic tract neurons; **Robert Hebbel, M.D.,** medicine, $2,800 for construction of concentric cylinder viscometer; **Christopher Krogh, M.D.,** family practice, $7,000 to study the validation of practice-derived data bases for research - Phase I; **Mario Ruggero, Ph.D.,** motolaryngology, $18,000 to study the mechanical basis of sensorineural deafness; **Peter Southern, Ph.D.,** microbiology, $12,500 to study the causes and consequences of persistent virus infections; and **Stanley Thayer, Ph.D.,** pharmacology, $15,000 to study subcellular resolution of intraneuronal ion concentrations.

Student grants include: **Thomas Comfort,** Year 3, $1,200 for research into low back disorders; **Jeffrey Cox,** Year 1, $1,200 to study the role of thromboxanes in human platelet activation; **Miriam Harden,** Year 1, $1,200 to study the application of MOPAC to evaluate a putative amino acid sequence for human alpha-L-iduronidase; **Andra Ibrahim,** Year 3, $1,200 to study the effects of lipid A and lipid A derivatives on tissue factor synthesis; **Timothy Kroshus,** Year 3, $1,200 to study nutritional support and its beneficial effects on cardiac performance during sepsis induced by cecal ligation/puncture peritonitis; and **Laurel Wright,** Year 3, $1,200 to study the effects of serotonin and thromboxane A2 on coronary collateral vessel vasomotor activity. □

Albert Sullivan Endowed Scholarship established

The Albert Sullivan Endowed Scholarship has been established at the Minnesota Medical Foundation with an anonymous gift from a graduate of the University of Minnesota Medical School. The Scholarship honors Albert Sullivan, M.D., associate dean for admissions and student affairs and associate professor of surgery, for his many efforts on behalf of medical students during his more than 40-year association with the Medical School.

In keeping with Dr. Sullivan's interest in attracting medical students with broad educational backgrounds, The Albert Sullivan Scholarship will give preference to students with undergraduate majors in the non-sciences. The awards will be given annually. □

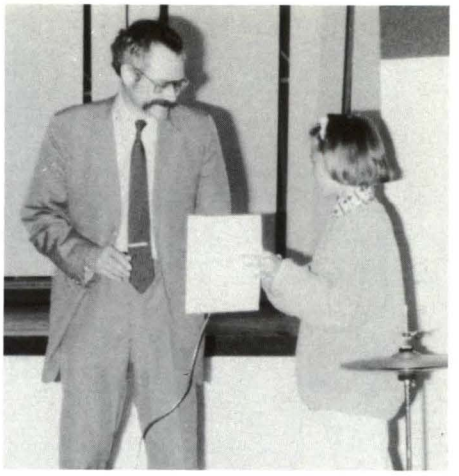
School's Green Thumb Project launches AIDS research fund

Students at J.J. Hill Magnet School in St. Paul have donated $200 to the Minnesota Medical Foundation for the creation of an "AIDS Laboratory Research Fund."

The money was raised last year through the Green Thumb Project by fifth grade students. The project's board of directors selected AIDS research as the beneficiary of their work, which involved growing vegetables under fluorescent lamps in the school, then marketing the produce.

Henry H. Balfour Jr., M.D., principal investigator of the AIDS Clinical Trials Unit at the University of Minnesota, accepted the donation at a school ceremony on May 30.

"I believe that donations such as yours are going to make the conquest of AIDS possible within this century," Balfour told the students. □



Dr. Balfour receives AIDS research donation at J.J. Hill Magnet School.

Photos by Ralph Heussner

Kersey named to CCRF cancer chair

Dr. John Kersey, University of Minnesota professor of pediatrics, laboratory medicine and pathology, therapeutic radiology, and director of bone marrow transplantation, has been named the first holder of the Children's Cancer Research Fund (CCRF) Land Grant Chair in Pediatric Oncology.

Kersey, an internationally renowned researcher of childhood leukemia and bone marrow transplantation, graduated from the University's Medical School in 1964 and has been on the faculty since 1971. He became an associate professor in 1974 and a full professor in 1977. He has directed the University's bone marrow transplantation program since 1974.

"Research funds provided by the CCRF chair will permit my colleagues and I to expand our studies of the causes, treatments, and prevention of childhood cancer," says Kersey.

"The addition of Dr. John Kersey to our section will significantly increase our research thrust for the 1990s and into the next century," says Mark E. Nesbit Jr., professor and director of pediatric hematology/oncology at the University and chair of the Children's Cancer Research Fund. "John's knowledge of the biology of leukemia and of the immune system, combined with our clinical and therapeutic expertise, will be a key to our achieving the goal of curing all childhood cancer. We thank CCRF for their strong support."

Kersey was chosen to hold the chair after CCRF completed a search for a nationally recognized children's cancer specialist. The chair was made possible by a $750,000 commitment from CCRF, with matching funds from the University's Permanent University Fund. CCRF has worked with the University's pediatric hematology/oncology division for 20 years to provide funding for research and training in the treatment and prevention of childhood cancer and a family assistance program for cancer patients. □

MMF announces award winners

The Minnesota Medical Foundation sponsors a number of awards throughout the year to honor the faculty and students of the University of Minnesota Medical Schools. The following awards and fellowships were recently announced by MMF.

Wallace D. Armstrong Award

The Wallace D. Armstrong Award for 1989 was given to **Mark Palmer.** The $1,000 award is given in memory of Dr. Armstrong, former chairman of the Department of Biochemistry, and recognizes first-year superior achievement in biochemistry.

Bacaner Awards

Seven graduate students in the Medical School's six basic sciences were selected to receive the Bacaner Awards. Named in memory of Jacob and Minnie Bacaner, these $500 cash awards are given in recognition of creative research in the basic sciences. The 1989 Bacaner Award winners are: **Rami Burstein, Brian Fox, Linda Hansen, John Harty, Begonia Ho, Che-Leung Law,** and **Luo Lu.**

Thomas P. Cook Scholarship

The first Thomas P. Cook Scholarship was awarded to **Gregory Barsness.** The $750 award honors Mr. Thomas Cook, long-time executive director of the Hennepin County Medical Association Foundation, and recognizes academic excellence, leadership, and financial need.

Daniel A. Coyle Award

Lisa Bucholz is the 1989 recipient of the Daniel A. Coyle Award. The $100 award is given to an outstanding woman medical student in obstetrics and gynecology.

Dr. Luther Forest Davis Memorial Scholarship

The Dr. Luther Forest Davis Memorial Scholarship was awarded to **Gene Lawson.** The new $250 award, established in Dr. Davis' honor, recognizes outstanding clinical skills by a senior medical student specializing in family practice.

Allan Hemingway Endowed Scholarship

Nancy Rusinko Tich is the 1989 recipient of this first-time award. Established in memory of Dr. Allan Hemingway, long-time member of the Department of Physiology, this $1,000 award recognizes outstanding merit, potential, and financial need.

Hewlett-Packard Awards

Five medical students were selected to receive the 1989 Hewlett-Packard Awards. Stethoscopes were presented in recognition of outstanding academic achievement. For 1989, Hewlett-Packard Award recipients are: **Jeffrey Balke, Mark Cunningham, Lisa Drage, David Kaufman,** and **Wendy Shapiro.**

Richard C. Horns Memorial Award

Roger Day was named the 1989 recipient of the Richard C. Horns Award. This $700 award, established in memory of Dr. Horns, is given in recognition of outstanding clinical skills in medical school.

J. Thomas Livermore Award

Jeffrey Balke was named the 1989 recipient of the J. Thomas Livermore Award. This $1,500 cash prize has been awarded since 1971 to an undergraduate student who has accomplished outstanding original research in the field of hematology. The award is made possible by the contributions of the family of Thomas Livermore, who died of leukemia as a young adult.

Medical Student Achievement Awards

Student Achievement Awards are given to fourth-year medical students in recognition of exceptional leadership service and achievement while in medical school and promise for future contributions to the field of medicine. The 1989 recipients are: **Julie Drier, Roberto Pineda II, Gregory Plotnikoff,** and **Pablo Villablanca.** Each recipient receives a certificate and $1,000 cash prize. Students are nominated for the awards by faculty and other medical students with the final selection being made by MMF's Honors and Awards Committee.

Lester W. and Lois P. Netz Scholarship

Pamela Ambroz is the 1989 recipient for this first-time award. The $1,000 award has been established by Mr. and Mrs. Lester Netz to provide scholarships or grants to financially needy medical students.

Sandoz Award

Dawn Hutchinson was named the 1989 recipient of the Sandoz Award. This $100 award was established by the Sandoz Pharmaceuticals Corporation.

Undergraduate Research Award

The $500 Undergraduate Research Award was awarded to **Roger Day** for the most meritorious undergraduate research paper.

Upjohn Achievement Award

Patricia Huberty has been named the 1989 recipient for this award given by The Upjohn Company. The $250 award is given in recognition of outstanding leadership while in medical school.

George E. Williams Scholarship

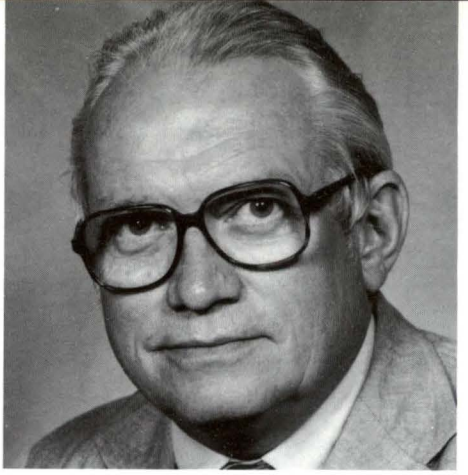
This year's $1,000 scholarship was presented to **Sharon Banister.** Established in memory of Dr. Williams, who served for many years as assistant dean of student affairs of the Medical School, this scholarship is awarded to a medical student who has demonstrated humane qualities and the potential to become a good physician. □

Dr. Benson credited with distinguished service to Medical School

After 16 years as professor and head of the Department of Laboratory Medicine and Pathology and nearly 40 years as a faculty member, Dr. Ellis S. Benson retired from his department head position in June. In recognition of his untiring dedication to the research, teaching, and patient care missions of the department, the Ellis S. Benson Endowment Fund is being established through the Minnesota Medical Foundation.

In 1973, Ellis S. Benson, M.D., was named the first head of the Department of Laboratory Medicine and Pathology at the University of Minnesota Medical School. Before that time, laboratory medicine and pathology were separate departments, each with distinguished histories. Benson is credited with combining the two departments into the top-ranking research, teaching, and clinical unit it is today.

The Department of Pathology dates back to the Medical School's opening in 1888. E.T. Bell, S. Marx White, H.E. Robertson, Moses Barron, and Harold Diehl are among the illustrious list of faculty who brought this department to prominence. Laboratory Medicine became a department in 1959 with the charge of training clinical pathologists. It became a model for other departments throughout the United States.



Dr. Ellis Benson

Benson, a 1944 graduate of the University of Minnesota Medical School, joined the faculty in 1950. He was an active teacher and researcher with special interest in muscle structure, erythrocyte biology, and membrane cytoskeleton. In 1966, he was named professor and head of Laboratory Medicine. At that time, he felt the department was perceived as an island between the clinical fields and the basic sciences. By bringing laboratory medicine into the same academic unit as pathology, Benson managed to build a bridge linking the basic scientist and the clinician.

Under his leadership the combined department has prospered and contains many nationally recognized research programs including those in immunobiology, medical genetics, clinical virology, chronobiology, environmental pathology, health computer sciences, and chemical carcinogenesis. Because of Benson's vision, the Department of Laboratory Medicine and Pathology provides faculty with the unique opportunity of working in the laboratory and with patients, to bring the fruits of their research to the bedside. □

Dr. Simon hosts California alumni

The Berkeley, California, home of Dr. Daniel Simon, '44, was the setting for a gathering in April of alumni and friends of the University of Minnesota Medical School. Approximately 45 guests enjoyed an afternoon reception and good fellowship, and shared memories of the Medical School.

In honor of the Medical School's 100th anniversary and the Minnesota Medical School's 50th anniversary, Dr. Neal Gault Jr. updated the guests on the Medical School today. Dr. Gault is professor of medicine and former dean of the Medical School. He answered questions from the alumni and told them about the new Centennial Scholarship Fund.

Guests came to the reception from a number of Bay Area towns, as well as from Sacramento, Madera, and Kensington, California. □

Guests listen to Dr. Gault at the California reception.

Dr. Catherine Lowe

Scholarship for ethnic minorities established

Catherine Lowe, M.D., an ophthalmologist in West Palm Beach, Florida, and an alumnus of the University of Minnesota Medical School, has established a scholarship for ethnic minority medical students.

The "Hampton and Isabella Brown Scholarship" is named for Lowe's grandparents, who believed strongly in education and hard work. Through a $100,000 insurance policy Lowe will be able to provide an annual scholarship to a needy student as part of the Centennial Scholarship Program.

When Lowe started medical school, she arrived at the University of Minnesota with a suitcase full of Florida clothing and $700. She came to the Minnesota Medical Foundation and received immediate help. She has been grateful ever since for that assistance and for the education she received, and is interested in helping other students in similar situations.

Lowe received the Minnesota Medical Foundation's Student Achievement Award for contributions in community health care, leadership, and scholastic excellence while she attended the University. She was also the representative for the Minority Admissions Committee. She was awarded the American Medical Association Physicians Recognition Award in 1981 and the Outstanding Young Women of America Award in 1983. □

Pediatric cardiology chair established

The Edmond R. Ruben and N.L. Bentson families, and the Variety Club Association, have each donated $500,000 to the University of Minnesota to establish an endowed chair in pediatric cardiology. The gifts were announced and a commemorative chair was presented to the Ruben and Bentson families on April 23 at a benefit dinner and concert for the Variety Club Children's Hospital at the University of Minnesota.

Both the Bentson and Ruben families and Variety Club have a long history of supporting the University's hospitals. N.L. "Larry" Bentson graduated from the University in 1943 with degrees in petroleum engineering and geology. In 1946 he married Nancy Ruben, whose father, Edmond R. "Eddie" Ruben, was prominent in the motion picture industry.

Ruben, now 90, was one of the founders and first chief barker (president) of Variety Club, a charitable organization sponsored by people in the entertainment industry. The organization has donated more than $30 million to the University to support such projects as the Variety Club Heart Hospital in 1951, the Ray Amberg Clinic and Laboratory in 1964, the Dwan Variety Club Cardiovascular Research Center in 1975, the Jimmy Stewart Research Laboratories in 1982, and the Variety Club Children's Hospital in 1986.

Bentson began working with Ruben in the late 1940s, just as the television era began. Bentson is now executive vice president of Midcontinent Corp., a Midwest-based, family-owned company that has expanded from motion pictures to radio and television, and recently to cable and video.

The Bentson family's interest in the University's treatment of children with heart problems began in 1962, when their 12-year-old daughter, Jan, developed a serious and perplexing heart ailment. She was referred to Variety Club Heart Hospital, where she received supportive treatment for an enlarged heart and fluid-filled lungs. She recovered five months later from what doctors determined was inflammation of the outer linings of the heart and lungs. Jan went on to study communication at the University and earned a broadcast engineer license from Brown Institute in Minneapolis.

Photo by Marshall Hoff

Larry Bentson and Mrs. Eddie Ruben.

Members of the Bentson and Ruben families presented their gift to the University at "A Viennese Affair of the Heart," where more than $80,000 was raised to support pediatric programs and services. They and representatives of Variety Club received commemorative chairs from David M. Brown, dean of the Medical School.

The Ruben-Bentson Chair in Pediatric Cardiology will support the addition to the Medical School faculty of a leading physician-researcher of childhood heart disorders. □

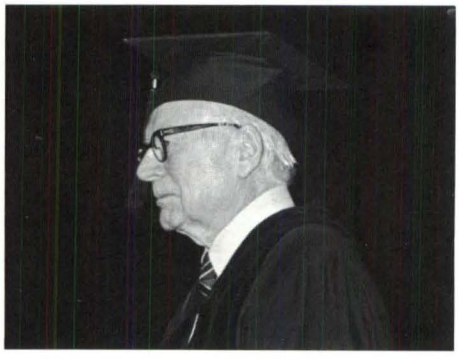
Honorary degrees awarded to Drs. Scheie, Good, Thomas

The University of Minnesota Medical School awarded three honorary degrees during the School's commencement on June 2. The honorary degree recipients are: Robert A. Good, M.D., pediatrics professor and chair at the University of South Florida and physician-in-chief at the All Children's Hospital, St. Petersburg, Florida.; Harold G. Scheie, M.D., founding director of the Scheie Eye Institute of Philadelphia and ophthalmology professor emeritus at the University of Pennsylvania; and Lewis Thomas, M.D., president emeritus of Memorial Sloan-Kettering Cancer Center, New York, professor of medicine at Cornell University Medical College and National Book Award winner.

Dr. Good, a native of Crosby, Minnesota, is an internationally renowned expert in children's immunologic diseases. He received medical and doctorate degrees from the University in 1947 and did his internship and residency in pediatrics at the University of Minnesota Hospital and Clinic. He was a member of the University's Medical School faculty from 1950 to 1973, and was named a regent's professor in 1969.

Dr. Robert A. Good

Good directed the team that performed the world's first bone marrow transplant in 1968. He was president and director of the Sloan-Kettering Institute for Cancer Research in New York from 1973 to 1980, and in 1982, he went to the Oklahoma Medical Research Foundation as pediatrics professor and head of the cancer research program. He has been in Florida since 1985.



Dr. Harold G. Scheie

Dr. Scheie, founder of the internationally recognized Scheie Eye Institute of Philadelphia, graduated from the University's Medical School in 1935. Scheie's accomplishments in ophthalmology include the development of numerous surgical techniques, particularly in the treatment of cataracts, congenital cataracts, and glaucoma. His research find-

ings have been incorporated into ophthalmology practice worldwide.

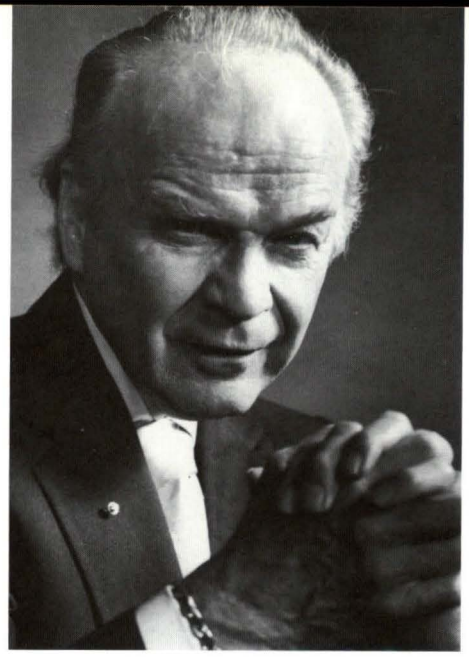
After completing his residency in ophthalmology at the University of Pennsylvania in 1940, Scheie served with the U.S. Army and was chief of ophthalmology at the 20th General Hospital in the China-Burma theater. He became a brigadier general in 1956. He joined the faculty of the University of Pennsylvania School of Medicine in 1946 and was chair of the Ophthalmology Department from 1960 until his retirement in 1975. In 1972, he founded the Scheie Eye Institute of Philadelphia, which houses the ophthalmology departments of the University of Pennsylvania School of Medicine and Presbyterian-University of Pennsylvania Medical Center. Scheie was a member of the Board of Regents of the American College of Surgeons and chair of the Section of Ophthalmology of the American Medical Association.

The Harold G. Scheie Research Land Grant Chair in Ophthalmology was established at the University of Minnesota Medical School with gifts from Dr. Scheie. A longtime supporter of the School, he was also responsible for establishing the Elias Potter Lyon Research Professorship in Ophthalmology.

Dr. Thomas, a noted pathologist, pediatrician, and immunologist, is the author of several best-selling books including *The Lives of a Cell: Notes from a Biology Watcher* and *Late Night Thoughts on Listening to Mahler's Ninth Symphony.* For these and other books, he received the National Book Award and the American Book Award, among other literary prizes.

Thomas was at the University's Medical School as director of pediatric research laboratories from 1950 to 1954. During this time he also was the University's first American Legion Heart Research Professor.

A native of New York, Thomas received a bachelor's degree from Princeton University in 1933 and a medical degree from Harvard University in 1937. He was dean of the New York University School of Medicine from 1972 to 1973. He has been at Cornell since 1973. He was president and chief executive officer of Memorial Sloan-Kettering Cancer Center from 1973 to 1980. He was the center's chancellor from 1980 to 1983 and has been president emeritus since 1984. □



Dr. C. Walton Lillehei

Chair honors Lillehei brothers

The hundreds of residents throughout the world who trained under renowned surgeons C. Walton Lillehei and Richard C. Lillehei have contributed to a lasting tribute to their mentors at the University: the C. Walton and Richard C. Lillehei Land-Grant Chair in Thoracic and Cardiovascular Surgery. The $500,000 gift was matched by the Permanent University Fund.

C. Walton Lillehei led the team that performed the first successful open-heart surgery at the University in 1952. In 1958, he implanted the first artificial heart valve. By passing these techniques along to his students and to surgeons throughout the world, C. Walton Lillehei helped saves the lives of thousands of people with heart disease. He maintains close ties with the Minnesota Heart and Lung Institute at the University.

Richard C. Lillehei performed the first successful pancreas transplant at University Hospital in 1967, and made major contributions to the management of shock and the preservation of organs for donation. He died in 1981. Like his brother C. Walton, Richard is remembered for his dedication to teaching and developing new methods to save patients dying of organ failure.

Last fall more than 200 heart surgeons and cardiac specialists gathered to honor C. Walton Lillehei on his 70th birthday, and to dedicate the chair. The event followed a two-day symposium on cardiovascular surgery attended by the world's outstanding cardiac surgeons, sponsored by the Lillehei Surgical Society and the University of Minnesota Medical School. □

Erwin L. Goldfine

UMD dormitory complex named for MMF trustee Erwin Goldfine

A new three-dormitory complex at the University of Minnesota, Duluth (UMD) has been named in honor of Erwin Goldfine, former University regent and member of the Minnesota Medical Foundation board of trustees. Goldfine Hall was dedicated June 2.

Goldfine, president of Manley Investment Company in Duluth, was a regent from 1975 to 1987. He also served as a member and chairman of the Minnesota Higher Education Coordinating Commission, and was active in the founding of UMD's Medical School. Goldfine and his family owned and operated Goldfine's Department Store in Duluth for nearly 40 years.

Erwin Goldfine was named to the board of trustees of the Minnesota Medical Foundation in 1988. The board is charged with the overall guidance of MMF in accomplishing its missions of raising and disbursing funds for medical education and research at the University of Minnesota Medical Schools in the Twin Cities and Duluth. □

Davis Chair honors Dr. House

The Catherine Mills Davis Land-Grant Chair in Biomechanical Engineering, established during the Minnesota Campaign, honors Dr. James H. House, professor in the Department of Orthopaedic Surgery at the Medical School.

Catherine Mills Davis was a former patient of the Department of Orthopaedic Surgery, and was treated by Dr. House. Mrs. Davis and her family have provided significant support to orthopaedic and biomechanical research following her treatment.

Dr. House received his M.D. degree from the University of Minnesota in 1963. He was an Orthopaedic Fellow at the Medical School from 1964-68, was an assistant and then an associate professor from 1969-80, and became a full professor in 1980. He is currently Director of Hand Surgery in the Department of Orthopaedic Surgery and consultant in hand surgery at Gillette Children's Hospital, Boynton Health Service, and Sister Kenny Institute.

Dr. House has received the Distinguished Teaching Award from the Minnesota Medical Foundation twice, in 1970 and 1979. The awardees are selected by a vote of the medical students. □

Medical technology professorship established

Esther Freier, University of Minnesota laboratory medicine and pathology professor, has been named to the nation's first medical technology endowed professorship, the Mildred King Rohwer Endowed Professorship in Medical Technology.

Freier, who earned a bachelor's degree in medical technology in 1946 and a master's degree in physiological chemistry in 1956 from the University of Minnesota, has been a member of the University's medical technology faculty since 1951.

Esther Freier

The professorship was established in honor of Mildred King Rohwer, a 1933 alumna of the University's medical technology program. Rohwer, who died in 1987, and her husband, Carl, donated $250,000 to the University for the professorship. □

ALUMNI UPDATE

My Fellow Physicians:

On June 2nd I spoke to the 101st graduating class of the University of Minnesota Medical School. What words of wisdom did I give them as they prepare to enter the "real world" of medicine? Have they already become cynical to the point of not recommending the profession of medicine to their friends? I hope not.

I asked the new physicians to continue to maintain their idealism, never forgetting the reasons they entered medicine, and to provide positive role models for future students. I told them to be proud of their chosen profession and to serve their communities with caring and dedication.

With these goals in mind, several directional changes have been under discussion for the Medical Alumni Society. An early consensus is that MAS will continue to be a social organization. However, we plan to expand our mission to help in the recruitment of qualified medical students. Meetings are scheduled with Medical School administrators on ways to support the recruitment efforts of the school.

We hope to aid the Minnesota Medical Foundation in fundraising efforts such as the Centennial Scholarship Fund, and we will also investigate areas where we can assist students as positive role models, helping to ensure a continuous influx of highly qualified candidates into our profession.

I hope that I adequately reflected the views of the Medical Alumni Society when I spoke to the Class of 1989. We must never lose sight of the humanitarian reasons for practicing medicine. As alumni we can help maintain the quality of physicians in this state by being positive role models, providing financial support to the medical students, and taking pride in our profession.

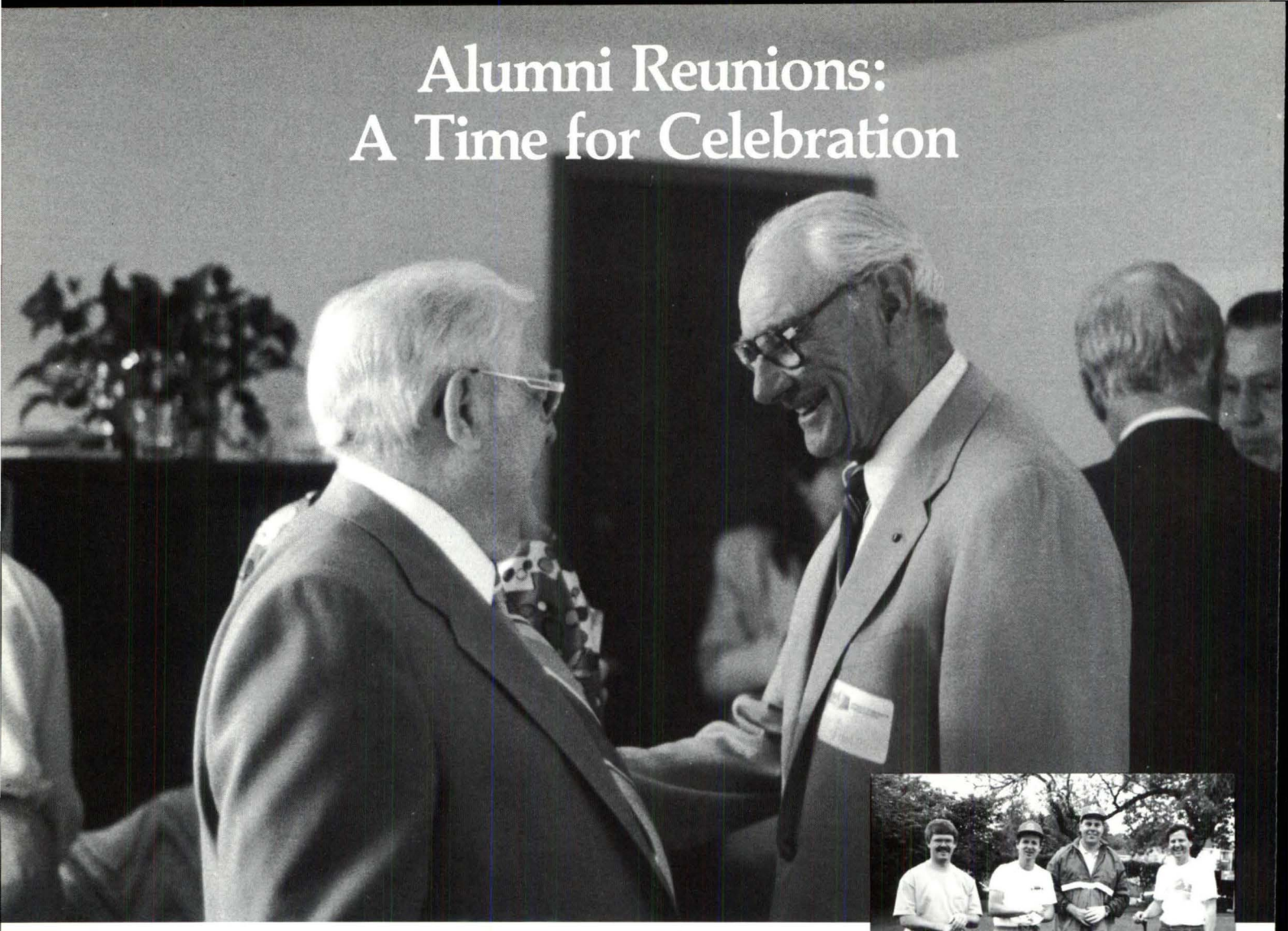
I have sincerely enjoyed being your president this centennial year.

Sincerely,

Frank G. Lushine

Frank G. Lushine, M.D. ('71)
President
Medical Alumni Society

Alumni Reunions: A Time for Celebration



Spirits were as warm as the spring sunshine as University of Minnesota Medical School graduates from the classes of 1930-32, 1939, 1949, 1959, 1964, 1969, and 1979 arrived on campus for Reunion Weekend. Graduates from all other Medical School classes were invited to be part of the Centennial All-Alumni Reunion activities as well, and a festive, memorable time was shared by all participants.

The 50th Reunion Class kicked off the weekend on Thursday, June 2, with a tour of the campus and University of Minnesota Hospital. An evening social hour at the Radisson University Hotel, headquarters for the three-day event, was spent greeting classmates and renewing old friendships.

On Friday, members of the Class of 1939 and the Half Century Club — for alumni who graduated from medical school more than 50 years ago — were welcomed at a luncheon given in their honor. Dean David Brown updated them on the many changes that have occurred at the Medical School, and new members from the Class of 1939 were inducted into the Half Century Club.

In the afternoon, graduates from 1939 were special guests at the commencement ceremony for the Class of 1989 in Northrop Auditorium.

Friday was also the day for the second-annual Alumni Golf Tournament, held at the Les Bolstad Golf Course. Participants enjoyed the fresh air and good fellowship at this popular event.

The evening was reserved for the Centennial All-Alumni and Friends Reunion, held at the St. Paul Radisson Hotel. Individual receptions were held for the regular reunion classes, followed by a festive dinner for all alumni and friends. Participants topped off the evening by dancing to the Wolverines Band and reminiscing about their days in medical school.

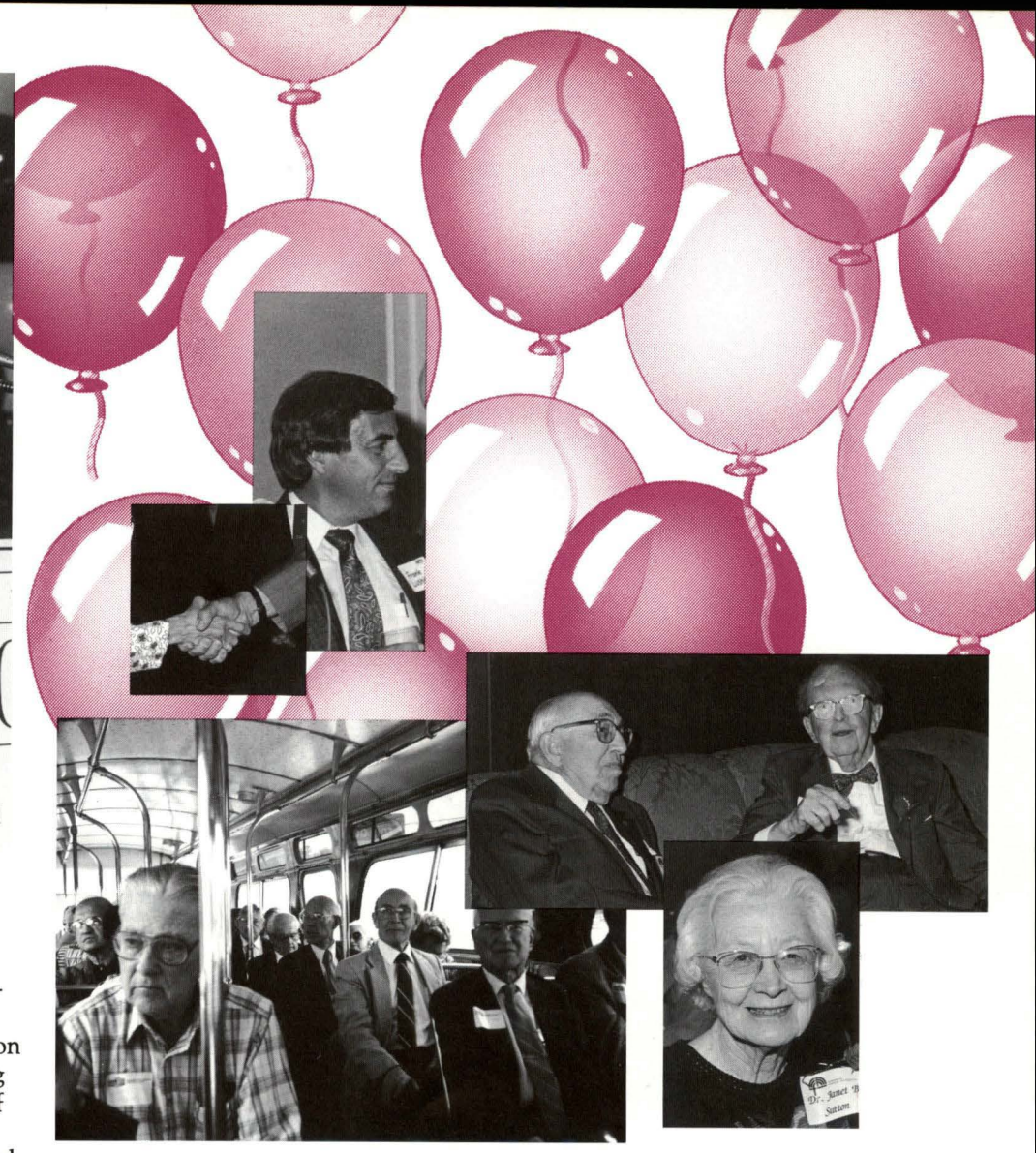
The reunion weekend concluded on Saturday with New Horizons in Minnesota Medicine, a continuing medical education seminar featuring faculty members of the University of Minnesota Medical School. Following the seminar, the Medical Alumni Society held its Annual Meeting and luncheon, highlighted by presentation of the Diehl Awards to Drs. Howard Horns and Austin McCarthy.

Alumni Golf Tournament

Fifty alumni golfers competed in the 1989 University of Minnesota Medical School Alumni Golf Tournament. Once again one of the most enjoyable Reunion Weekend events, the golf tournament was held at Les Bolstad University Golf Course under sunny skies.

Prizes were awarded in a number of categories. Trophy winners include: First Place, Harvey Frank, '74 (score of 79); Second Place, Robb Rutledge, '79 (score of 80); Third Place (tie), John Amberg, '49, and Mike Kelly, '81 (scores of 82).

Plans are already underway for next year's tournament, including the possibility of turning it into a "shotgun start" tourney. Chairperson for the 1989 tournament was Richard Student, '54.



New Horizons in Minnesota Medicine

An important part of the reunion weekend is the New Horizons in Minnesota Medicine seminar, an annual presentation of the Medical Alumni Society featuring six faculty members of the University of Minnesota Medical School.

Scheduled in conjunction with Medical School graduation ceremonies and class reunion activities, New Horizons offers an opportunity to both local and visiting alumni to learn about new technologies and the exciting research being conducted at the University of Minnesota.

Speakers this year included Dr. Henry Balfour, professor of laboratory medicine and pathology and pediatrics, speaking on "The Challenge of AIDS Treatment," Dr. Barry Garfinkel, associate professor of psychiatry, speaking on "Suicide and Attempted Suicide in Youth of Minnesota," Dr. Henry Blackburn, professor of public health and medicine, reporting on "What We Know About Preventing Heart Attacks," Dr. Peggy Craig, pediatrician and University regent, discussing the "Smoke Free Society — The Year 2000," Dr. James White, professor of pediatrics and laboratory medicine and pathology, speaking on "Thrombosis or Hemostasis? Time Will Tell," and Dr. Robert Good, pediatrics professor, University of South Florida, reporting on "Reflections on Clinical Aspects of Immunobiology."

Half Century Club Reunion

The second annual Half Century Club reunion took place on June 2 as part of the Centennial Reunion Weekend. Chaired by Dr. Royal Gray, '23, and Dr. Herman "Tiny" Drill, '29, this year's Half Century Club gathered to hear a presentation by former Medical School Dean Robert Howard, M.D., '44. Dr. Howard addressed issues and topics related to his own tenure as dean, and discussed the Medical School under the deanship of his predecessor, Dr. Harold S. Diehl, as well.

The Half Century Club was formed in 1988 to provide an opportunity for fellowship among older Medical School alumni. This year's centennial celebration attracted nearly 50 alumni from 1939 and earlier, and cemented the club's position as an annual component of Reunion Weekend.

For more information about the Half Century Club and its activities, contact the Minnesota Medical Foundation Medical Alumni office at (612) 625-1440.

First Reunion for the Class of 1989

The University of Minnesota Medical School Class of 1989 has the honor of being the first graduating class in the School's second century. Their First Reunion Celebration was held May 31 at the International Market Square Atrium in Minneapolis. The event brings together classmates who have seen little of each other during the past two years because of rotations, research projects, and extensive studying.

In addition to a slide show produced by the students, there was plenty of opportunity for socializing and reminiscing about the experiences of the past four years. Music for dancing was provided by Kaleidoscope.

Organized by class members, the reunion was sponsored by the Medical Alumni Society and the Minnesota Medical Foundation. Any proceeds from the event will go toward the Dan Gall Memorial Human Spirit Award.

Diehl Awards presented

Howard L. Horns, M.D., Class of 1944, and Austin M. McCarthy, M.D., Class of 1943, were selected to receive the 1989 Harold S. Diehl Award presented by the Minnesota Alumni Society at its annual luncheon meeting on June 3. The Diehl Award is given to recognize alumni of the University of Minnesota Medical School who have made outstanding contributions to the school, the University, and the community.

Dr. Howard Horns and Dr. Austin McCarthy

Howard L. Horns, M.D.

Dr. Howard L. Horns was selected for the Harold S. Diehl Award because of his contributions to the field of internal medicine, to the University of Minnesota, and to numerous professional and community groups.

A 1944 graduate of the University of Minnesota Medical School, Dr. Horns embarked upon an academic career at the University, followed by an active private practice in internal medicine. He retired from that practice in 1982, but continues to serve as a clinical professor of internal medicine at the University.

Dr. Horns is best known for his practice at the Nicollet Clinic which he began in 1955. Prior to that, he was an assistant dean at the University of Minnesota Medical School. During his career, he served on the staffs of Eitel, Fairview, and Abbott-Northwestern hospitals. He was also an officer and member of numerous professional associations including the Minnesota Society of Internal Medicine, the Minnesota Medical Association, the American College of Physicians, and the National Board of Medical Examiners.

A respected scholar, Dr. Horns has published a wide range of works dealing with hemochromatosis, polycythemia, tuberculosis, hypertension, and viral stenosis.

He is listed in the current Who's Who in America and is the 1982 recipient of the Charles B. Bolles-Bolles Rogers Award from the Hennepin County Medical Society.

Austin M. McCarthy, M.D.

Dr. Austin M. McCarthy is well-known and respected as a surgeon in Willmar, Minnesota, and in the surrounding communities.

A 1943 graduate of the University of Minnesota Medical School, Dr. McCarthy spent nearly 40 years in practice in Willmar, retiring in 1986. He was one of several founders of the Willmar Clinic and through the years watched it evolve into the Affiliated Medical Centers with some 70 physicians. In addition to his practice, Dr. McCarthy served as surgeon for the Great Northern Railroad for the Willmar area. Eventually, he was appointed president of the Great Northern Surgeons Group from Chicago to Seattle.

Throughout his practice, Dr. McCarthy worked to maintain the community hospitals in the area as viable enterprises. He also tried to keep the community physicians active participants in the care of surgical patients. To this end, he held weekly outpatient surgery clinics at five of Willmar's neighboring community hospitals.

For 38 years Dr. McCarthy found the time to volunteer his services to local high school and college athletic teams. He made an effort to attend all high school sporting events, evaluating training programs and administering to injured athletes. He also found time to serve on the boards of several professional associations including the Minnesota State Board of Medical Examiners and the Minnesota Medical Association Committee in Sports Medicine.

PAST RECIPIENTS

1962 Owen Wangensteen
1963 Donald J. Cowling
Charles G. Sheppard
1964 Vernon D.E. Smith
1965 Karl W. Anderson
1966 J. Arthur Myers
1967 Theodore Fritsche
1968 Walter Halloran
Anderson C. Hilding
Carl Holmstrom
1969 Karl R. Lundeberg
1970 Robert Barr
LeRoy Larson
1971 William C. Bernstein
J.C. Grant
1972 J. Richards Aurelius
Barbara Puumala
Marie Bepko Puumala
Reino Puumala
Ricard Puumala
1973 Phillip Halenbeck
Olga Hansen Litzenberg
1974 Ann Arnold
Roger MacDonald
Carl O. Rice
R.S. Ylvisaker
1975 Reuben Berman
Bror Pearson
Lawrence Richdorff
1976 Milton Hurwitz
Leonard Lang
Russell Sather
1977 Ruth Boynton
Virgil J.P. Lundquist
1978 Lester Bendix
Herman Drill
1979 Miland Knapp
Harold Wilmot
1980 Helen L. Knudsen
Donald Stewart
1981 Eva Jane (Ostergren) Larson
Carl Ragnar Wall
1982 Stuart Lane Arey
Kristofer Hagen
1983 John J. Eustermann
John J. Regan Sr.
1984 Arnold S. Anderson
John W. Anderson
1985 Kenneth W. Covey
Frank E. Johnson
1986 A. Boyd Thomes
1987 Marcy L. Ditmanson
Malcolm E. Fifield
1988 Chester A. Anderson
Robert B. Howard
Arnold J. Kremen

MAS Board News

New officers and board members were nominated at the May 10 meeting of the MAS board of directors. The nominations were accepted and approved at the June 3 annual meeting.

MAS board members Frank Lushine, John O'Leary, Margaret Macrae, and Richard Student.

The 1989-90 Medical Alumni Society board of directors is:

Officers:
President - Richard Student, M.D., '54
Vice President - Margaret Macrae, M.D., '74
Secretary/Treasurer - John O'Leary, M.D., '77
Past President - Frank Lushine, M.D., '71

Directors:
John W. Anderson, M.D., '51
*Gary Falk, M.D., '68
N.L. Gault Jr., M.D., '50
Roy Good, M.D., '52
Dorothy Horns, M.D., '76
John O'Leary, M.D., '77
Elmer Paulson, M.D., '37
Richard Simmons, M.D., '55
**Neil A. Stein, M.D., '71
Donald Swenson, M.D., '51
George Tani, M.D., '50
*Celeste Madrid Taylor, M.D., '84

Ex-officio members
David Brown, M.D. - Dean of the Twin Cities Medical School
H. Mead Cavert, M.D., '50 - Associate Dean
Konald Prem, M.D. - Faculty Advisor
David Teslow - Executive Director, Minnesota Medical Foundation
Margaret Carlson - Executive Director, Minnesota Alumni Association
Andrew Houlton - Medical Student Council
Robert Burgett - Minnesota Medical Foundation

*Re-elected to three-year term
**Newly elected to three-year term

Residents Away From Home

In their continuing effort to find ways of enhancing the "student experience" at the Medical Schools, the Medical Alumni Society once again calls for alumni participation in the Residents Away From Home program.

The Residents Away From Home (RAFH) program is designed to facilitate the medical student's residency search by putting the student in contact with a volunteer Medical School alumnus in the target city. As RAFH committee co-chair Margaret Macrae explains, "This alumnus can be a very helpful source of inside information on matters ranging from the strengths and weaknesses of a particular residency program to the general quality of life in that area of the country. This vital information is often difficult to come by through other means."

In some instances alumni might even provide students with overnight accommodations in their homes. This can be especially helpful in defraying the total cost of the residency search, which amounts to well over $1,000 for most students.

"This is a great program and a great way for alumni to keep in touch with our future colleagues," committee co-chair Celeste Madrid Taylor remarks. "I hope all alumni will take advantage of this wonderful opportunity." Alumni in major metropolitan areas outside Minnesota are especially needed. Last year's initial call to alumni identified nearly 50 different alumni who are willing to assist students with their residency searches this year. In addition to those already participating in the program, hosts in the eastern and southwestern parts of the country are especially needed.

Please complete the response card below if you are willing to participate as an alumni contact person. Be sure to indicate whether or not you are able to host a student overnight. Send the card to the address shown no later than September 30, 1989.

RESIDENTS AWAY FROM HOME

Alumni Volunteer Form

____Yes, I want to help medical students with their residency search.
____Yes, I can host a student overnight.
____No, I cannot host a student overnight, but I am willing to answer student questions about a residency site in my area.

Name_____Class Year_____

Address_____

City, State, Zip_____

Daytime Phone ( )_____ Evening ( )_____

My own residency was at:_____

My area of specialty is:_____

Mail to: Residents Away From Home
Box 193 UMHC
University of Minnesota Medical School
Minneapolis, MN 55455

CLASS NOTES

1941

Dr. Jay Jacoby, Columbus, Ohio, recently returned to Ohio State University Medical School, where he had been professor and chairman of Anesthesiology for 12 years, to lead the teaching programs and practice as one of the staff. Dr. Jacoby served as professor and chairman of the Department of Anesthesiology at Jefferson Medical College in Philadelphia for 25 years and became professor emeritus in June 1988.

1945

Dr. Robert W. Goltz, San Diego, California, was elected to honorary membership in the Society for Investigative Dermatology and the American Academy of Dermatology, both of which he served as president at one time. He currently is professor of medicine/dermatology at University of California in San Diego.

1949

Dr. Lawrence J. Opsahl, Willmar, Minnesota, after retiring in 1983 is currently enjoying his seven children and seven grandchildren.

1953

Dr. Frederick S. Cross, Ph.D., Chagrin Falls, Ohio, was inducted into the Heart Hall of Fame on January 9. One of fourteen local cardiovascular pioneers honored, he was recognized for co-engineering one of the first successful heart-lung machines. Dr. Cross is a retired director of the Department of Surgery and Division of Cardiothoracic Surgery at St. Lukes Hospital.

1954

Dr. Howard D. Ross, Beverly Hills, California, recently retired after serving as a consultant to the Central Juvenile Hall of Los Angeles County and as staff psychiatrist and clinical director at the Santa Monica West Mental Health Service. He currently is clinical professor of psychiatry at the University of Southern California, senior instructor at Southern California Psychoanalytic Institute, and has a private practice.

1960

Dr. Robert E. Kalina, Seattle, Washington, has been appointed executive vice president of the Association of University Professors of Ophthalmology. He served as a member on the Association's board of trustees from 1980-85 and also as its president from 1983-84.

1979

Dr. Jerry L. Moench, Sioux Falls, South Dakota, has been elected to Fellowship in the American College of Cardiology. Dr. Moench is currently in private cardiology practice with North Central Heart Institute of Sioux Falls.

1982

Dr. David K. Ashpole, Whitefish, Bay, Wisconsin, has been elected to Fellowship in the American College of Cardiology. Dr. Ashpole is currently in private practice in Milwaukee.

1982

Dr. Douglas J. McDonald, St. Louis, Missouri, completed his residency in orthopedic surgery and a fellowship in orthopedic oncology at Mayo Graduate School of Medicine. He received the Hatcher Pathology Fellowship by the American Orthopedic Association after completing a six-month fellowship in orthopedic oncology at the Rizzoli Orthopedic Institute in Bologna, Italy, in 1988. At present, he serves as the head of the section of orthopedic oncology at St. Louis University Hospital in St. Louis, Missouri.

What's New With You?

Name Specialty/Degree Year

Address Telephone

City, State, Zip

News of relocations, new positions, honors and awards, community activities, personal activities, etc.

Send to: Editor, Minnesota Medical Foundation, Box 193 UMHC, University of Minnesota, Minneapolis, MN 55455.

IN MEMORIAM

Leon J. Alger, M.D.,

Class of 1926, of Houston, Texas, died March 28 at age 89. Dr. Alger, a U.S. Army World War I veteran, practiced ophthalmology for 55 years. He is survived by five sons, four daughters, a brother, 19 grandchildren, and eight great-grandchildren.

Frank J. Curran, M.D.,

Class of 1929, specialist in psychiatry, neurology, and child psychiatry, died March 8 at age 84. Dr. Curran organized New York City's Bellevue Adolescent Ward in 1937, the first of its kind in the nation, and was Bellevue's senior psychiatrist and director until 1945. He organized and directed the psychiatric department at New York City's St. Vincent's Hospital and the Children's Service Center in Charlottesville, Virginia. Dr. Curran had a private practice in New York City and also served as a consulting psychiatrist.

John Charles Demarest, M.D.,

Class of 1986, California psychiatry specialist, died in April at age 33. He is survived by his wife, Jean, parents, two sisters, a brother, a niece and nephews.

Daniel H. Gall, M.D.,

Class of 1989, died April 25 at age 27. He is survived by his parents, two brothers, a sister, 5 nieces and nephews, aunts and uncles. Memorials are preferred to the Dan Gall Human Spirit Scholarship Award through the Minnesota Medical Foundation, Box 193 UMHC, University of Minnesota, Minneapolis, MN 55455.

Maurice G. Gilbert, M.D.,

Class of 1935, former Twin Cities family practitioner, died March 28 at age 77. Dr. Gilbert, after leaving his long-time practice in Minneapolis, worked part-time as the physician at Sholom Home in St. Paul. He is survived by his wife, Libbie, a daughter, son, sister, two brothers, three grandchildren, and three great-grandchildren.

Worth A. Hooper, M.D.,

Class of 1951, former radiologist of Waconia, died in April, 1989. He is survived by his wife, Barbara, two sons, a sister and two granddaughters.

Chauncey M. Kelsey, M.D.,

Class of 1939, family physician and surgeon, died March 1 at age 75. Dr. Kelsey practiced medicine for 45 years in Roseville, Minnesota. He was an active member of the Ramsey County Medical Society, member of the Minnesota Medical Association, American Medical Association, Minnesota Academy of Family Physicians, and the International College of Surgeons. Preceded in death by two daughters and a sister, he is survived by his wife, Marion, a brother, two sons, and six grandchildren.

Carl W. Laymon, M.D.,

Class of 1930, former dermatologist who practiced in the Minneapolis area, died March 15 at age 80. Four years after graduation from medical school, Dr. Laymon received the first doctorate in dermatology awarded by the University of Minnesota. Dr. Laymon moved to Los Angeles to retire in 1970 but instead began a practice where he worked until 1980. He was past president of the Minnesota and Chicago Dermatological societies. He was a member of the American Academy of Dermatology, the American Dermatological Association, and the American Medical Association. He is survived by his daughter, sister, and three grandsons.

Cortland O. Robinson, M.D.,

Class of 1939, first chief of staff at North Memorial Medical Center in Robbinsdale, Minnesota, died May 3 at age 74. A specialist in internal medicine, Dr. Robinson served as medical director for Pan American Airways in New York. After World War II he helped start the the Crystal Medical Clinic and was on the staff at North Memorial Medical Center serving as chief of staff and medicine. Dr. Robinson practiced medicine for over 45 years in New York, Minnesota, and California. He is survived by his brother.

Charles G. Sheppard, M.D.,

Class of 1935, former medical director of St. Peter Regional Treatment Center in St. Peter, Minnesota, died April 22 at age 77. Dr. Sheppard began a family practice in 1937 in Hutchinson, Minnesota. He became interested in psychiatry and served as a physician at the St. Peter facility. In 1969 he was promoted to chief physician and headed the Minnesota Security Hospital medical department at the St. Peter treatment center, retiring in 1982. Dr. Sheppard was a member of the American Medical Association and the Minnesota Medical Association. He was a recipient of the Diehl Award in 1963 and WCCO's Good Neighbor award. He is survived by his wife, Lola, a son, daughter, and two grandchildren.

John E. Teisberg, M.D.,

Class of 1939, retired St. Paul family practitioner, died March 15 at age 74. Dr. Tiesberg established his own St. Paul practice in 1936 after serving as a U.S. Army doctor in World War II. He later served as chief of staff at Midway Hospital in St. Paul and retired five years ago from the Physician's Clinic. Preceded in death by his wife, Terry, he is survived by five daughters, three sons, and seven grandchildren.

We have also received notice of the following:

John A. McNeill, M.D.,

Founder of the St. Paul Eye Clinic, died March 18. Dr. McNeill began his career in Manitoba, Canada, as a general practitioner. He later emigrated to the United States in 1949, and became licensed in Minnesota. McNeill received an advanced degree in ophthalmology from the University of Minnesota in 1952 and remained in practice until his retirement in 1984. Preceded in death by his wife, Patricia, he is survived by his three sons, a daughter, two brothers, and two sisters.

C. Louise Gruber

Former chief administrator of the Ophthalmology Department, died July 9, 1988 at age 67. Ms. Gruber came to the University of Minnesota in 1958 after completing her master's degree in biochemistry, and helped build the Department of Ophthalmology when it was first being organized. She retired in 1982 and became active in the local child and spouse abuse program in Siren, Wisconsin. She is survived by two sisters. Memorials have been directed to the Minnesota Medical Foundation for ophthalmology research.

The Life Income Gift

Children are a blessing. However, some children can present a special challenge. One of the challenges is what to do about the "spendthrift" child . . . the adult child who has never learned to manage money.

This is especially difficult in the context of estate planning. While living, we can judge how much of our assets we are willing to let the spendthrift child have or use. However, at our death, it's quite a different matter. The dilemma is how to let the spendthrift child know he or she is loved, but avoid having assets we worked so hard to establish be quickly and foolishly squandered.

Usually there are no perfect solutions, so most parents are left having to look at a number of possibilities. One possibility is the charitable life income gift. While perhaps not a perfect solution, it has some special benefits.

- First, a life income gift can provide an income for life to the spendthrift child. (And to the parents and others if desired.)
- Second, after the life of the child, the gift can be used to support a family charitable interest or even establish a family endowment fund.
- Third, in some cases, management fees may be lower than other options that might also provide a lifetime income to the child.
- Fourth, there may be substantial estate and income tax savings which will leave a larger estate and provide greater income flow to the child than other options.

For additional information, please return the coupon below.

___ Please send me information on providing a life income to an adult child.

___ Please send me information on establishing a life income gift for myself.

NAME _____
(Please print or type clearly)

ADDRESS _____

CITY/STATE/ZIP _____

PHONE _____

Please return to: Minnesota Medical Foundation, Office of Planned Giving
Box 193 UMHC, University of Minnesota, Minneapolis, MN 55455
Telephone: (612) 625-5463

HISTORICAL PERSPECTIVE

Moses Barron and the Islets of Langerhans

By Leonard G. Wilson, Ph.D.

In late August of 1919, a 40-year-old man was found unconscious in his room at a lodging house in Minneapolis. When taken to Minneapolis General Hospital, the patient was found to be in a severe diabetic coma. He died the following day.

At the autopsy, performed by Dr. Moses Barron, assistant professor of pathology at the University of Minnesota, the patient's pancreas was shown to be severely atrophied, with the pancreatic duct completely obstructed by a large chalk-white stone. Microscopic examination revealed that the pancreatic tissue had disappeared completely, but the islets of Langerhans remained normal except where a recent infection had destroyed them. Dr. Barron concluded that the fatal diabetes had occurred as a result of the infection, and that until the infection the islets had continued to function normally despite the degeneration of the rest of the pancreas.

Dr. Barron compared his observations with the rare cases of pancreatic lithiasis recorded in literature and with the reported effects of tying off the pancreatic duct experimentally in animals. In whatever way the pancreatic duct was blocked, the islets of Langerhans remained normal even though the remaining pancreatic tissue degenerated. Both clinical and experimental studies thus showed that the specific cause of diabetes mellitus was disease of the islets of Langerhans, not disease of the pancreas as a whole.

In the fall of 1920, Dr. Barron published his conclusions on the relation of the islets of Langerhans to diabetes as the leading article in *Surgery, Gynecology, and Obstetrics*. Upon its appearance a young Canadian physician, Dr. Frederick Banting, read Barron's paper in preparation for a lecture on the pancreas. Unable to sleep that night, Dr. Banting rose about 2 o'clock in the morning and wrote in his notebook, "Ligate pancreatic ducts of dogs. Keep dogs alive till acini degenerate leaving islets. Try to isolate the internal secretion of these to relieve glycosuria." The following summer at the University of Toronto, Banting carried out the experiments envisioned that night — experiments which led rapidly to the isolation of insulin and its clinical use.

When Moses Barron wrote his epoch-making paper in 1920 he was, at age 36, already a deeply experienced pathologist. Born in Kovno in Russia on November 8, 1883, he came to the United States at age 5½ with his parents to settle on a farm in western Minnesota. His education began in a one-room country school, but later his family moved first to Fargo and then to St. Paul where he attended Central High School.

Through hard work Moses Barron was finally able to enter the six-year premedical and medical course at the University of Minnesota in 1905 when he was 22. In 1911, he received his M.D. and was appointed the sole intern at the new Elliot Memorial Hospital. During his internship, Dr. Barron assisted at surgical operations in the morning, accompanied the internists on their rounds in the afternoon, and in the evenings frequently delivered babies on the obstetric ward. The following year he was appointed an instructor in pathology in the Medical School, and was promoted later to assistant professor.

During World War I Moses Barron joined the Army Medical Reserve Corps and served with the University unit, Base Hospital No. 26, at the great Hospital

Courtesy University of Minnesota Archives

Moses Barron, 1922

Center in Allerey, France, that during 1918 cared for more than 30,000 sick and wounded men. At Allerey, Dr. Barron was in charge of the laboratory for all ten hospitals of the Center. His scientific training, energy, and resourcefulness were critical in maintaining mortality for the Center at the very low rate of 1.47 percent, despite dealing with seriously wounded men through the pandemic of influenza in the fall of 1918 and hospital epidemics of diphtheria and meningococcal meningitis.

Through bacteriological checks and isolation of infected patients, Dr. Barron and his colleagues prevented wound infections and brought the epidemics under control. They performed more than 350 autopsies, and their work resulted in several published scientific papers. Thus when, in August of 1919, Moses Barron performed the autopsy on the diabetes victim at the Minneapolis General Hospital, he brought to the observation of that patient with an obstructed pancreatic duct a mind prepared to see its scientific meaning.

CELEBRATION 100 50
The Medical School 1888-1988
Minnesota Medical Foundation 1939-1989
UNIVERSITY OF MINNESOTA

Leonard G. Wilson, Ph.D., is chairman of the History of Medicine Department at the University of Minnesota.

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Homecare and AIDS Radisson University Hotel CME (612) 625-5525	**August 13 - 15**
Clinical Applications of Musculoskeletal Allograft Holiday Inn St. Paul Center CME (612) 221-3992	**August 25 - 26**
7th Annual Occupational Health & Safety Institute Minneapolis CME (612) 221-3992	**September 5 - 15**
Teaching Geriatric Medicine Sheraton Midway Hotel CME (612) 625-5525	**September 8 - 9**
5th Annual Hospital Based Nutrition Spt. Sheraton Midway Hotel CME (612) 625-5525	**September 14 - 15**
American Medical Directors Association Mtg Holiday Inn Downtown CME (612) 625-5525	**September 15 - 17**
MSD HSR Training Program Health Sciences Center CME (612) 625-5525	**September 18 - 20**
4th International Symposium on Org Prcuremt/Prsv Hyatt Regency Hotel CME (612) 625-5525	**September 18 - 20**
2nd International Cgrs on Pancr/Islet Transplant Hyatt Regency Hotel CME (612) 625-5525	**September 21 - 22**
Women In Transition Earle Brown Center CME (612) 221-3992	**September 22**
Radiology 1989 Hyatt Regency Hotel CME (612) 625-5525	**September 25 - 29**
Chemical Exposures St. Paul-Ramsey Medical Center CME (612) 221-3992	**September 29**
Annual Ob/Gyn Seminar Holiday Inn Downtown CME (612) 625-5525	**October 4 - 6**
Pulmonary Function Testing Workshop St. Paul CME (612) 221-3992	**October 4 - 6**
Colon and Rectal Surgery Mayo Auditorium CME (612) 625-5525	**October 4 - 7**
Internal Medicine Review Mayo Auditorium CME (612) 625-5525	**October 11 - 13**
Anxiety Disorders Holiday Inn East, St. Paul CME (612) 221-3992	**October 13**
Adolescent Health Conference Earle Brown Center CME (612) 625-5525	**October 13 - 14**
5th Ramsey Trauma Conference Holiday Inn East, St. Paul CME (612) 221-3992	**October 19 - 21**