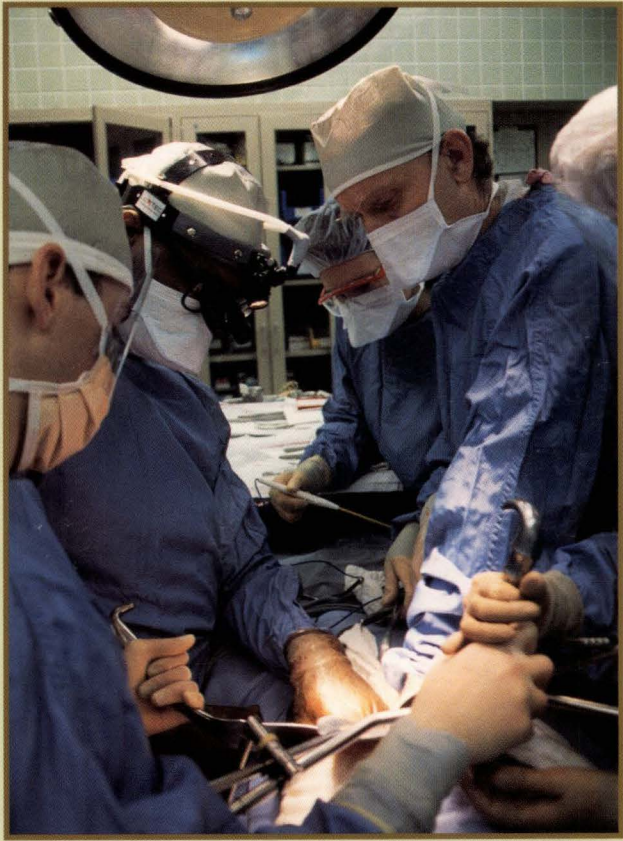
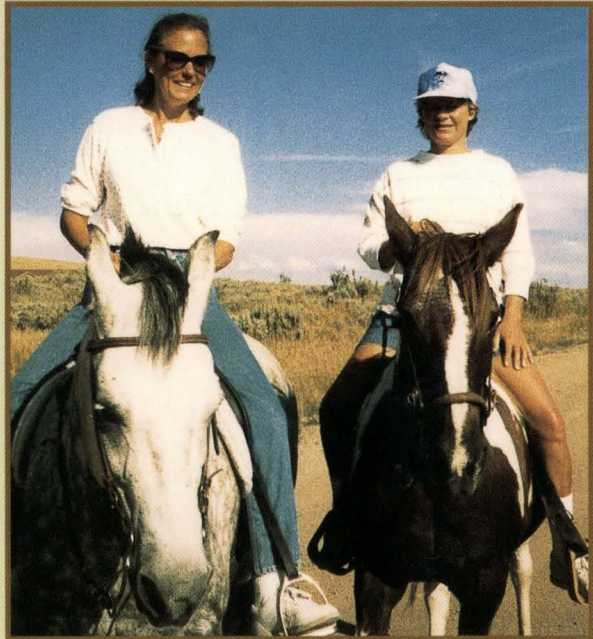


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University of Minnesota

Medical Bulletin

A PUBLICATION OF THE MINNESOTA MEDICAL FOUNDATION



The Diabetes Institute
for Immunology and
Transplantation:
Hope for Prevention
and Cure

Summer 1995

The Minnesota Medical Foundation

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MINNESOTA MEDICAL FOUNDATION

at the University of Minnesota

ON THE COVER:

The new Diabetes Institute for Immunology and Transplantation is battling diabetes on a number of fronts, including pancreas and islet transplantation.

See page 2.

Photos by Tim Rummelhoff.



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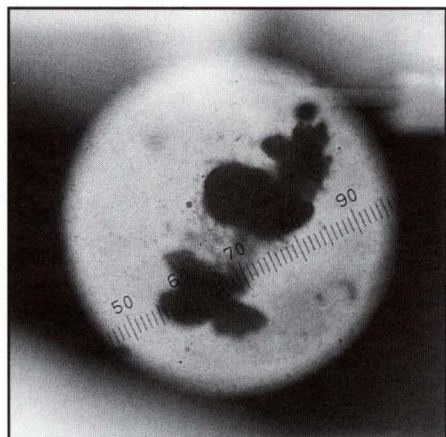
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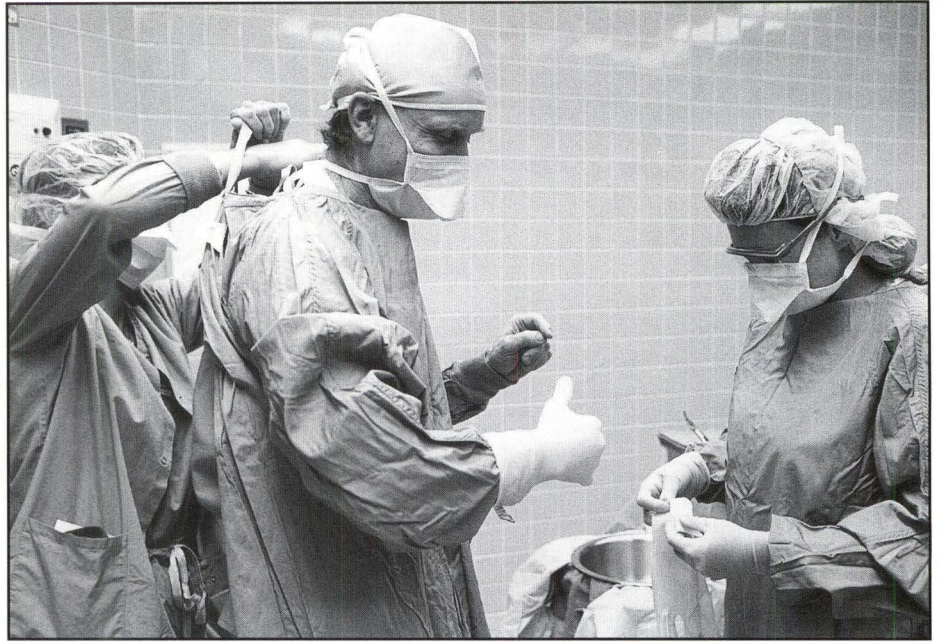
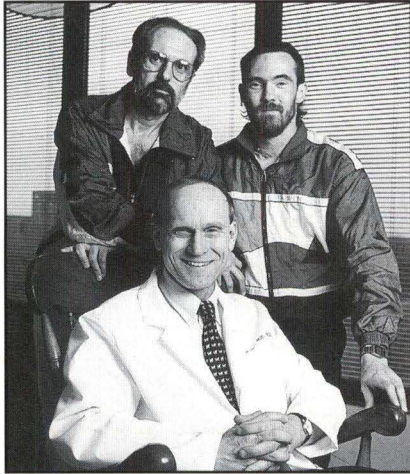
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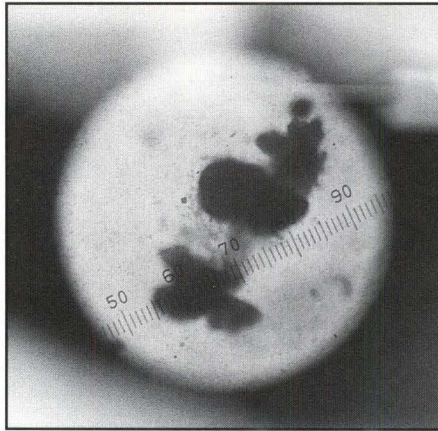
Scholarship support is increasingly important for medical students.

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Diabetes Meets Its Match



New Institute brings fresh hope for cure and prevention.

by Mary Hoff photos by Tim Rummelhoff

One of the hottest wars in medicine today is entering what may be its last battle.

On one side is diabetes, a chronic disease that kills 150,000 Americans each year and debilitates millions of others. On the other is a freshly mustered force of University of Minnesota medical experts who recently joined together in a new effort to vanquish the disease. And though only time will tell, many believe that when the dust settles, diabetes will finally have met its match.

The "good guy" in this scenario is the Diabetes Institute for Immunology and Transplantation. Headed by internationally known transplant surgeon Dr. David E.R. Sutherland, the Institute has two overarching goals. First, it seeks to perfect the use of transplantation as a cure for diabetes. Second, Institute staff hope to find a way to apply the science of immunology to preventing the onset of the disease in the first place.

"Our goal is to make the cure very simple," says Sutherland, "just one injection of insulin-producing cells that will last a lifetime and not require drugs to prevent rejection. Even better will be manipulating the immune system to prevent diabetes in the first place, eventually obviating the need for transplants."

The Institute has its work cut out for it. A flaw in the body's ability to produce or use the hormone insulin, diabetes is a tough adversary. It was only a few generations ago that medical science learned how to control it with blood sugar monitoring, diet modification,

and insulin injections. And even this rigorous regimen fails in many cases to prevent wild swings in blood sugar that eventually cause complications such as blindness, kidney failure, heart disease, and gangrene. For many, life with diabetes means a life overshadowed with the constant threat of physical deterioration, even death.

"Through research, service, and teaching, the Institute seeks a future in which persons with diabetes can live richer lives, unburdened by the need to constantly monitor their health and free of the ever-present fear of debilitating or deadly complications," Sutherland says.

Rooted in success

Though newly established as an entity of its own, the Diabetes Institute is rooted in a long and landmark-studded history of research, clinical work, and education that already has brought new hope to thousands suffering from diabetes.

The story starts in the 1960s, when organ transplant was moving from the realm of the radical to the realistic. Diabetics who had lost their kidney function saw kidney transplant as an opportunity to reverse at least part of the devastation the disease was wreaking on their bodies. Yet because of the physiological complications of diabetes, few institutions were willing to do the surgery.

Not so Minnesota. Here, as a young surgical resident, Sutherland watched as transplant surgeons Dr. Richard Lillehei, Dr. John Najarian, and others implanted new kidneys and new hope in patients neglected by other transplant teams.

"Kidney transplants alone were much more successful than we anticipated," Sutherland says of the innovative surgical approach. "But the patients continued to have other diabetic problems, and hated being diabetic. So we decided to take the additional step of trying to cure diabetes too through pancreas transplantation."

In 1966, Lillehei and Dr. William Kelly performed the first pancreas transplant, proving to the world that surgery could free a person with diabetes from insulin injections. This landmark surgery sparked a spectrum of other efforts to advance the treatment of diabetes through transplant, but the surgery complication rate in the early days was high. So Minnesota researchers in the Departments of Anatomy and Surgery began to develop methods for extracting and transplanting only the insulin-producing islets, a less invasive technique than organ transplant. Although successful in animals, islet transplantation proved more difficult in humans.

Thus, in 1978 Sutherland and Najarian resumed pancreas transplants at the University, first using cadaver



Page 2, clockwise from upper left: Wayne and David Crowell with Dr. David Sutherland. Right: Dr. Sutherland prepares for the Crowells' surgery. Below: a microscopic view of islets. This page, top: Dr. Sutherland and his colleagues perform a pancreas transplant between Wayne Crowell and his son David. Below: Diabetes Institute researchers gather insulin-producing islets from a pancreas.



Researchers are hoping to increase the success rate of islet transplantation.

donors. They went a step further the next year. Kidneys were already being transplanted from living donors, but no one had ever transplanted another organ from such a source. In 1979, they performed the world's first transplant of a partial pancreas from a living related donor.

Minnesota also took the lead in offering pancreas transplant to diabetics who had not yet lost kidney function, and in developing many of the refinements that have increased the success rate of the surgery, such as organ placement and antirejection regimen. Even though pancreas transplants were now much

more successful than in the Lillehei days, it was still major surgery. Consequently, the transplant team continued to pursue islets. By the end of 1994, surgeons here had performed some 700 pancreas transplants (more than 80 from living donors) and some 80 islet transplants.

Formalizing the effort

The track record so far is good, but the work is far from complete. That is why an institute is necessary.

As successful as pancreas transplants have been in curing diabetes, Sutherland points out, they are not perfect, and islets still have a relatively low success rate. Furthermore, those considering transplant must still weigh the disadvantages of major surgery and antirejection medication against the advantages of being freed from diabetes. By creating the Institute, he hopes to provide the dedicated time, staff, and money needed to finally hurdle the technical barriers that currently prevent islet transplantation from being unequivocally preferable to the disease itself.

"The Institute formalizes our effort and makes it more interdisciplinary," Sutherland explains. "We have learned a lot from research in the last 20 years. If we put all the pieces together we can cure diabetes. But that is going to take manpower and a financial base. An individual grant will never cure diabetes."

With research, teaching, and clinical efforts related to diabetes coalesced into a formal structure, the Institute is mounting a newly energized attack on diabetes on a number of fronts.

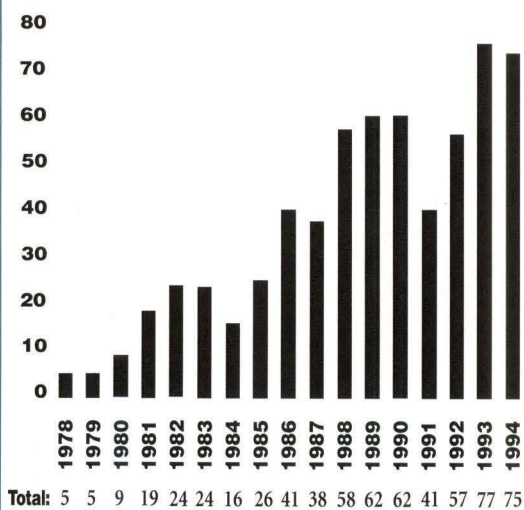
One major focus is to minimize the disadvantages of using medication to prevent the body from rejecting the transplanted pancreas or islets. To do so, researchers are developing and testing drugs that show promise of fewer side effects than those currently in use.

Another area of emphasis for the Institute is to increase the success rate of islet transplantation. This procedure has an advantage over pancreas transplantation because it is relatively simple (an injection rather than major surgery) and may be more easily freed from the need for antirejection drugs. The Institute staff hopes to raise the success rate of islet transplants to the level of pancreas transplants by improving methods of islet preparation and using new antirejection drugs.

"Institute researchers are also looking at a number of ways to make islets less vulnerable to rejection after transplantation," Sutherland says. "For example, they might be placed within a membrane — encapsulated — to separate them from the white blood cells and antibodies that otherwise would reject the graft. Another approach, called tolerance, is to trick the transplant recipient's immune system into thinking the graft is part of its original cell by presenting the foreign material in a certain way."

"I depend on the Institute to perfect the transplantation of islets," says Deb Butterfield, transplant recipient.

Pancreas Transplants at the University of Minnesota



Inulin, the hormone that moves sugar from the blood into the cells that need it for fuel, is produced by cells within the pancreas known as beta cells. Type I diabetes occurs when these cells are attacked and destroyed by the body's own immune system.

Since the 1960s, surgeons at the University of Minnesota have used pancreas transplantation to restore the body's ability to produce insulin. In a few cases they have achieved the same end with the less-invasive transplant of just the islets of Langerhans, the tiny structures in which beta cells are found. Eventually, they hope to be able to prevent diabetes by blocking the destruction of beta cells before it begins.



"I've had two pancreas transplants and I'm only 35. Right now I feel great, but if my second one fails I'd like to do it again without major surgery. Islets would be the way to go."

Because there are far more diabetics than there ever will be tissue donors, researchers also are investigating the possibility of using tissue from animals. According to Sutherland, such "xenografts" hold special promise in the area of islet transplantation.

"Transplantation of tissue between different species has been extremely difficult because antibodies can clot the whole organ graft. However, it does not occur with islets, and we have been able to prevent rejection of xenografts for a few days with the antirejection drugs currently used for clinical transplantation," he says. Prevention of rejection long term is more difficult, but should be possible with new drugs or the tolerance approach.

Better than a cure

Improving transplantation outcomes is the main focus of the Institute's work today. But it's not the only one. In fact, what the researchers would like to do more than anything is work themselves right out of a job by finding a way to prevent the disease in the first place.

"We hope to make transplantation obsolete eventually," Sutherland says. "The Institute should have a short life in cosmic terms."

Ironically, it turns out that the goal of preventing diabetes may actually be quite closely tied to the one of curing diabetes through transplantation. In an odd twist of fate, researchers in the early 1980s discovered that diabetes could actually be prevented with the same antirejec-



Deb Butterfield

... I need a future

For Deb Butterfield, the benefits of a pancreas transplant are so great that it was worth going through not just once, but twice.

A 35-year-old financial brokerage consultant in New York City, Butterfield was diagnosed with diabetes at age 11. When she was 23, she began to experience eye damage. Not long after that, she was told she had end-stage renal disease. By the time she was 30, the nerve damage in her legs was so great that she needed a cane to walk.

"When I heard about the success of having a pancreas in addition to a kidney transplant, I knew that even with the risks, I needed to have a pancreas. I was half alive and I thought, 'fix me or kill me, because I need a future,'" she says.

In 1993, Butterfield underwent a kidney and pancreas transplant at another institution. After a grueling three-month struggle, she lost the organs to rejection.

"My goal was to have not just a life without insulin, but a life without all the stresses and fears of diabetes," she says. "I knew I needed a new kidney and pancreas to get there, so I went to Dr. Sutherland, since the University of Minnesota was known for giving people another chance." In August 1994, she received her second transplant.

Butterfield has been off insulin since a few days after the transplant and has noticed improvement in her eyes and nervous system. "I don't think the novelty will ever wear off," she says. "My worst nightmare is that I become diabetic again." ■



Gene Duerksen and his daughter, Lynn.

Success story

Gene Duerksen is a rare bird — and glad of it. One of only a handful of people worldwide who became insulin free as a result of an islet cell transplant, the only thing that could make him happier is if he could share with others whatever it is that is making the transplant work for him.

A forty-something-year-old father of four from rural Windom, Minnesota, Duerksen had experienced both eye and kidney damage as a result of his diabetes. After 11 months on dialysis, he received a cadaver kidney in 1992. Even though a pancreas was available from the same donor, he opted for islets instead because his insurance wouldn't cover the organ transplant. The islet transplant is cheaper, and the University of Minnesota Hospital has been able to absorb the cost of a few patients.

To the surprise of just about everyone, the gamble paid off. He remained completely insulin free for a year and a half, and only recently began taking a small daily "maintenance" dose of insulin to keep the islets in the best possible shape. In his eyes, it's a miracle.

"I ask them, 'Who do you compare me to?'" he says. "They say, 'No one.'"

Today Duerksen maintains a normal life — if "normal" is an adequate word to use for a man who milks 90 cows, works as township assessor, and runs a gospel music ministry with his family. Through it all, he has only the best to say for his experience.

"Basically I have done really well," he says. "I'm feeling good. I have more strength and pep than I had in years." ■

tion drugs used to block the rejection of a transplanted pancreas. As a result, Sutherland says, "some of the same strategies [used to improve the cure of diabetes] may work to prevent it."

One such approach being studied is to give antirejection drugs to people likely to develop diabetes. However, there are still the drugs' side effects to contend with. An even better strategy, Sutherland says, is to manipulate the individual's immune system to prevent the attack on beta cells. Institute researchers currently are looking at the use of insulin and other chemicals to accomplish this.

"Researchers have already found that by injecting islet proteins into the thymus gland of mice prone to diabetes, the immune cells are reeducated so that they lose their reactivity to the beta cells," Sutherland says.

Of course, even this kind of knowledge is useless if no one can predict who's likely to get diabetes. For that reason, Institute researchers also are seeking ways of determining ahead of time who is likely to get the disease.

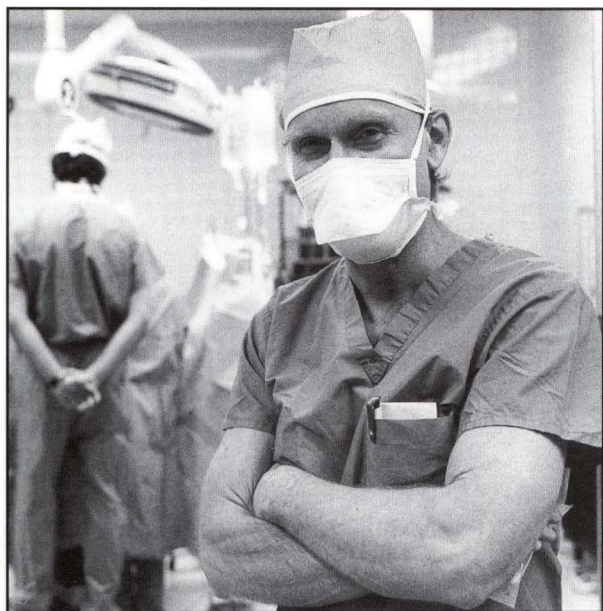
"Ultimately I see us identifying children at risk and in them, altering the immune system so it won't attack beta cells later in life," Sutherland says. One approach, giving insulin to siblings of diabetic individuals, is already being tried by endocrinologists at the University. Insulin injection seems to alter the immune response to the beta cells, but the fact that injections are required means this is still not an entirely satisfactory approach. The Institute hopes to develop others.

When that occurs — and Sutherland believes that with the support of the Institute it will, sometime during the next century — diabetes truly will have met its match.

The man behind the plan

With an agenda the size of a small midwestern town, it only makes sense that the Diabetes Institute be headed by David E.R. Sutherland. After all, as the old saw says, if you want something done, ask a busy person. And Sutherland fits that bill like no one else.

A member of the Department of Surgery staff since 1976, Sutherland averages some 12 to 15 transplants a month, many at the odd times of day or night dictated by the availability of organs. His desk is piled tumultuously high with research papers, journals, lab notebooks, and other paper paraphernalia gathered on his frequent trips



Dr. David Sutherland

throughout the United States and Europe. A researcher as well as a clinician, he has published more than a thousand scientific papers in his 30-year career. He not only is in charge of the Diabetes Institute, he also recently took over as head of the University of Minnesota's transplant program.

At the same time, when it comes to his patients, David Sutherland is never too busy. Day or night, he's available to reassure a patient or talk through options and risks with a transplant candidate.

"You pick up the phone and Dr. Sutherland is available, from his car phone, all hours of the day and night," says Carolyn Ohanian, whose daughter, Dawn, is one of the hundreds of diabetics who have gained new hope for life at Sutherland's hands. "The guy really cares for his patients."

A St. Paul native and himself a graduate of the University of Minnesota Medical School, Sutherland first became interested in curing diabetes in the 1960s. He had developed a fascination with immunology as a result of a laboratory job he held during medical school, but found himself equally intrigued by surgery during his clinical rotations several years later. "The natural place to combine those interests was in transplantation," he says.

As a clinician and researcher as well as administrator, Sutherland occasionally wishes that he could commit himself more completely to one role or another. But when he looks at the big picture he has no regrets.

"I'm not a master clinician because I have one foot in the lab, and I'm not a master researcher because I have one foot in the hospital ward," he says. "It can be frustrating, because you end up not the best in either. But it's important to have individuals that bridge that gap. That's why I'm in academic medicine. You need to bridge that gap." ■

Giving something back

Giving must just run in some families. Five years ago, Ann Kinney donated one of her kidneys to her sister, Cathy Larsen, who had lost the function in her own after 30 years of being a diabetic. Two years later, Kinney gave part of her pancreas. Now, Larsen is carrying on the tradition of generosity herself by participating in clinical studies at the University of Minnesota — studies that she hopes will help even more people experience the new life she found through pancreas transplantation.

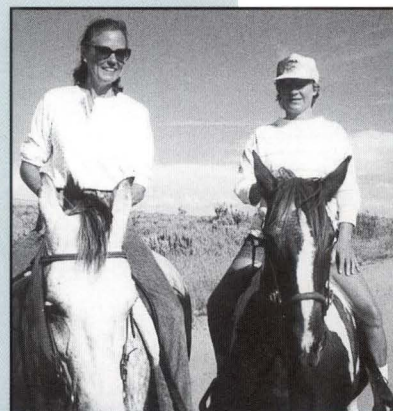
A Park City, Utah, kindergarten teacher, Larsen was first diagnosed with diabetes at age eight. Complications began

with eye problems in 1975. By 1983, her kidneys were on the verge of failure, so she underwent the first transplant. When the donated kidney began to show signs of damage from diabetes, she knew that a new pancreas was the way to go. "I needed to do whatever I could to save the kidney my sister gave me, with all she went through," Larsen explains.

Today Larsen's life is like never before. She raises and rides horses with her husband and their two teenagers. An accomplished athlete, she won four medals — including two gold — in swimming and table tennis at the 1994 Transplant Olympics. And she has not stopped marveling at how wonderful it is to have been freed from the regimen of diabetes.

"I really did the pancreas transplant for the long-term effects," she says. "I never realized how much difference it would make in day-to-day life. Just to be able to do something like go for a hike with my family or go camping — it's so much more fun and relaxing."

Which is where her commitment to giving comes in. By returning periodically to Minnesota so that doctors can monitor her progress, Larsen hopes that she may be helping others one day experience that same "unbelievable" feeling of freedom from diabetes. "Insurance did not pay for my pancreas," she says. "If they keep on with the research proving the transplant is beneficial, then maybe more insurance companies will pay." ■

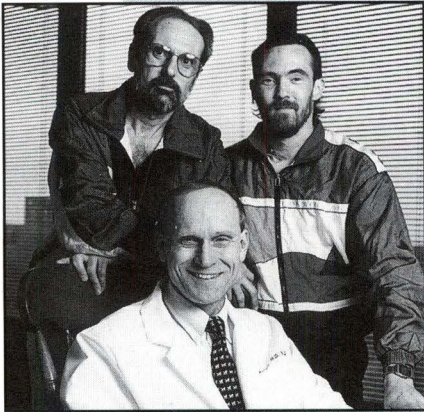


Ann Kinney, left, and Cathy Larsen.

A father's gift

It took hitting a tree at 60 miles an hour to make David Crowell realize that his diabetes had become a life-or-death proposition.

Crowell, a 31-year-old father of two from Cedarville, Illinois, has had diabetes since age 12. Three years ago his ability to control the disease



Wayne and David Crowell and Dr. Sutherland.

began to deteriorate. He lost the ability to sense when his blood sugars were too low, and began to find himself catapulted into uncontrollable insulin seizures. When he blacked out on the drive to work last June, he knew it was time to seriously pursue a pancreas transplant.

"I had given up. I didn't care anymore, I was so fed up and frustrated. But I have two children at home. I had to do something for them," he says.

The first transplant center Crowell went to turned him down because his kidneys were still in good shape. But they also told him about Minnesota's reputation for pancreas-only transplants. After going through the battery of pretransplant testing here, he received part of a pancreas from his father, Wayne Crowell, in April.

Within days of the surgery, Crowell was off insulin and found his circulation improving in his hands and feet. And though he now needs antirejection medication, he views that as a mere inconvenience compared to what he was dealing with as a diabetic. "It's not a big thing," he says. "I'd rather take 50 pills a day than four to eight shots like I was."

As for Wayne Crowell, though the surgery was tough he had no second thoughts about going under the knife for his son. "It's a father's duty," he says. "As painful as it's been, I'd do it all over. It's just like giving him a second chance on life. When they came down and said it worked really well, it was like a cement load off. You can always do material and financial things for your kids. But this is a miracle." ■

Diabetes Basics

The energy that we need to live moves from our digestive tracts to cells throughout our bodies in the form of a sugar, glucose. In order to actually enter cells, glucose needs a special "key" — the hormone insulin. In a healthy person, insulin is secreted by beta cells, clustered within the pancreas in small structures known as islets of Langerhans.

There are many forms of diabetes, but the most common are Type I and Type II. In Type I, a person's own immune system goes awry and attacks and destroys the insulin-producing beta cells. Without insulin, glucose builds up in the bloodstream and cells no longer take in the energy needed to stay alive.

People with Type I diabetes periodically inject themselves with insulin to give glucose the chance to get into cells. However, injections cannot replicate the fine-tuned balance that exists between insulin and glucose in a healthy body. Consequently, many diabetics experience wide swings in blood sugar levels. Short term, the swings can cause a loss of consciousness or seizures. Over time, they can damage the nervous and circulatory systems, causing debilitating side effects such as blindness, kidney failure, heart attacks, strokes, and gangrene.

In Type II diabetes, the body's tissues are partially resistant to the action of insulin, and the pancreas simply can't make enough to do the job. This type is usually managed by diet, weight loss, and oral medications, though some people also need supplemental insulin. ■

Mary Hoff is a free-lance writer specializing in the health sciences.

Sisters with Lupus:

Is there a genetic link?



June Downing and Kate Tabor, participants in the Sisters With Lupus Project, with Shamon.

Wanted: Pairs of sisters with lupus.

Why would somebody be looking for sisters with this disease? Researchers at the University of Minnesota believe systemic lupus erythematosus, an autoimmune disease that affects mainly women, may be an inherited disease. Timothy Behrens, M.D., assistant professor of medicine; Ronald Messner, M.D., professor of medicine and holder of the John F. Finn Arthritis Foundation Land Grant Chair in Rheumatology; and their colleagues in the Division of Rheumatology are conducting a study of sister pairs with lupus to find out if there is a genetic link.

Systemic lupus erythematosus, or lupus, is a baffling disease with a variety of symptoms. It can be mild, with some joint problems and rashes, or it can be devastating, even fatal. The disease is primarily recognizable as a pattern of symptoms combined with the autoantibodies.

As Messner explains, lupus involves some loss of control over the immune system — the body makes a variety of antibodies that work against its own tissues. “Some of those antibodies cause anemia or attack other blood cells and cause bleeding problems or infections,” he says. “Other antibodies circulate as immune complexes in the blood and cause inflammation of the kidney, joints, skin, brain — basically anywhere in the body.” More than 90 percent of cases are in women, and the disease strikes primarily during their reproductive years.

by Jodi Ohlsen Read
photos by Tim Rummelhoff

“Lupus is one of the big challenges in rheumatology,” says Messner. “We have a pretty good idea that lupus has a genet-

Do you and your sister have lupus?

University of Minnesota researchers are looking nationwide for sisters with Systemic Lupus Erythematosus to participate in this study. By identifying inherited genetic factors, they hope to discover why certain women get lupus.

For more information about participating in this study call 1-800-51LUPUS (1-800-515-8787) or write to the Sisters with Lupus Research Project, Division of Rheumatology, University of Minnesota, 14-154 Moos Tower, Minneapolis, Minnesota, 55455. ■

ic basis but the precise defects have been really elusive. It's a question that's been in front of us for a long time but until recently, we just haven't had the tools to approach it in a logical way."

Now, with new gene mapping techniques, Behrens and Messner believe they can begin to examine the genetic connections of lupus. "The search for lupus genes is going to be difficult because there is good evidence that several genes can contribute to disease," explains Behrens. "By studying a large number of families and using the new techniques available for mapping, we hope to first localize the lupus genes to a general area in the chromosomes. By analogy, if we imagine all the DNA to be the size of the state of Minnesota, we're first interested in locating the 'county' and 'town' where the lupus genes are found. We'll then narrow the search to the 'streets' and eventually the 'house,' or the actual lupus genes themselves."

Other gene mapping projects of complex genetic diseases, such as Type I diabetes, have focused on affected individuals within a family. Behrens and his colleagues have decided to take a similar approach in lupus. Since most of the patients with lupus are women, the study will focus on affected sister pairs. Sisters interested in participating in the study are being recruited nationwide. Behrens and his colleagues hope to enroll 300 sister pairs. So far, 150 pairs are enrolled and another 40 prospective pairs have been identified.

Funding for the project currently comes from the Minnesota Lupus Foundation and the Minnesota Chapter of the Arthritis Foundation, and a grant request has been submitted to the National Institutes of Health. A fund to support lupus research is also being established at the Minnesota Medical Foundation.

Sisters with lupus

Kate Tabor and June Downing are sisters from the Minneapolis area who both have lupus. Kate found out about the study first, through her rheumatologist's office, and convinced her sister that it would be a worthwhile effort. "Both my sister and my brother have lupus and I want to do anything I can to help find a cure," says Kate. "They may not develop a cure for me, but I'm concerned about my children. I'll do anything I can to help."

Kate was diagnosed with lupus when she was only 12 years old. Originally, doctors thought it might be some type of juvenile arthritis because

Kate's main symptoms were severely swollen joints and limited mobility. It took some time for doctors to arrive at the correct diagnosis even though she was diagnosed at a relatively young age.

June, on the other hand, wasn't diagnosed until she was pregnant with her first child. A suspicious change in the baby's heartbeat when June was about three months pregnant prompted the doctor to run more tests on both June and the baby — tests that eventually led to a diagnosis of lupus for June and congenital heartblock for her daughter.

Although June's case is relatively mild, both her daughter and son have been indi-



Timothy W. Behrens, M.D., assistant professor and principal investigator for the Sisters with Lupus Project, reviews genetic markers from the DNA of patients with lupus.

rectly affected by her lupus. She is taking part in the Sisters with Lupus Research Project in hope of helping others. "I hope this research will help every family afflicted with lupus and help physicians get a better understanding of the disease," she says.

The notice posted in June and Kate's rheumatologist's office is similar to notices being sent out nationwide. So far, the University researchers have worked to recruit sister pairs through the Lupus Foundation, the National Arthritis Foundation, private practice rheumatologists, and a number of publications. Next they plan to recruit through academic centers and arthritis clinics. The goal is to have a mix of people that approximates the population in the United States — specifically, the aim is to have 200 pairs of Caucasian sisters, 50 pairs of African American sisters, and 50 pairs of Hispanic sisters.



Once sisters express interest in the study, they are interviewed over the phone. Next, the sisters' physicians are contacted, with permission, to verify and obtain medical information. Then a blood sample is drawn from each sister at a convenient location (often at their regular clinic) and that sample is sent on to the University.

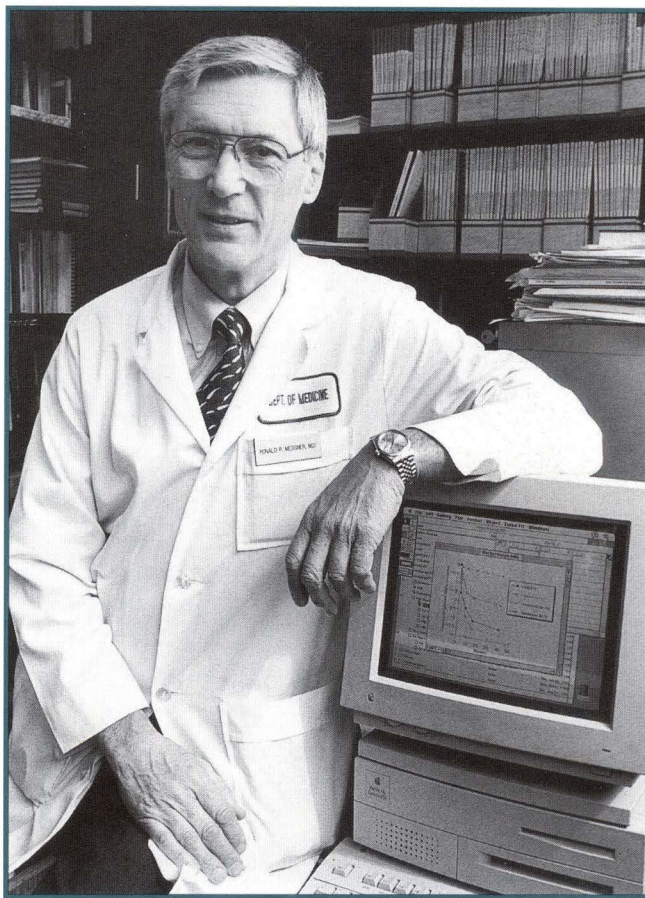
Gene mapping

After they have the blood samples, investigators can begin analyzing the DNA. Thanks to a new gene mapping technique, DNA can be analyzed relatively quickly. James L. Weber, Ph.D., a consultant on the project, is internationally recognized for discovering that the repeating portions of DNA (highly polymorphic short tandem repeat polymorphisms [STRPs]) can be used to map regions of the genome.

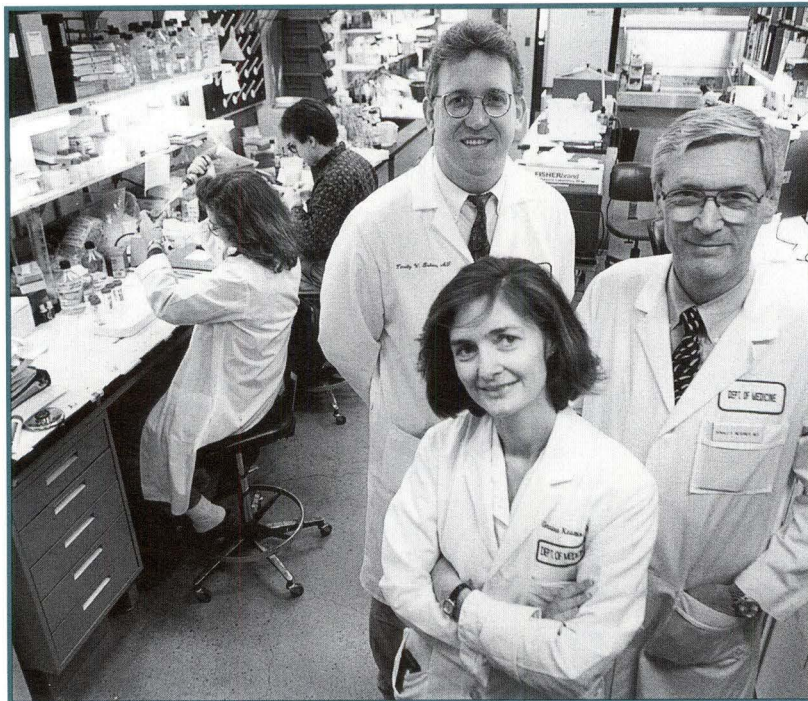
"Within the DNA of each cell, there is a lot of 'extra' DNA of unknown function. Scattered throughout these regions are small repeating units of DNA. The length of these repeats is different from one individual to the next," Behrens explains. "Since the location of these repeats in DNA is known, by looking at the lengths of these repeats we're able to map regions of DNA shared by affected family members. If we study enough lupus sister pairs we should be able to pinpoint the location of the lupus genes.

"This technique has revolutionized how fast this kind of analysis can be done," says Behrens. "Prior to Weber's discovery of these small regions, the mapping was extremely laborious, very time consuming." Messner says, "To even contemplate this kind of study with the older technique, we'd be talking 20 years, compared to five."

The University is one of two groups in the country to use gene mapping to investigate lupus (the other is the Oklahoma Research Foundation). The University group is the first to focus the search on affected sisters only. "This affected individual approach to



Top: Grainne K. Kearns, M.D., postdoctoral associate, talks with sisters interested in the lupus research project. Below: Ronald P. Messner, M.D., professor of medicine and co-investigator for the lupus project.



Drs. Behrens, Kearns, and Messner and their colleagues in the Division of Rheumatology are conducting studies on sister pairs with lupus.

gene mapping has been used to study diabetes, another autoimmune disease, and it's being considered for some other complex genetic diseases like rheumatoid arthritis," says Messner.

Understanding lupus

Through this research, Behrens and Messner hope to better understand the disease and learn more about potential treatment and possibly, gene therapy. "We are hoping to isolate and identify the specific genes, the pieces of DNA, that are involved in the immune system that might be mutated in this disease," says Behrens.

"Once we identify that gene," adds Messner, "we'll know more about how the disease works because we can determine what the gene does — what protein it makes and what

role that protein plays in the metabolism or control of the immune system. Once we know this, we'll be in a much better position to design treatment that is logical and effective."

Current treatment generally involves anti-inflammatory drugs and corticosteroids. Stronger medicines are also used to stop inflammation and shut down the immune process. More effective treatment could be developed based on information from this study.

Environmental factors can also be triggers for the disease, explains Messner. "We know that some people with lupus get worse if they're exposed to the sun. There are a variety of environmental factors that can either unmask lupus or make it worse. If we knew who was at risk, we might be able to use some type of preventative medicine. We could tell them 'these are some things you should avoid because you're at risk for this disease if you take this drug or are in this kind of environment,'" he says.

By identifying the gene or genes responsible for lupus, doctors could have the option of using gene therapy. "If there is a gene defect in one specific gene, then the techniques of gene therapy could be used to replace that gene and possibly improve or cure the disease," says Behrens. Genetic counseling could also be an option for individuals who are aware that the disease runs in the family.

Finally, results from this project could have significant implications for the treatment of other autoimmune diseases in addition to lupus. Says Messner, "We think this is the way to go, to take treatment of this disease to a new level." ■

The Sisters With Lupus Project draws on the expertise of many people, including:

Timothy W. Behrens, M.D., assistant professor, as the principal investigator;

Ronald P. Messner, M.D., professor, as co-investigator;

Richard A. King, M.D., Ph.D., professor, as co-investigator;

Stephen S. Rich, Ph.D., professor at Bowman Gray School of Medicine, as co-investigator;

James L. Weber, Ph.D., senior scientist at Marshfield Clinic, as a consultant;

Sherine E. Gabriel, M.D., associate professor of epidemiology at Mayo Clinic, as a consultant;

Grainne K. Kearns, M.D., postdoctoral associate; and

Michelle Frauenschuh as a principal lab technician. ■

Researchers *of* MERIT

University investigators receive prestigious MERIT award funding.

by Jodi Ohlsen Read

Finding funds for research is an ongoing concern for most investigators. A select few are recognized by their peers for outstanding biomedical research and receive generous long-term financial support for their projects.

Recently, three University of Minnesota investigators received prestigious MERIT (Method to Extend Research in Time) awards, given by the National Institutes of Health (NIH). The awards are presented to investigators who have demonstrated superior competence and outstanding productivity through their previous research.

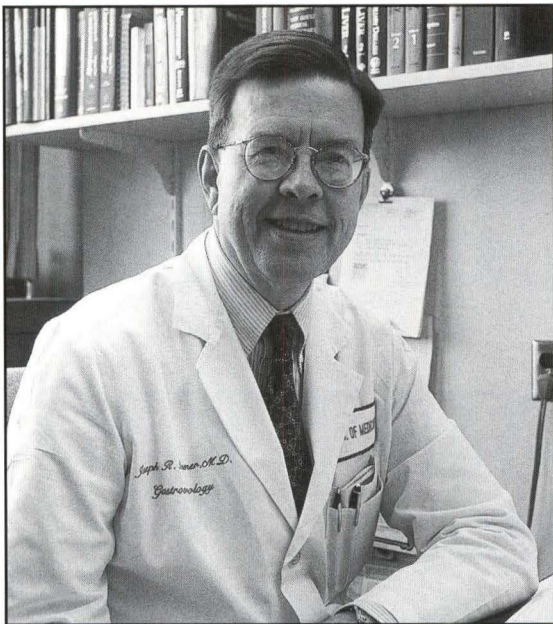
Since 1986, NIH has been offering MERIT awards to provide long-term, stable support to those whose performances have been exceptional. This support fosters continued creativity and spares the researchers the administrative burdens associated with preparing and submitting research grant applications.

Investigators do not apply for MERIT awards. Instead, candidates are singled out for consideration by NIH staff or members of the National Advisory Council after the researchers have submitted research proposals in accordance with conventional NIH procedures.

Selection criteria include a regular research project grant application that is deemed highly meritorious by the initial review groups; 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.

The three researchers profiled here are only a few of the many University of Minnesota investigators currently holding MERIT awards (see sidebar).



Joseph R. Bloomer, M.D.

MERIT Awards

In July 1986, the National Institutes of Health (NIH) established a program of MERIT (Method to Extend Research in Time) awards to recognize investigators in biomedical research who have demonstrated superior competence and outstanding productivity.

University of Minnesota Medical School faculty members receiving MERIT Awards:

Khalil Ahmed, Ph.D., Professor, Department of Laboratory Medicine and Pathology; "Studies of Normal and Neoplastic Prostate"

Robert J. Bache, M.D., Professor, Department of Medicine; "The Coronary Vascular Response to Ischemia"

Joseph R. Bloomer, M.D., Professor, Department of Medicine; "Enzyme Defects in Disorders of Protoporphyrin Metabolism"

Marilyn Caroll-Santi, Ph.D., Associate Professor, Department of Psychiatry; "Environmental and Pharmacological Control of Drug Abuse"

Robert P. Elde, Ph.D., Johnston Land Grant Chair of Neuroscience and Professor, Department of Cell Biology and Neuroanatomy; "Laser Confocal Imaging of Opioid Peptides and Receptors"

Joseph R. Bloomer, M.D.

For more than 20 years, Joseph Bloomer, M.D., has been studying disorders of porphyrin metabolism, called porphyrias. NIH has helped support his work for 18 years and has recently continued that support with a five-year MERIT award totalling \$1.3 million dollars.

"My research focuses mainly on protoporphyria, a disease that makes people hypersensitive to light," says Bloomer, professor of medicine and director of the Department of Medicine's Division of Gastroenterology. Patients with protoporphyria experience intense itching and burning when exposed to sunlight and sometimes even to fluorescent lights. Some patients also develop liver disease which may cause liver failure and necessitate liver transplantation. The University of Minnesota has transplanted livers in more of these patients than any other institution in the world.

"There are eight types of porphyria," explains Bloomer. "Protoporphyrin is the second most common type. And, it's probably more common than we first thought." Protoporphyrin occurs in cattle as well as in humans. It was first diagnosed in cattle by George Ruth, D.V.M., Ph.D., and Sam Schwartz, M.D., of the University of Minnesota College of Veterinary Medicine. Both Ruth and Schwartz are currently co-investigators with Bloomer.

Through his research, Bloomer has shown how faulty enzymes are related to abnormal porphyrin synthesis in humans. He now hopes to find out which genetic mutations are associated with liver disease in protoporphyria. "If we are able to identify which mutations are involved, it may be possible to predict which patients need more aggressive treatment, thus preventing liver damage," says Bloomer.

Thanks to the Cecil Watson Laboratory, Bloomer has an ample number of patients available for study. The Watson Laboratory was established at the University in the 1940s by Cecil Watson, former chair of the Department of Medicine and one of the first to study liver disease in the United States. When Watson retired, the laboratory was moved to another hospital but was reestablished at the University in 1983. Along with the lab, three of the researchers also returned to the University.

"Combined, these researchers had over 100 years of valuable experience," says Bloomer. One of them, Mary Weimer, still works with Bloomer. "It is representative of the long tradition of research at the University," he says. "One of the reasons I came to the University was the history of studies in the porphyrias."

Bloomer and others are working to secure funds for the Cecil J. Watson Laboratory Fund, managed by the Minnesota Medical Foundation. Such an endowment would help the lab be less dependent on Bloomer's NIH grants and would provide support for other investigators.

Bloomer joined the University in 1979 after eight years at Yale University. He was recently elected chair of the Gordon Research Conference for the Study of Pyrrole Compounds, an international research group. He is a member of the Council of the American Association for the Study of Liver Diseases, and will become the association's president in 1999.

David D. Thomas, Ph.D.

Using the tools of physiology, biochemistry, physics, and computers, David Thomas, Ph.D., is exploring the way muscles work. "Basically, we're measuring molecular motions — our goal is to understand and make a movie of

what happens at the level of individual molecules to make force in the muscle," says Thomas, professor, Department of Biochemistry.

Unfortunately, it's not possible to simply make a movie at high magnification while the muscle is moving. Instead, Thomas and his colleagues will put the movie together one molecule at a time. "What we do is attach probes to the specific molecules we want to study. Each experiment involves one probe on one site on one molecule," explains Thomas. "Using this probe technique, called spectroscopy, we can examine the molecules while the muscle is working under actual living conditions." With spectroscopy, Thomas is able to send in light or microwave radiation and get back a signal that tells how a particular molecule is moving.

In support of this research, Thomas has been awarded a five-year MERIT award totalling approximately \$1.5 million dollars. He has previously received three other NIH grants for research in molecular dynamics, biophysical studies of muscle membranes, and transient spectroscopy of muscle.

Until recently, most biochemistry and biophysics muscle research has focused on the shape of molecules rather than on the motion of molecules. Resulting theories have focused on how those molecules fit together and how they might work. Thomas's research is novel because it focuses on the motions in addition to the shapes of the molecules. So far, results have shown that understanding the motion of the protein molecules may be crucial to understanding how they work. "It turns out that it's important for these molecules to be moving extremely rapidly, about a million times a second," he says.

"Through this research, we aim to develop improved spectroscopic techniques, study the proteins that affect muscle function, and use the probes to study the motions of the proteins in the muscle. After measuring the molecular motions, we hope to explain how the muscle works." This work is unique because of the opportunity to directly examine molecular behavior during biological function.

Also, the combination of biology and physics adds to the project's value. "We actually have experts in these different areas right here in this laboratory," says Thomas. "In many cases, this kind of interdisciplinary work is done by collaboration, but in our case, most of it is done right in-house. It's unusual to find all this in one laboratory." The combination of techniques being used is complicated enough that few other groups are even attempting similar research.

Thomas came to the University's Department of Biochemistry in 1979 after completing a postdoctoral fellowship at Stanford University. He also received his Ph.D. in biophysics from Stanford and was a postdoctoral fellow at Boston Biomedical Research Institute and a research fellow at Harvard Medical School. He is currently professor of biochemistry and a fellow of the Minnesota Supercomputer Institute. His research is also supported by a grant from the Muscular Dystrophy Association.

John D. Lipscomb, Ph.D.

"The study of the use of oxygen by living things is quite broad," says John D. Lipscomb, Ph.D. "Oxygen plays essential roles in processes ranging from maintaining the environment to sustaining human life. It turns out that the chemical nature of oxygen prevents it from reacting rapidly with other common biological molecules. This simple fact allows us to exist on earth in a sea of potentially reactive oxygen. Enzymes called oxygenases allow nature to selectively



David D. Thomas, Ph.D.

MERIT Awards (continued)

Leo T. Furcht, M.D., Allen-Pardee Professor and Head, Department of Laboratory Medicine and Pathology; "Molecular Mechanisms in Metastasis: Role of Fibronectin"

Gordon D. Ginder, M.D., Professor, Department of Medicine; "Globin Gene Regulation During Erythroid Differentiation"

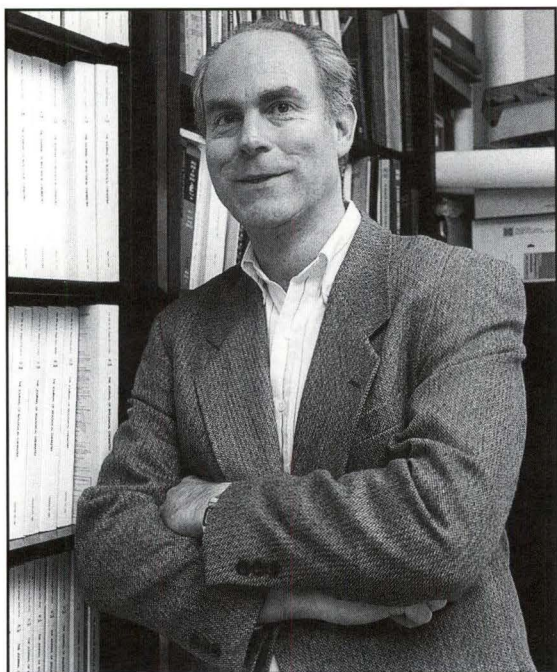
Ashley T. Haase, M.D., Professor and Head, Department of Microbiology; "The Pathogenesis of HIV-Induced Immunodeficiency"

Harry S. Jacob, M.D., Professor, Department of Medicine; "Abnormal Blood Cell Membranes in Disease"

John D. Lipscomb, Ph.D., Professor, Department of Biochemistry; "Oxygenase Enzyme Mechanism"

Horace H. Loh, Ph.D., Stark Professor and Head, Department of Pharmacology; "Structural and Functional Mu Opioid Receptors"

Danuta Malejka-Giganti, Ph.D., Associate Professor, Department of Laboratory Medicine and Pathology; "Mammary Carcinogenesis by N-Substituted Aryl Compounds"



John D. Lipscomb, Ph.D.

MERIT Awards (continued)

Alfred F. Michael, M.D., Regents' Professor and Head, Department of Pediatrics; "Study of Renal Diseases in Childhood"

Robert F. Miller, M.D., 3M Cross Professor and Head, Department of Physiology; "Cell Communication in the Vertebrate Retina"

Simon J. Pilkis, M.D., Ph.D., Professor and Head, Department of Biochemistry; "Hormonal Control of Hepatic Gluconeogenesis/Glycolysis"

Chang Won Song, Ph.D., Professor and Head, Department of Therapeutic Radiation Oncology; "Vascularity and Reoxygenation in X-Irradiated Tumors"

David D. Thomas, Ph.D., Professor, Department of Biochemistry; "Molecular Dynamics of Muscle Contraction"

James G. White, M.D., Regents' Professor, Department of Laboratory Medicine and Pathology and Pediatrics and Associate Dean for Research Development; "Structural Physiology and Pathology of Blood Platelets" ■

use the inherent high reactivity of oxygen in a controlled way for useful metabolic processes. We study selected oxygenase enzymes to learn how they catalyze this essential chemistry."

The studies covered by the MERIT award are specifically directed toward a type of oxygenase called a "dioxygenase" because both atoms of oxygen from atmospheric O₂ are incorporated in the products during the reaction. "These enzymes play the key role in breaking down aromatic compounds in the environment so the carbon these compounds contain can be reused by living organisms," explains Lipscomb. The same enzymes help detoxify potentially toxic aromatic compounds found in pesticides and industrial waste that humans have introduced into the environment.

Human bodies use oxygenases to synthesize essential molecules, including steroid hormones and some amino acids. In the liver, they catalyze reactions that incorporate oxygen into an extraordinary variety of toxins to make them more soluble so they can be excreted more efficiently. "Oxygenases catalyze remarkably unique and efficient chemistry," says Lipscomb. "In this project, we want to find out how they do it.

"All of the work that goes on in this lab, with this grant and with others, is aimed at understanding oxygen chemistry. By studying the overall reactions of the specific oxygenases, we'll learn about the ways nature manages this chemistry in general. The dioxygenase enzymes may be most relevant to the environment, but the chemistry it catalyzes will be similar to the chemistry of related enzymes in the human body, which are more difficult to study."

Lipscomb and his colleagues have purified, characterized, and in many cases, crystallized more than a dozen dioxygenase enzymes. "This set of oxygenases appears to cover the range of known oxygen chemistry, so that information gained from the study of one type of enzyme can be immediately applied to all others," says Lipscomb. "The nature of the enzymes has allowed us to use a wide range of techniques to approach the problem including spectroscopy, kinetics, crystallography, and molecular genetics. I think that this is one of the aspects of the project that attracted the MERIT award. They look for projects that have yielded new information in many areas for an extended period of time."

Lipscomb has been working on this project for 17 years. Initial funding for the preliminary studies that later evolved into the MERIT award came from the Minnesota Medical Foundation as a small grant awarded in 1977. Partial funding for one of the main instruments still in use in these studies also came from MMF. "This sort of seed funding is invaluable," says Lipscomb. "This is even more true in these days of difficult funding." The MERIT award will provide Lipscomb's research laboratory with \$800,000 over the next five years.

Lipscomb began his work at the University of Minnesota in 1975 as a postdoctoral fellow at the Gray Freshwater Biological Institute after earning his Ph.D. in biochemistry at the University of Illinois, Urbana. In 1977, he became a member of the University of Minnesota biochemistry faculty. He is currently co-director of the newly formed University Center for Metals in Biocatalysis, which brings scientists together from throughout the University for the study of metal containing enzymes, including oxygenases. ■

Investing in the Future: Medical Student Scholarships

There is a critical need for scholarships for medical students. Tuition and fees for first-year, Minnesota-resident students are \$14,644 with total annual budgets approaching \$27,000. Tuition and fees for non-residents are \$28,736. In order to maintain the high quality of physicians graduating from the University of Minnesota Medical Schools, the Minnesota Medical Foundation has made scholarship support a top priority. In each issue of the Medical Bulletin we will profile a scholarship currently given through the Minnesota Medical Foundation.

The Albert Sullivan Endowed Scholarship

“Read widely, travel, serve people, and learn as much as you can about as many things as you can” was the counsel Dr. W. Albert Sullivan gave his students. Throughout his life, he followed his own advice, and enriched the lives of everyone he encountered along the way.

The Albert Sullivan Endowed Scholarship, established in 1989, honors the memory of W. Albert Sullivan, M.D., associate dean for admissions and student affairs and associate professor of surgery at the University of Minnesota Medical Schools. In keeping with Dr. Sullivan’s wide range of interests — and his belief in a medical student body of diverse educational backgrounds — the Sullivan Scholarship gives preference to students with undergraduate majors in the non-sciences.

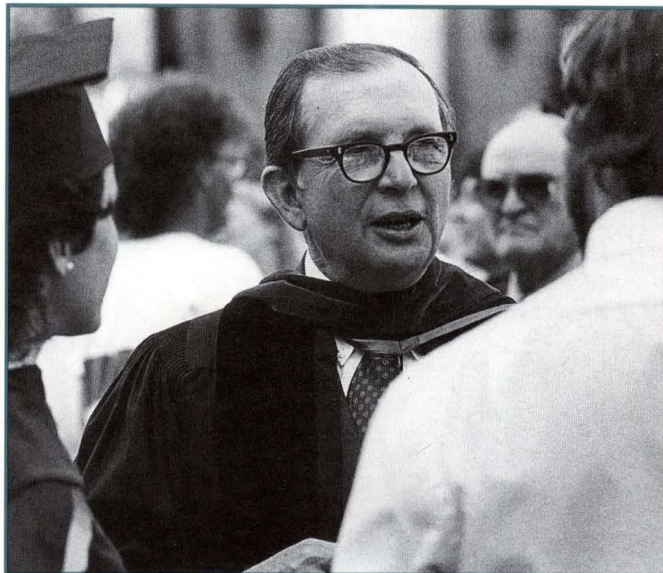
Kari Rabi, class of '98, is the 1995 recipient of the Sullivan Scholarship. Her undergraduate majors, African history and anthropology, reflect the diversity of interests of those receiving the scholarship. Kari was raised in South Africa by parents who taught her the joys of travel, nature, music, literature and much more — interests she retains today.

Kari hadn’t planned to become a doctor, and loved the diversity of her undergraduate studies. She strongly recommends that all students study a wide range of subjects — and explore interests that can last a lifetime.

It was Kari’s physician father who encouraged her to pursue a career in medicine. “We were having lunch one day and talking about my future, and he just said ‘I think you should be a doctor.’” says Kari. She plans to specialize in family practice, and believes it will offer her a great opportunity for diversity in her medical career. “I hope to continue to travel,” she says, “and might practice in locations outside the United States.”

Dr. Sullivan loved to travel, and also loved to use his extensive knowledge of languages. He was fluent in French, and knew Spanish, Italian, Norwegian, and German. He always made a point of greeting international students and colleagues in their native language.

From 1949 to 1951 Dr. Sullivan studied under Professor Rene Leriche at the American Hospital in Paris,



Dr. W. Albert Sullivan

and it was during that stay in Paris that he and his wife, Theresa, were married. They had met at the University of Minnesota when he was a resident and she was in nursing school.

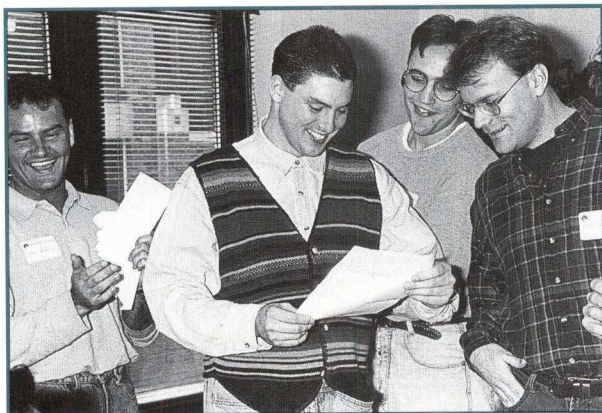
Affectionately known as “Sully” to staff and students, Dr. Sullivan was an active, full-time faculty member at the University of Minnesota Medical School for many years. He first came to Minnesota in 1946 to work on a research project with Dr. Owen Wangensteen, and after completing medical school at Tulane University returned to Minnesota for his internship in surgery. He continued to study surgery for the next 10 years, receiving his M.S. degree in surgery in 1956. The same year, he joined the faculty of the Department of Surgery and was later promoted to associate professor. Dr. Sullivan was named assistant dean for admissions and student affairs in 1968 and associate dean in 1973.

Dr. Sullivan’s principal research and clinical interests were the diagnosis and treatment of carcinoma of the breast, malignant melanoma and other cancers of the skin, and tumors of the parotid gland.

“He loved medicine,” says Mrs. Sullivan. “He loved getting up every day and going to work. Working with the students was exciting and rewarding for him — they would talk about medicine and many other areas of life. He often said he learned as much from the students as they learned from him.”

The Albert Sullivan Endowed Scholarship was established with an anonymous gift from a graduate of the University of Minnesota Medical School in appreciation of Dr. Sullivan’s many contributions to medical students. Kari Rabi and other students that follow her are the beneficiaries, as are the patients who will be cared for by these physicians in the future. ■

— Jean Murray



Fourth-year medical students celebrate at Match Day 1995.

Students matched with residencies

More students are choosing residency programs in primary care. This year, about two-thirds of the University of Minnesota Medical

School students who participated in Match Day, held March 15, selected primary care residencies. Of 226 University medical students, 66 percent chose residencies in primary care, which includes family practice, pediatrics, and medicine. Family practice drew the most students, with 25 percent, and medicine was second with 21 percent. The increase in primary care from approximately half in past years reflects the national trend.

The National Residency Match program, which matches fourth-year medical students with medical residency programs, matched more than 20,000 students nationwide. Students rank their choice of residencies, the institutions rank their candidate preferences, and a computer in Washington, D.C., completes the match.

Most University students, 65 percent, were matched with their first choice and 15 percent received their second choice. Half of the students will remain in Minnesota, with 32 training at the University of Minnesota and 25 in other residency programs at area hospitals. ■



Studies on tea and garlic promising

Drinking green or black tea daily may reduce the risk of cancer of the digestive organs (mouth, esophagus, stomach, bladder, and kidney) in women. **Dr. Wei Zheng**, assistant professor of epidemiology at the University of Minnesota and principal author of the study, says there is a possibility some components in tea block production of cancer-causing agents.

The study looked at 35,000 Iowa women who were divided into three study groups: those who drank tea less than once a week; those who drank tea one to six times a week; and those who drank at least one cup a day. The occasional tea drinkers had 14 percent fewer digestive cancers than the virtual nondrinkers. Daily drinkers had a 75 percent lower risk.

The researchers only looked at green and black teas because many herbal teas do not contain some of the cancer-blocking components.

According to another University study, women who eat garlic at least once a week have a 30 percent lower rate of colon cancer than those who don't. **Dr. Lawrence Kushi**, associate professor of epidemiology, was one of the researchers on the study of 41,000 Iowa women. The women, ages 55 to 69, filled out a 127-item food questionnaire and were monitored for cancer for five years.

The average consumption by women with lower colon-cancer rates was just 2.8 servings a week. A serving is one clove of garlic or one shake of garlic powder. Kushi says that allium, a compound found in garlic, is the apparent source of the anti-cancer effect. Allium is also commonly found in related vegetables such as onions, scallions, chives, and leeks.

Researchers have estimated that up to 90 percent of colon cancer could be avoided with dietary changes. ■

Partial artificial heart implanted

A partial artificial heart was implanted into a 50-year-old Burnsville woman in April by **Dr. Vib R. Kshetry**, assistant professor of surgery and director of the artificial-heart program. The surgery was performed at the University Hospital and was the first procedure of its kind done in Minnesota. The titanium device, Heart-Mate 2000, is meant to temporarily take the place of the left ventricle.

HeartMate 2000 has been approved by the U.S. Food and Drug Administration as a "bridge to transplant," a temporary solution for patients awaiting transplant. The \$45,000 device, while expensive, is still cheaper than long-term intensive care unit costs, according to Kshetry. He says the HeartMate's potential is enormous if approved as a permanent heart replacement because of the shortage of organ donors. ■

DEPARTMENTAL UPDATES

Students elected to Alpha Omega Alpha

Thirty-nine students from the 1995 and 1996 Medical School graduating classes have recently been honored with initiation into Alpha Omega Alpha (AOA). AOA is a national medical honor society that promotes scholarship, encourages high standards in character and conduct, and recognizes high academic achievement.

Election to AOA is a distinction that accompanies physicians throughout their professional careers, and 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 sponsors programs including a visiting professorship, student essay award, and student research fellowships. The Alpha chapter at the University of Minnesota also sponsors scholarships awarded through the Minnesota Medical Foundation to promising medical students in the first two years of medical school.

This year's initiates from the 1995 graduating class include: **Michael Joseph Achinger**, Ormond Beach, Florida; **David Alan Asinger**, Bloomington; **Michael Alan Beneke**, Norwood; **Michael John Brown**, Rochester; **Charlene Connie Card**, Fargo, North Dakota; **Kyungai Mireille Chae**, Seattle, Washington; **Emily Parker Chapman**, Minneapolis; **Alexander Jon Dunkel**, Minnetonka; **Jane Elizabeth Flad**, Mendota Heights; **Thomas Roger Frerichs**, Fergus Falls; **Michael David Heaney**, Willmar; **Rajan Jhanjee**, Minneapolis; **James Nathan Jorgenson**, Austin; **James Thomas Katter**, Minneapolis; **Kristine Anne Kolewe**, Roseville; **Christopher Michael Larson**, Mankato; **Kathy Lynn MacLaughlin**, Rochester; **Kara Lee Maucieri**, Pequot Lakes; **Michael Carroll Momon**, Wausau, Wisconsin; **Kerry Elizabeth Moore**, Chatfield; **Alexandra Lydia Muschenheim**, Wayzata; **Debra Marie Nyquist**, Cloquet; **David Robert Priest**, Shorewood; **Julie Ann Robertson**, Blaine; **Jane Kristin Runzheimer**, Plymouth; **Patricia Ann Schmaedeke**, Edina; **Andrew John Schmidt**, Lansing; **Teresa Gerth Skiba**, Plymouth; and **Marie Angelique Youakim**, Coon Rapids.

Initiates from the 1996 graduating class include: **Jon Owen Ebbert**, Edina; **Jon Eric Fromke**, Edina; **Kirk Fredrick Granlund**, Shoreview; **Heidi Lynn Huebner**, Fridley; **James Frank List**, Minneapolis; **Jacqueline Anne Paul**, Delavan; **Kathryn Ann Paulsen**, Lino Lakes; **Erik Arthur Ranheim**, Minneapolis; **James Aloysius Rooney**, Rochester; and **William Ernest Taylor**, Rochester. ■

Biochemistry

Dr. James Bodley, professor, received a grant of \$23,000 from the graduate school for "The regulation of ribosome movement along mRNA." **Dr. Nelson Goldberg**, professor, received a grant of \$23,000 from the graduate school for "Regulation by adenylate kinase of energy linked cell function." **Dr. James Howard**, professor, received \$257,000 from the National Institutes of Health (NIH) under a contractual agreement with Dr. Douglas Rees of the California Institute of Technology for the project "Crystallographic studies of electron transfer proteins."

Dr. Dennis Livingston, professor, received \$437,321 from NIH as a participant in a project titled "Hereditary ataxia: molecular genetics and pathophysiology."

Community University Health Care Center/Variety Children's Clinic

Drs. Amos Deinard, Leslie Robison, Department of Pediatrics; **Drs. Elsa Shapiro, Cathy Jordan**, Pediatric Neurology; **Becky Yust**, Design, Housing, & Apparel; and **Diane Corrin**, Extension Services; received a five-year \$845,368 grant from the Maternal and Child Health Bureau for the study "Does education limit lead burden?" Deinard has also been elected president of the Minnesota Primary Care Association.

Dermatology

Dr. Mark Dahl has been elected vice president of the Society for Investigative Dermatology.

Laboratory Medicine & Pathology

Dr. David Brown has been appointed to serve a three-year term as a member of the Advisory Committee on Research on Women's Health at NIH. **Dr. Shane Anderson** was named one of two winners of the 1995 Sheard Sanford Medical Student Award. **Dr. Patricia Ferrieri** has been appointed to the FDA's advisory committee on vaccines and related biological products. **Dr. Jeffrey McCullough** received the 1994 John Elliot Memorial Award from the American Association of Blood Banks in recognition of his accomplishments as editor of *Transfusions*.

Dr. Fred Boyd was chosen to participate in the Bush Faculty Development Program on Excellence and Diversity in Teaching. **Dr. Tucker LeBien** has been elected to a four-year term as a member of the Leukemia Society of America grant review subcommittee. **Dr. Leo Furcht**, holder of the W.W. Allen/Elsa U. Pardee Foundation Chair in Cancer Biology, visited Johns

Departmental Updates, continued

Hopkins Department of Pathology as a distinguished visiting professor on May 17. **Dr. John Kersey**, holder of the Children's Cancer Research Land Grant Chair in Pediatric Oncology, has been elected president-elect of the International Society for Experimental Hematology.

Drs. Kristin Hogquist and **Stephen Jameson** will join the department on July 1. Hogquist's primary research focus is the study of the differentiation and development of thymic lymphocytes. She was recently awarded an Arthritis Investigator Award from the Arthritis Foundation. Jameson's focus is on the mechanisms by which engagement of the T cell receptor for antigen (TCR) influences various stages of T cell development and functional reactivity.

Medicine

Dr. Barbara S. Daniels, associate professor, Division of Nephrology, was appointed a member of the General Medicine B Study Section, Division of Research Grants, NIH. **Dr. Karl A. Nath**, associate professor, Division of Nephrology, was appointed to serve on the Pathology A Study Section, Division of Research Grants, NIH. Both terms began October 1994 and end June 1998. Nath was also elected to the American Society of Clinical Investigation.

Dr. Daniel J. Weisdorf, professor, Division of Hematology, has been appointed to the Experimental Therapeutics Study Section 2, Division of Research Grants, NIH. His term began January 1995 and ends June 1998. **Dr. Michael D. Levitt**, professor and associate chief of staff for research at the Veterans Affairs Medical Center, was profiled in a special research series in *Practical Gastroenterology*.

Microbiology

Dr. Pat Cleary has been invited to speak at the Japanese Society of General Microbiology in Osaka, Japan. His topic will be fluctuations in the emergence of highly invasive streptococcal pathogens. **Dr. Marc Jenkins** spoke at several conferences and universities recently. He spoke on visualizing T cell immunity *in vivo* in January at the Department of Immunology, Holland Laboratory, in Rockville, Maryland, and at the 34th Midwinter Conference of Immunologists in California, and in February at the University of Chicago, Stanford University, and at Case Western Reserve University.

Obstetrics & Gynecology

The gynecologic oncology fellowship graduation will be June 16. The guest speaker is **Dr. Julian "Skip" Schink** of the University of Wisconsin-Madison.

The two graduating gynecologic oncology fellows are **Drs. Ellen M. Hartenbach** and **Andrew K. Saltzman**. Hartenbach accepted a position at the University of Wisconsin-Madison where she will be an assistant professor in the Division of Gynecologic Oncology, Department of Obstetrics and Gynecology. Saltzman will become an attending gynecologic oncologist at the Naval Hospital in San Diego.

Ophthalmology

A \$100,000 unrestricted research grant was awarded to the department from the Research to Prevent Blindness Foundation. **Dr. James E. Egbert** was awarded \$31,065 for his work in nystagmus dampening surgery from Blue Cross Blue Shield Foundation of Minnesota. **Dr. Dale S. Gregerson** was awarded \$289,635 for his work in autoimmune uveoretinitis-antigen presenting cells from the National Eye Institute. **Drs. Edward J. Holland** and **Wesley Obritsch** received \$10,000 for their work in efficacy of antiangiogenic compounds on corneal neovascularization from the Storz Division of American Cyanamid Company. **Dr. Linda K. McLoon** received \$162,763 from the National Eye Institute for her work in chemomyectomy for eyelid spasms, and \$48,848 from the National Science Foundation for her work in muscle cell division in the mature extraocular muscles. **Dr. William B. Rathbun** received \$203,212 from NIH for his work in glutathione metabolism in ocular tissues. **Dr. C. Gail Summers** received \$16,150 from the National Eye Institute for her work in cryotherapy for retinopathy of prematurity (CRYO-ROP Phase III).

Best Doctors in America ('94-'95) lists **Dr. Jonathan Wirtschafter**, professor and holder of the Frank E. Burch Research Chair in Ophthalmology, as one of the best doctors in neuro-ophthalmology. **Drs. Donald Doughman**, professor, **Edward Holland**, associate professor and holder of the Elias Potter Lyon Land Grant Chair for Neuroscience Research in Ophthalmology, and **Jay Krachmer**, professor and holder of the Harold G. Scheie Research Land Grant Chair in Ophthalmology, are listed as best doctors in corneal diseases and transplantation.

The University of Minnesota has been named as a clinical center in the collaborative initial glaucoma treatment study (CIGTS), a multicenter National Eye Institute (NEI) trial to determine whether glaucoma is best treated with medication or surgery. **Dr. Martha Wright** is the principal investigator at the University clinical center.

The John E. Harris Visiting Professorship was held Friday, April 7. **Dr. Randy H. Kardon**, assistant professor of neuro-ophthalmology at the University of Iowa, was the visiting professor. The MMF/Vision Foundation professorship fund was established in honor of **Dr. John E. Harris**, former chair of the department, and it enables residents to annually invite a visiting ophthalmology professor.

Dr. J. Timothy Diegel will be speaking at the first Frederic F. Wippermann Medical Legal Ethics Lecture, which has been scheduled for June 9.

Orthopaedic Surgery

Dr. Richard Kyle, associate professor, has been appointed to the board of directors of The American Academy of Orthopaedic Surgeons. Kyle is chair of the Department of Orthopaedic Surgery and medical director of the biomechanics laboratory at Hennepin County Medical Center. He is also the president of Wayzata Orthopedics.

Pediatrics

Dr. David Cornfeld, assistant professor, Division of Pulmonology and Critical Care Medicine, was awarded the Richard D. Rowe Award of the Society for Pediatric Research. **Dr. Patricia Ferrieri**, professor, Division of Infectious Disease, has been appointed to serve on the Vaccines and Related Biological Products Advisory Committee of the Food and Drug Administration. **Dr. Margaret K. Hostetter**, professor and head, Division of Infectious Disease, and holder of the American Legion Heart Research Professorship, was given the National Award for Excellence in Pediatric Research from the American Academy of Pediatrics. She also received the Mead Johnson Award for Research.

Pharmacology

Drs. George Wilcox and **John Carlis** received two-year funding from central administration for the Center for Neuroscientific Databases. In March, **Dr. Bob O'Dea** attended the 1995 United States Pharmacopeial Convention in Washington, D.C., as a delegate representing the University of Minnesota Medical School.

Radiology

Dr. Harry J. Griffiths presented a paper on Trevor's Disease at the Society for Skeletal Radiology in Tucson in March. He is also chair of the research committee for the organization. **Dr. Beth A. Schueler** received the

National Council on Radiation Protection Robert D. Moseley, Jr., Award in Radiation Protection in Medicine.

Drs. James W. Walsh, Peter R. Johnson, and **Arthur E. Stillman** received a grant from Siemens Medical Systems for a study entitled "A prospective comparison of spiral CT and pelvic multi-coil/FSE MR in the pre-operative evaluation of cervical cancer." Walsh will also be presenting a refresher course at the Roentgen Ray Society in Washington on CT/MR of the female pelvis.

Dr. Richard E. Latchaw has been elected vice-president of the American Society of Neuroradiology. **Dr. Robert J. Boudreau** recently completed his term as president of the Central Chapter of the Society of Nuclear Medicine and trustee of the Society of Nuclear Medicine. As immediate past-president he is chair of the nominating committee and retains a voting seat on the board of governors for two additional years.

Surgery

Dr. David Sutherland was appointed head of the University's Organ Transplantation Division and will be the director of the transplant training program. **Dr. David Dunn** was appointed president of the Society of University Surgeons and is now director of the residency program. **Dr. C. Walton Lillehei** received the 1994 Jacob Markowitz Award from the Academy of Surgical Research in Orlando, Florida, for outstanding contribution to the art, science, and technology of experimental surgery. He also spoke at the annual meeting of the American College of Cardiology in March.

A new book, *L'Etoile du Nord: An Account of Owen Harding Wangensteen (1909-1981)*, has been published about former surgery chair Dr. Owen Wangensteen.

Therapeutic Radiology-Radiation Oncology

Dr. Seymour Levitt, professor and head of the department, has been chosen as recipient of the 1995 American College of Radiology's Gold Medal Award. The award is given for distinguished and extraordinary service to the American College of Radiology and the profession. ■

Scholarship winners recognized

Through its scholarship and awards programs, the Minnesota Medical Foundation recognizes outstanding achievement and assists medical students faced with high debt levels. The following scholarships were presented this winter by MMF:

Fritjof Arestad Scholarships

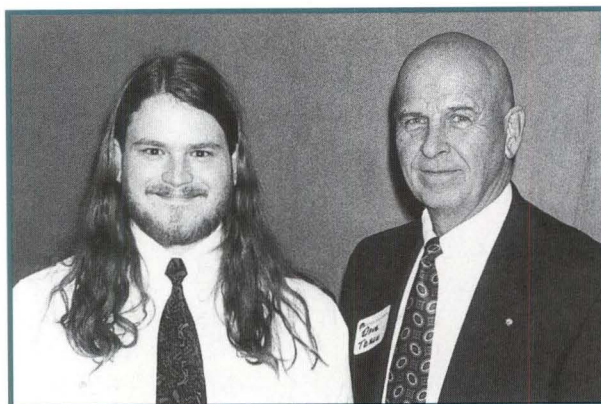
Created by bequest of Gladys E. Arestad in memory of her husband, Fritjof, an alumnus of the Medical School, Class of 1924.

- Beth A. Eiken
- Christopher J. Hansen
- Scott T. Hegstad
- Todd K. Henrickson
- Todd A. Leonard
- Scott B. Marston
- Margaret L. Menezes
- Brent A. Nielsen
- Kevin R. Pimstone

Russell L. Baker, M.D. and Harry R. Baker, M.D. Scholarship

Established by Dr. Russell Baker in memory of his father and in grateful recognition of his own training at the University of Minnesota Medical School, from which he graduated in 1934.

Eric A. Maki



Baker Scholarship recipient Eric Maki with MMF president David Teslow.



Crosbie Scholarship recipients Michael Duong, Bridget Buschmann, and Jill Walworth.

Dr. Henry H. and Pauline E. Blaustone Scholarship

Established by bequest of Dr. Blaustone, an alumnus of the Medical School, Class of 1920, and his wife Pauline.

Blair A. Nelson

Class of 1931 Scholarship

Established by the Class of 1931 as a permanent commemoration of their 50th reunion.

Julie M. Meyer

Class of 1937 Scholarship

Established by the Class of 1937 as a permanent commemoration of their 50th reunion.

Hiren P. Patel

Dr. and Mrs. Stanley B. Crosbie Scholarships

Established by Mrs. Crosbie in honor of the University of Minnesota Medical School, from which Dr. Crosbie graduated in 1941.

- Bridget M. Buschmann*
- Michael H. Duong*
- Heidi L. Huebner*
- Michael C. Momont*
- Jill T. Walworth*

Margaret Dowell Gravatt, M.D., Scholarship

Established by Dr. Dowell-Gravatt, an alumnus of the Medical School, Class of 1944.

Susan Potts Sloan

Robert Dyar Scholarships

Created by bequest of Robert Dyar, M.D., an alumnus of the Medical School, Class of 1934.

- Joseph M. Anderson*
- Joseph C. Ardolf*
- Krystyna P. Bednarz*
- MarySue Beran*
- Kyungai Mireille Chae*
- Peter P. Chuang*
- Ali R. Djalilian*
- Cara B. Ellmann*
- Matthew A. Emme*
- Jane H. King*
- Amy M. Medley*
- Daniel P. Melby*
- Kelsi K. Nelson*
- John S. Wermager*

Dr. Bob and Mary Giebink Scholarship

Established by Robert R. Giebink, M.D., an alumnus of the Medical School, Class of 1942.

Kristin M. Momont

Half-Century Club Scholarship

Established by members of the Half-Century Club in recognition of their Medical School training.

Bryan T. Petersen

James T. Housewright UFCW Scholarship

Established by the United Food and Commercial Workers International Union.

Michael J. Tax

Ludolf J. Hoyer Scholarship

Established in memory of Dr. Hoyer, an alumnus of the Medical School, Class of 1932, by his son Leon, an alumnus of the Class of 1962.

Michael J. Tacheny

Chester and Charlotte Johanson Scholarships

Established in memory of Mr. Johanson's parents, Christine and Per Johanson, who were pioneer Traverse County, Minnesota, homesteaders.

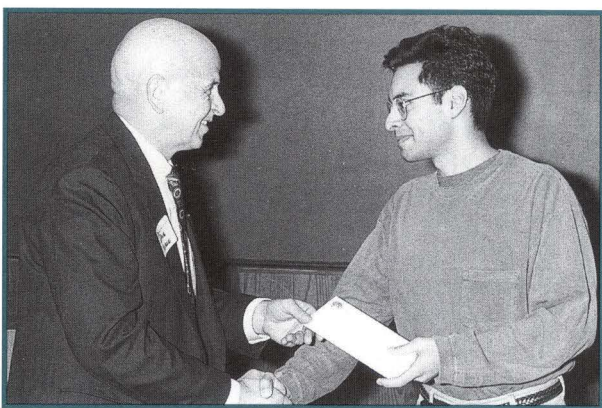
*Bobbi Jo D. Adams
Kathleen A. Bentler
Marilou M.P. Johnson
Louise F. Latterell
Donald J. Lee
Thomas C. Lenzmeier
Richard O. Lundebrek
Joseph D. Moriarty
Melissa R. Miller
Geri S. Newman
Janine E. Rose
Allan E. Ross
Rachel L. Schuneman
Jeffrey A. Sczublewski
Garrett R. Trobec
Roberta J. Van Amber*

Dr. Thomas Kinsella Scholarship

Created by bequest of Thomas J. Kinsella, M.D., an alumnus of the



Dyar Scholarship recipients Mireille Chae, Jane King, Kelsi Nelson, Daniel Melby, and Joseph Anderson.



Strout Scholarship recipient Edris Sahar with MMF president David Teslow.

Medical School, Class of 1919, and his wife, Sarah.
Jason F. Soch

Walter and Elva Lovell Scholarships

Established by a gift from Elva Lovell.

*Joan F. DeWitt
Timothy G. Dirks
Dianne M. Engdahl
Patrick C. Graupman
Kathleen A. Kemmer
Amy M. Putnam
Jay G. Shake*

William A. O'Brien Scholarships

Honors the memory of Dr. William A. O'Brien, a Minnesota public health

physician and educator.
*Craig A. Storm
Kristine P. Woronzoff-Dashkoff*

Parents' Scholarship

Established by Medical School parents in conjunction with the Centennial Scholarship Campaign.

Brandon L. Allard

Malcolm and Ruth Pearson Scholarship

Created by bequest of Dr. Pearson, an alumnus of the Medical School, Class of 1935, and his wife, Ruth.
Janalynn Fish

Samuel J. Ravitch Scholarships

Created by bequest of Samuel J. Ravitch, M.D., an alumnus of the Medical School, Class of 1926, and his wife, Louise M. Ravitch.

*Joshua S. Brown
Mari B. Daniels
Kristine Leonard Knudten
Karin M. Rettig
Diana M. Saari
Jeffrey R. Weis
Mark E. Wilson*

Eugene S. Strout, M.D., Family Practice Scholarship

Established by Dr. Strout, an alumnus of the Medical School, Class of 1964.

Edris Sahar

Albert Sullivan Endowed Scholarship

Honors the memory of Dr. Sullivan, associate dean of the Medical School, and for 34 years a member of the faculty.

Kari L. Rabie

Dr. Hulda Thelander Scholarships

Established by bequest of Dr. Thelander, an alumnus of the Medical School, Class of 1924.

*Rael A. Bennett
Todd M. Beste
Laura A. Black
Joleen M. Fincken
Leslie J. Hillman
Kim M. Koffler
Matthew D. Munding
Andrew J. Schmidt ■*

MMF Grant Recipient: Rolf Gruetter, Ph.D.

Glucose, a carbohydrate whose combustion is used to generate energy to maintain normal organ function, plays a role in many human diseases, including diabetes, alcoholism, and obesity. How amazing it would be to look inside the live human body and watch exactly how glucose is used. With new magnetic resonance spectroscopy and imaging technology, this is now possible.

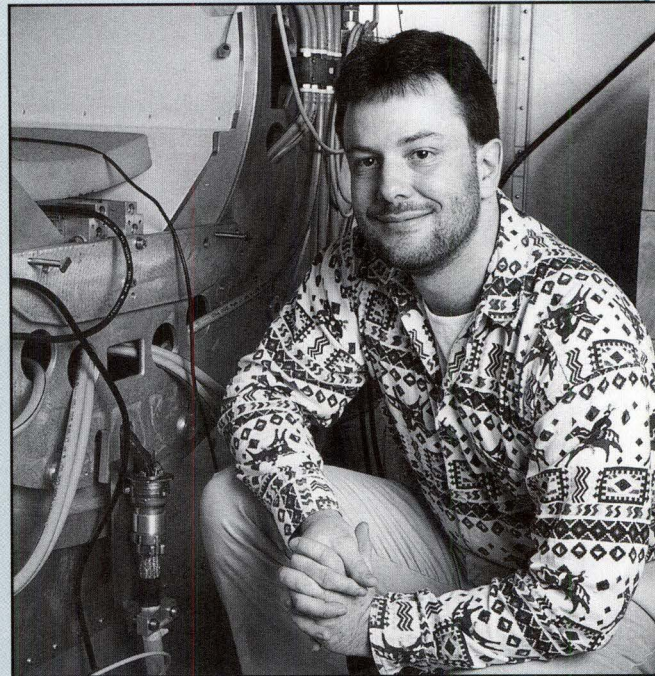
Rolf Gruetter, Ph.D., Department of Radiology, is conducting several studies on glucose metabolism. "Now we can measure major glucose storage with magnetic resonance spectroscopy. We can watch it go into different places, different organs, and measure glucose distribution without cutting any tissue. There is no other technique available to measure specific sites of the molecule," he says.

Gruetter received a \$10,000 grant from the Minnesota Medical Foundation (MMF) in support of his work with magnetic resonance (MR) imaging studies of glucose metabolism in humans. He hopes his work will lead to better understanding of these human diseases and of physical fitness. Gruetter was one of 18 faculty members to receive a grant from MMF this winter. In total, the MMF board approved \$169,514 in faculty and student grants.

The grant will fund several pieces of equipment (a Harvard Infusion Pump 44, Beckman Glucose Analyzer, and a Beckman Microfuge E) that will provide the means for studies on glucose metabolism. "The equipment will enable the development of a whole new area of research related to human biochemistry at the Center for Magnetic Resonance Research," says Kamil Ugurbil, Ph.D.

The Center for Magnetic Resonance Research (CMRR) supports intradisciplinary and collaborative projects in biomedical sciences. CMRR is equipped with a 4 Tesla human magnetic resonance/spectrometer system — one of only three in the world. It permits the development of new and novel techniques for studying physiological and biochemical processes in the human, non-invasively. This instrument can be used to examine metabolic processes in humans, particularly metabolic processes that can be studied completely non-invasively using MR spectroscopy techniques and labeled substrates.

Specifically, Gruetter will study glucose metabolism



Rolf Gruetter, Ph.D.

under a variety of conditions, including in normal humans during brain activation, effects of diabetes, or other human diseases. He is also interested in how well glycogen storage in the muscle is affected by physical activity and in examining pancreas transplantation and the way glucose is stored. "We hope that the research conducted with this equipment will have a strong impact on the treatment and prevention of diseases whose causes are due to derangements in glucose metabolism," he says.

Gruetter is one of the few nationally-known experts in glucose and glutamate MR spectroscopy, a new and improved technique which presents an exceptional new opportunity to examine brain chemistry. He was recruited with much effort by Drs. Ugurbil, David Brown, and R. Paul Robertson who see his research interests as critical ingredients in making the highly unique magnetic resonance facilities at the University of Minnesota more accessible to human investigation.

"I realized there are certain key elements needed to make this research work," says Gruetter. "The main thing is to have a strong magnetic resonance research center and a strong clinical center — the University has both. ■"

MMF approves \$169,514 in grants

At its winter quarterly meeting, the Minnesota Medical Foundation board of trustees approved \$169,514 in research and special grants. The amount includes \$62,214 in faculty research grants, \$99,200 in special grants, and \$8,100 in student grants.

FACULTY GRANTS include: **Kenneth W. Adolph, Ph.D.**, Biochemistry, \$6,000, cDNA and genomic structures of "Metaxin"-related genes; **James R. Carey, Ph.D.**, Physical Therapy, \$4,000, Evaluation of joint movement control in the "uninvolved" hand of hemiplegic subjects; **William B Dobyms, M.D.**, Neurology, \$5,000, Molecular genetic studies of neuronal migration; **William C. Engeland, Ph.D.**, Surgery, \$5,714, Adrenal function in transgenic mice with ablated PNMT-producing cells; **Richard D. Estensen, M.D.**, Lab Medicine and Pathology, \$4,000, Rapid, high throughout assay for chemicals that prevent cancer; **Nelson D. Goldberg, Ph.D.**, Biochemistry, \$7,000, Rapid regulation of cell energy metabolism and function by catalytic transfer of phosphoryls; **Harry M. Hoberman, Ph.D.**, Psychiatry, \$6,000, Multidimensional developmental psychotherapy for dysthymic adolescents; **Allison Hubel, Ph.D.**, Lab Medicine and Pathology, \$3,500, Application of magnetic resonance imaging to water and cryoprotectant transport; **Robert A. Kratzke, M.D.**, Medicine, \$7,000, p16 expression in mesothelioma; **Nancy L. Reinsmoen, Ph.D.**, Surgery, \$4,000, Correlation of allogenic microchimerism and donor antigen (Ag); **Clifford J. Steer, M.D.**, Medicine, \$7,000, Regulation of apoptosis by TCF-beta 1 in human hepatoma cells; and **Warren J. Warwick, M.D.**, Pediatrics, \$3,000, IL2 bioassay in a corticosteroid-sparing study of cystic fibrosis patients.

SPECIAL GRANTS include: **Thomas T. Amatruda, M.D.**, Medicine, \$10,000, Molecular characterization and staging of lung cancer: I. prospective collection of tumor samples; **Rolf Gruetter, Ph.D.**, Radiology, \$10,000, *In vivo* magnetic resonance studies of glucose metabolism in humans at 4 Tesla; **Louise Nutter, Ph.D.**, Pharmacology, \$9,200, Luminescence analysis of biological molecules; **Theodore R. Oegema, Jr., Ph.D.**, Orthopaedic Surgery, \$20,000, Alterations in musculoskeletal connective tissue metabolism; **Christopher Pennell, Ph.D.**, Lab Medicine and Pathology, \$20,000, Matching funds to purchase a BIAcore system; and **Paul G. Siliciano, Ph.D.**, Biochemistry, \$30,000, Phosphorimager and densitometer facility.

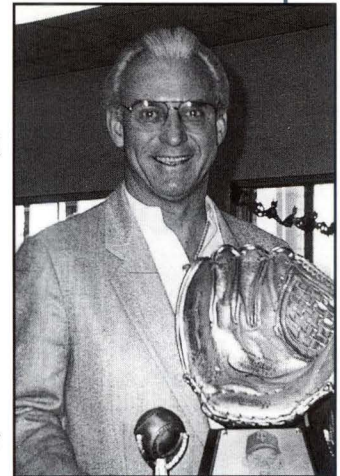
STUDENT GRANTS include: **Jeffrey D.**

Anderson, \$1,800, Biomechanical study of ankle tape-orthosis and surgical reconstruction for the unstable ankle; **Mireille Chae**, \$1,800, Immunohistochemical characteristics of nodular basal cell carcinoma; **Peter Scal**, \$1,800, Characteristics of programs which help youth with chronic illness and disabilities make transition from pediatric to adult health care; **Stephen C. Schmechel**, \$1,800, Investigation of translational stimulating activity of the reovirus protein sigma 3 in transfected cells; and **Payam Tristani-Firouzi**, \$900, CK2 activity in subnuclear compartments of squamous cell carcinoma of the head and neck. ■

Bob Allison, former Minnesota Twin and founder with his family of the Bob Allison Ataxia Research Center, died April 9 at his home in Rio Verde, Arizona. He was 60 years old and had suffered from ataxia for eight years. Allison and his family have been leaders in the effort to find a cure for ataxia, and were instrumental in establishing the Research Center at the University of Minnesota about five years ago.

Allison played for the Minnesota Twins from 1961 to 1970. He played in two All-Star Games and helped the Twins win the 1965 American League Championship. His sliding catch of a Jim Lefebvre drive in Game 2 of the 1965 World Series is a highlight in Twins history. Allison remained in the Twin Cities following his baseball career, working as general sales manager for Coca-Cola Bottling Midwest Company until his retirement in 1988.

Memorials can be sent to the Bob Allison Ataxia Research Center, Minnesota Medical Foundation, P.O. Box 64001, St. Paul, MN 55164. ■



Bob Allison with Golden Glove Award.

MMF AFFILIATES

Bob Allison Ataxia Research Center



Bob Allison
Ataxia
Research Center

The Minneapolis and St. Paul Minutemen, a group of business people dedicated to promoting professional and amateur sports events in the Twin Cities, held their annual Pro Sports Banquet February 6 at the St. Paul Radisson Hotel. The Minutemen have donated the proceeds from the auction that evening to the Bob Allison Ataxia Research Center. Approximately \$5,000 was raised this year. The combined Minneapolis and St. Paul Minutemen organizations have raised more than \$35,000 for the Ataxia Center over the last four years. For more information, please call 1-800-922-1MMF. ■



Children's Cancer Research Fund

Golf pro Tom Lehman will host the Norstan Challenge golf benefit at the Minneapolis Golf Club on July 3. The Norstan Challenge will feature Lehman and three of his colleagues

from the Professional Golf Association Tour. A golf clinic with the four players will be held prior to the event; the tournament will cover 18 holes and include prizes and a medal play competition. The golf benefit is open to the public but ticket sales are limited.

The fourth annual A Cause for Applause, Dayton's celebration of fall fashion, entertainment, and contemporary dance, is scheduled for Thursday, July 27, at the Historic State Theatre in Minneapolis. Previously, this event has generated more than \$300,000 for CCRF. The Broadway-like production will feature Dayton's fall fashions, Myron Johnson's Ballet of the Dolls dance company, and other entertainers.

A drawing for a log home and furnishings will be featured at the fifteenth Dawn of a Dream benefit in January. The home, being built in conjunction with *Country Home* magazine and the Mall of America, will be housed in the Mall until it is dismantled in January. CCRF will host tours of the home while it is in the Mall. For more information, call 612-929-5535 or 1-800-922-1MMF. ■

Diabetes Institute for Immunology and Transplantation

More than 60 people attended a reception in New York City in February to hear presentations by the Institute's director, Dr. David Sutherland, and Dr. Bernhard Hering, director of the International Islet Transplant Registry in Giessen, Germany. Sutherland and Hering discussed current efforts in islet research and transplantation to cure and prevent diabetes.

The Institute's International Pancreas Transplant Registry program recently received a \$35,000 grant from the Juvenile Diabetes Foundation to support a study involving follow-up of pancreas transplant recipients. The Registry is a global database which maintains and shares valuable information on procedures and outcomes of pancreas transplant surgery performed throughout the world. For more information, see page 2 or call 612-625-9126 or 1-800-922-1MMF. ■

International Hearing Foundation

For the fourth year, the International Hearing Foundation has sponsored an annual medical mission to treat ear diseases in Senegal, Africa. Drs. Oleg Froymovich and Jesse Wardlow recently returned from Senegal where they treated patients and trained ear-nose-throat specialists. In June, Dr. Malick Diop of Senegal will be coming to the University on a Fulbright Scholarship to conduct research in otopathology. ■



University Children's Foundation

The sixth annual Catch a Rising Star benefit is scheduled for Sunday, July 16, at the home of Roger and

Lynn Headrick. The theme is "Caribbean Starlite" and the event is co-chaired by Shirley Horn, Carol Erickson, and Ingrid Hoyt. Proceeds support research in the Department of Pediatrics.

The third annual Nordstrom Back to School Fashion Show is scheduled for Saturday, August 12, at the Mall of America. Children who have received medical services and care from faculty in the Department of Pediatrics volunteer as models.

The Fourth Annual Pediatric Recognition Banquet takes place on Friday, June 16. The event celebrates the educational and research efforts of faculty and staff in the Department of Pediatrics as well as the lifelong achievements of distinguished community-based and academic pediatricians. For more information, call 612-625-1148 or 1-800-922-1MMF. ■

University of Minnesota Cancer Center

Construction of the new Masonic Cancer Research Building continues on schedule, with occupation targeted for early 1996. The exterior of the Cancer Center's new research facility was completed in January. Plans are in progress to organize tours this summer for donors interested in visiting the construction site.

Candidates have been selected to interview for the Winston and Maxine Wallin Chair in Cancer Prevention and Genetics and the Tickle Family Chair in Breast Cancer Research. Both chairs will be filled by nationally prominent cancer researchers.

Through the dedication of the UCAN Fund board and other volunteers, a number of fundraising events are being planned, including a garage sale, a private operatic recital, an art auction, and a golf tournament. If you have a fundraising idea to benefit the Cancer Center, please contact Barbara Zimmerman, associate director of development, at 612-625-3650 or 1-800-922-1MMF. ■



Variety Children's Association

Variety Children's Association hosted a Valentine's Day Party for patients in the University-Variety Hospital for Children. The carnival featured a "heart" walk, cookie decorating, bean bag toss, tattoos, face painting, and other treats. Children also had the opportunity to have their



photos taken with lifesize cardboard standups of celebrities such as Captain Piccard, Captain Kirk, and the Little Rascals.

The annual Variety Children's Association-Snyder's Golf Tournament will be held Monday, June 5, at the Minnetonka Country Club. Proceeds will benefit the Kids Club TV and Game Show produced by Child and Family Life. The tournament will be double shotgun at 8:00 a.m. and 1:30 p.m.

Snoopy, from Knotts Camp Snoopy at the Mall of America, will be visiting the Children's Center the sec-

ond Tuesday of the month. Snoopy will also be appearing on Kids Club TV prior to visiting the children on floors 4, 5, and 7 of the University-Variety Hospital for Children. For more information, call 612-624-6900 or 1-800-922-1MMF. ■

Vision Foundation

The 9th Annual Thanksgiving for Vision celebration has been scheduled for Saturday, September 23. The event is sponsored by the Minnesota Lions Eye Bank to honor Lions Clubs and individuals making significant contributions to eye research and education.



The Eye Open Golf Tournament was held Saturday, May 20, at the Les Bolstad University Golf Course. The event is sponsored by the University of Minnesota Eye Association and all money raised supports the Department of Ophthalmology research and education program.

The Vision Foundation has appointed David Bolt, an attorney practicing in Anoka, as chair of its fund-raising committee. He first became involved with the Foundation as a testimonial speaker for the Thanksgiving for Vision celebration. His daughter, Hannah, age 8, has been Dr. C. Gail Summer's patient for the past seven years.

Gift of Sight tours will be offered in June and November. The tours are open to all interested persons and will focus on the Department of Ophthalmology research facilities, including the Lions Research Building. For more information, call Tami Petersen at 612-625-8992 or Cynthia Livingston at 612-625-9613. ■

Women's Health Fund

The Women's Health Fund held its second annual Mother's Day Cabaret on Sunday, May 14, at the Acme Comedy Club in downtown Minneapolis. About 200 guests enjoyed an evening of dinner, silent auction, and entertainment, hosted by KARE-11 news anchor Paul Magers and featuring comedian Marilyn Belgen. Proceeds from the event benefit the Mature Women's Health Research Fund.



WOMEN'S
HEALTH
FUND

Recent major gifts include donations by Charles Erickson and Mr. and Mrs. Robert Nelson to establish an

endowment in memory of their late wife and daughter Suzanne Nelson Erickson; and a bequest from the estate of Herbert W. Schladinske.

For more information about the Women's Health Fund, call 612-626-2612 or 1-800-922-1MMF. ■

School of Public Health

The Blue Cross and Blue Shield of Minnesota Foundation has made a gift of \$500,000 to endow a professorship in the Institute of Health Services Research at the School of Public Health. Through the University's new matching fund program, the gift received matching funds of \$167,000. The endowment to the School's Institute for Health Services Research is the first received by the institute and the first made by the foundation. The new professorship is the sixth endowed faculty position at the School of Public Health and was recognized at a dinner hosted by University President Nils Hasselmo and Mrs. Hasselmo on March 16.

Roger Feldman, Ph.D., has been appointed to hold the new professorship. Feldman is a professor at the Institute for Health Services Research and the Department of Economics at the University, and served on the Senior Staff of the President's Council of Economic Advisors. He directed one of four national research centers sponsored by the Health Care Financing Administration from 1988 to 1992 and was a member of the Congressional Budget Office Expert Panel on Managed Competition.

For more information about the School of Public Health, call 612-624-6669 or 1-800-922-1MMF. ■

President's Report

This year much has been accomplished by the Medical Alumni Society,

including increased activities around the state and country, greater support of medical student activities, opportunities to link alumni with students, and many other efforts aimed at reacquainting alumni with their Medical School and improving the student experience.

We will be calling our alumni to action again this fall to help with mentoring and Residents Away From Home (RAFH). Last year our pilot project in mentoring was a great success, and we hope to expand the program. There is more need now than ever before to assist students on residency site visits. We hope you will consider helping. It also gives you the opportunity to meet a current student who can give a student's perspective of the U of M.

The annual alumni social has been postponed until this fall. We hope the event will give our alumni an opportunity to meet with our new dean, Dr. Frank Cerra, and hear about his vision for the future of our Medical School. We will plan an early fall event, so watch your mailboxes.

We are looking for individuals who are interested in being part of the Medical Alumni Board. Candidates should have a sincere interest in helping our Medical School and its students. If you or someone you know would be a good board member, please nominate them. Do not hesitate to nominate yourself.

The Alumni Annual Fund is ahead of last year, but your help is needed. It would be great to see 35 to 40 percent of alumni supporting the fund at the Minnesota Medical Foundation this year. There is still time to send in your gift. Thank you to those who have already given. Your support is greatly appreciated. If you are interested in volunteering or have a suggestion, please call the Medical Alumni Office at 612-625-8676 or 1-800-922-1663. Your involvement is welcome and encouraged.

Sincerely,



Dorothy J. Horns, M.D. '76
President
Medical Alumni Society



Alumni Profile

Dr. Patricia Cole, Class of 1973, has been named Alpha Epsilon Iota (AEI) Woman Physician of the Year. AEI, a professional society of women physicians, gives the award to recognize outstanding contributions to the medical community in education or service.

Growing up in Green Bay, Wisconsin, Patricia Cole's path to a career in medicine began in ninth grade when she was directed by a teacher to interview a lab technician. "I knew right then what I wanted to do with my life," she says, "not so much being a lab technician, but *running* a lab."

Cole took the next step in her career when she went to Carleton College in Northfield, Minnesota, and majored in biology. It was there that she met and married Richard Cole.

Shortly before graduation, Dick was diagnosed with Hodgkin's Disease. Pat and Dick decided to go ahead with their plans to attend medical school at the University of Minnesota. Patricia Cole recalls sitting in a lecture hall studying things that she and her husband had lived through the day before. "It was a painful time, but it was also very meaningful," Cole remembers. "It shaped my career."

Although he was two credits short of completing his degree in medicine, the Medical School's administrators saw to it that Richard received his M.D. before he died in the spring of 1974. "Small acts of humanity

are possible even at ponderous institutions like the U," says Cole. "I have warm feelings about the University."

After her residency, Cole founded what is now Riverside Family Physicians and taught part-time at the University of Minnesota Medical School. She went on to become unit director at Riverside Medical Center where she oversaw the education of medical residents. She is now program director at Hennepin County Medical Center (HCMC).

Cole enjoys her relationship with students and residents. "I help them find what's in themselves and encourage it to grow and shape." Her best advice to medical students is to "attend to themselves as persons, to have a life and to do the things that nourish them."

Cole is currently assistant professor of family practice at the University of Minnesota and the mother of four teenagers. The AEI Woman Physician of the Year recipient is honored with a gift of \$1,000 donated in her name to a favorite charity. Cole has directed the donation to the Richard Cole Loan Fund at the Minnesota Medical Foundation. The Richard Cole Loan Fund, named for her late husband, provides low-interest loan money to third- and fourth-year medical students at the University of Minnesota Medical Schools in Duluth and Minneapolis. ■



Dr. Patricia Cole

Bemidji area reception planned

Plans are underway for a Northern Minnesota reception for alumni and friends of the University of Minnesota and the Medical Schools. Dr. Richard ('69) and Nilla Stennes have invited alumni to their resort in Blackduck, Minnesota. The reception is tentatively planned for Saturday afternoon, August 19, at the Moose Lake Resort, located 25 miles from Bemidji.

The afternoon provides an opportunity to enjoy the great north woods, fellow alumni and friends, and to find out what's new at the University of Minnesota Medical Schools and the rest of the University. This will be the third year of this popular event.

If you vacation in the area and would like to learn more about the event, please call the Medical Alumni Office at 612-625-8676 or 1-800-922-1663. ■

Winter Medical School receptions held

This past winter a number of very successful receptions were held for the University of Minnesota Medical Schools. Alumni and friends gathered in Arizona, Florida, Washington, Oregon, Texas, and California.

Paul and Marilou Birkeland hosted a reception for the Minnesota Medical Foundation at their home in Desert Mountain, Arizona, with nearly 50 alumni and supporters of the Medical School in attendance. Birkeland is chair of MMF's board of trustees. Interim Medical School Dean Shelley Chou and former Medtronic CEO Win Wallin spoke about the Medical Schools and the Academic Health Center.

Emeritus Dean Dr. N.L. Gault, Jr., was the featured speaker at the home of Dr. Lester ('38) and Devra Breslow in Los Angeles. The Breslow reception was particularly rewarding — one of the guests was a bone marrow transplant patient who told how she came to the

The 5th Annual MMF Golf Classic

Monday, August 28, 1995

North Oaks Country Club,
North Oaks, Minnesota
Double Shotgun Start
(morning and afternoon starts)
Scramble Format
Entry Fee \$200 (\$60 tax-deductible)

The MMF Golf Classic, now in its fifth year, has quickly become one of the Twin Cities' premier golf events. This scramble format tournament provides a challenging but enjoyable round of golf for players of all skill levels.

Last year's event raised over \$40,000 for medical research and scholarships at the University of Minnesota Medical Schools (Minneapolis and Duluth). The past four tournaments have raised a total of more than \$140,000, with this year's tournament promising to be the most successful yet.

Golfers may sign up as a foursome or as individuals. Interested parties are encouraged to call for more information soon. Space is limited and the past few Classics have all been sellouts. For more information or to register call 612-625-1440 or 1-800-922-1663.

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University of Minnesota after researching the high quality care offered here.

Other receptions were held in conjunction with the University of Minnesota Alumni Association and the University of Minnesota Foundation. Drs. Paul Volberding ('75) and Molly Cooke welcomed alumni to the all-University event in San Francisco, while Dr. John (resident alumnus) and Debra Blum welcomed alumni to San Diego.

If you would like more information about Minnesota receptions in your area or would like to host a reception, please contact the Medical Alumni Office at 612-625-8676 or 1-800-922-1663. ■

CLASS NOTES

1945

Dr. Roy W. Dickman, Edina, Minnesota, is currently working on *History of Medicine: Scott-Carver County and Medicine and Medical Training in Minneapolis and at the University of Minnesota During the War Years (WWII)*.

recently spent four months at Royal Victoria Hospital of McGill University in Montreal, Quebec, Canada.

1966

Dr. C. Paul Martin, Marshall, Minnesota, has practiced internal medicine in Marshall for the past 20 years. He is now completing a Bush Medical Fellowship in dermatology with experiences at the University of Minnesota Hospital and Clinic, Kings College Hospital in London, and Kaiser-Permanente Health Care Systems in California. He also writes test questions for the American Board of Family Practice and teaches Rural Physician Associate Program (RPAP) students in Marshall.

1948

Dr. Vernon (Pop) F. Perrigo, Edina, Minnesota, retired from practice in California in 1983 and returned to Minnesota. In 1990 he became a *locum tenens* with the Medical Doctors Associates of Norcross, Georgia. Dr. Perrigo received a special citation from the Federal Aviation Administration for his work with the FAA at a December 1994 seminar in San Diego.

1961

Dr. John J. Salchert, Cold Spring, Minnesota, was awarded a Bush Medical Fellowship to study palliative medicine and pastoral care. He

Dr. Norm Solberg, Minneapolis, spent two weeks in Jalapa, Mexico, during January where he worked in a medical clinic. He performed tubal ligations and minor surgery.

1979

Dr. Robert A. Olivares, El Paso, Texas, recently joined Anesthesia Consultants, Assoc., a 24-member anesthesiology group practice, as a partner.

1981

Dr. Deborah L. Wexler, St. Paul, executive director of the Immunization Action Coalition and Hepatitis B Coalition, was invited by the National Immunization Program and the Hepatitis Branch at the Centers for Disease Control and Prevention to be a member of an advisory group. The group's purpose is to establish a plan to prevent hepatitis B virus transmission among children of

first-generation immigrants and refugees. She is also the editor of *Needle Tips* and the *Hepatitis B Coalition News*.

1985

Dr. Deborah S. Quanbeck, Minneapolis, was inducted as a fellow of the American Academy of Orthopaedic Surgeons in February.

1986

Dr. Michael Overdahl, Fort Wayne, Indiana, has joined Indiana Regional Medical Consultants, PC as a pulmonologist/intensivist. Formerly, he was in an academic position at Ohio State University in Columbus, Ohio. ■

volunteered for duty during WWII and received the commission of captain in the U.S. Army Medical Corps. Dr. Frank founded Day Hospital at Nassau County Medical Center. He specialized in psychiatry and was a life member of the American Psychiatric Association. Dr. Frank is survived by his wife, Else, and two sons.

CARL A. FOSMARK, M.D., Class of 1937, died September 21 at age 85. Born in Columbia County, Wisconsin, Dr. Fosmark served in the U.S. Air Force from 1942 to 1946. He was an active family physician in Madison from 1946 until his retirement in 1993. He was a member of the Dane County Medical Society, the State of Wisconsin Medical Society, and the American Medical Association.

LEROY F. GEIS, M.D., Class of 1965, died March 17 at age 87. Born in St. Paul and raised in Marystown and Shakopee, Minnesota, Dr. Geis served in the U.S. Navy. He earned his B.A. from St. Cloud and his M.A. from Iowa State University and taught school until he enrolled in medical school. After receiving his M.D. in 1965, he practiced dermatology and family medicine. Dr. Geis was an active medical volunteer at the Our Lady of Good Counsel Home. He is survived by his wife, Dorothy, and five children.

JOSEPH GELLER, M.D., Class of 1957, died in April at age 72. He practiced at the former Belzer Clinic in Minneapolis. Dr. Geller is survived by his wife, Elaine, and four children.

ISADORE M. GOLDBERG, M.D., Class of 1922, died March 8 at age 94. Dr. Goldberg served in the Army during WWI and was a Navy commander during WWII. He was a general practice physician and a member of Alpha Omega Alpha. Dr. Goldberg is survived by two sons.

LESLIE MOREN, M.D., Class of 1937, of Elko, Nevada, died in April. He was a family practice physician.

JOHN O.H. PETERSON, M.D., Class of 1963, died February 7 at age 62. Dr. Peterson was a retired family physician, radiologist, and pharmacist. Memorials to the Minnesota Medical Foundation are suggested. He is survived by his son and three daughters.

DAVID JOHN VESALL, M.D., Class of 1975, died February 18 at age 45. A White Bear Lake, Minnesota, resident, formerly of Stillwater, Dr. Vesall practiced medicine at the Blaine Medical Center for 17 years. He is survived by his wife, Jean. ■

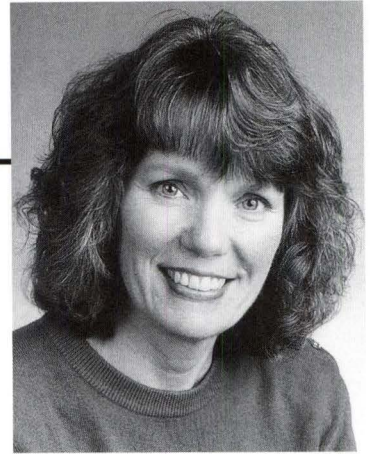
IN MEMORIAM

RUSSELL L. BAKER, M.D., Class of 1934, died January 18. Dr. Baker grew up in Hayfield, Minnesota. After medical school, he returned to Hayfield for 17 years and then pursued a radiology internship in Madison, Wisconsin. He later accepted a position at a clinic in Champaign, Illinois. Dr. Baker established the Russell L. Baker, M.D. and Harry R. Baker, M.D. Scholarship at the Minnesota Medical Foundation to provide support to medical students from Dodge or Mower counties or other rural areas in Minnesota who plan to work in family practice. He is survived by his daughter, Virginia Waaler. Memorials to the Baker Scholarship are suggested.

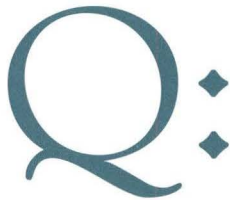
MURRAY P. ERSFELD, M.D., Class of 1939, a longtime St. Paul, Minnesota, resident, died January 2 in Mesa, Arizona, at age 83. Dr. Ersfeld served as a Navy physician in World War II and practiced urology in St. Paul for more than 35 years, retiring in 1983. He is survived by a son and two daughters.

LEONARD C. FRANK, M.D., Class of 1936, died February 2 in California. Dr. Frank entered the University of Minnesota at age 16, graduated and continued on to medical school, graduating with honors. He

THANKS FOR ASKING



Susan C. Dunlop



Is there a way I could defer income to future years and receive a current year tax deduction?

Yes!

This can be accomplished through a deferred payment gift annuity. You make a contribution to a charitable organization and decide when you and/or your spouse (or someone else) wish to receive a life income from your gift. Many donors see their deferred gift annuity payments as a supplement to their retirement plan. Part of these payments are tax-free.

The annual income paid to you depends upon your age now and your age when the payments start. For instance, if you are 50 now, and you would like payments to begin when you are 65, your rate of annual income will be 13.5 percent. You receive a tax deduction for 77 percent of your gift in the year you make the gift.

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Please call me at 612-625-6169 or 1-800-922-1663, or return the reply below.

Dear Susan,

_____ Please send me information on the Deferred Payment Gift Annuity.

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RETURN TO:

Susan Dunlop, Minnesota Medical Foundation, Box 193, 420 Delaware St. SE,
Minneapolis, MN 55455-0392.

MBSU95

Dr. John I. Coe

by Jean Murray

Dr. John Coe's contributions to forensic pathology have revolutionized the field. A member of the Medical School's Class of 1944, Dr. Coe has continued to learn and to teach throughout his life.

For 34 years, Dr. Coe served as chief of pathology at Hennepin County General Hospital (now Hennepin County Medical Center), and has taught at the University since 1950. He became the first board certified forensic pathologist in the entire Midwest and the first medical examiner in Minnesota in 1964, a position he held until his retirement in 1984. He continues to share his knowledge with students and faculty as a professor in the Department of Laboratory Medicine and Pathology.

One of the top forensic pathologists in the United States, Dr. Coe was recently awarded the Helpern Laureate by the National Association of Medical Examiners. This was only the second time the honor has been bestowed in the 28 years of the association's existence. He was also the 1993 recipient of the Harold S. Diehl Award, presented by the University of Minnesota Medical Alumni Society to individuals who have made outstanding professional contributions to the Medical School, the University, and the community.

Dr. Coe is considered a world-renowned expert on body chemistry after death and on the nature of gunshot wounds. He was a member of the pathology panel that investigated the deaths of President John F. Kennedy and Martin Luther King for the U.S. Congressional Committee on Assassination. He pioneered a number of post-mortem procedures and techniques that are universally used today.



Dr. John I. Coe

Throughout his career, Dr. Coe has been in demand as a lecturer and consultant, and has conducted workshops and given lectures in nearly every state and many foreign countries. As a firm believer in life-long learning, he also continues to do research in his field.

Dr. Coe's wife Myrtle has been a strong influence in his life. They met at General Hospital when he was a resident and she was on the University faculty in nursing. Together they have decided to establish the Dr. and Mrs. John I. Coe Endowed Scholarship Fund — through the Minnesota Medical Foundation — to help students complete their medical education in these days of extremely high tuition.

The Minnesota Medical Foundation is very grateful to Dr. and Mrs. Coe for their generosity and support. ■

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