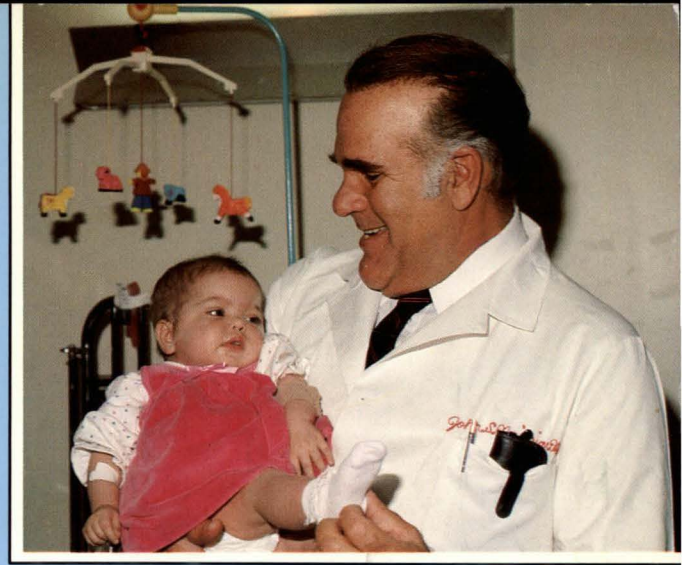


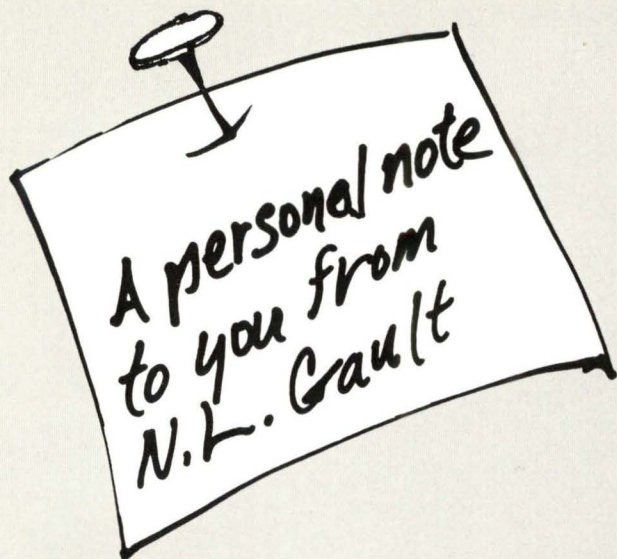
Winter 1983

UNIVERSITY OF MINNESOTA

Medical Bulletin

A Publication of The Minnesota Medical Foundation





Dear Friend:

Let me tell you about an excellent investment I made recently — one which promised the best possible return, in more ways than one. It's the Pooled Income Fund, managed for the Minnesota Medical Foundation by the Northwestern National Bank to produce maximum yield. Interest on my investment is paid quarterly directly to me by check. I don't have to clip coupons and I don't have to call at the bank to collect and reinvest periodically. The rewards of my investment appear in the mail automatically once each quarter.

I also derived a substantial income tax deduction for the 'investment' gift I made to the Pooled Income Fund (the percentage of the gift so treated is dependent upon the age of the investor).

Another good reason for my investment was that entering the Fund in its first years of organization provided yet another benefit: Until the income produced by the Fund is established by its record over its first three years, the Internal Revenue Service assumes the earnings to be six percent even though I receive much more than that. This results in a larger deduction than would normally be the case for a high-interest fund.

But, probably the most important reason for making this investment was the opportunity to contribute to the maintenance of the quality of medical education at my alma mater. I am grateful for the education I received at the University of Minnesota; it prepared me well for a career which has brought me both pleasure and a good standard of living. To whatever extent I am able, I want to ensure that the young people of Minnesota will have the same opportunities in the future.

Income from my investment will accrue to my wife, Sarah, and me as long as we live. The corpus eventually will be used for medical student loans, as we have directed. We could have left it unrestricted or designated it for research of a specific nature, for a particular discipline or department, for lectureships, for visiting professorships, etc. The range of needs and possibilities is great. The choice is yours, and yours alone. The Minnesota Medical Foundation will conscientiously carry out your wishes.

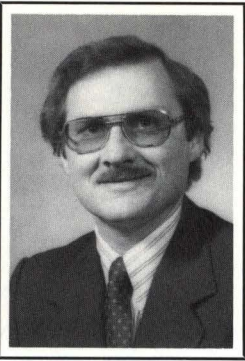
I invite you to join other contributors to this Fund. Others have invested \$5,000 to \$30,000 each. Now is a good time for you to take advantage of the opportunity.

Please contact me directly if you would like additional information — or use the convenient reply form in this issue of the Minnesota Medical Bulletin to get you started in an investment program which I think will bring you great satisfaction personally and monetarily. I am delighted to be participating and believe I am contributing to the future success of one of the truly great medical schools in this nation, and it's a grand feeling!

Yours truly,
N. L. Gault, Jr., M.D.
Dean

MSDH
9A16

Commentary



Don Nichols

Just as a PDR is a valuable tool for physicians, so too is Webster's *you know what* a valuable tool for editors. Did you know, for example, that the new universal, unabridged, 1976 edition offers seven definitions for the word 'resource'?

Obviously the most important, (therefore first) definition is: "something that lies ready for use or can be drawn upon for aid; a supply of something to take care of a need."

Resources, now, more than ever before, are at the top of medical school administrators' lists of 'musts'. Especially in public schools, resources are drying up. I'm not talking about frills. I am talking about basic necessities.

The Medical School will lose more than \$2 million in state funding over the next two years as part of retrenchment. That translates into faculty and staff size, salaries, equipment and possibly a reduction in class size. Finding innovative ways to maintain and improve the quality of our educational, research and service programs, which you display with pride, (the U of M Medical School diploma on your wall), will be the major challenge facing Dean Gault and his staff throughout the remainder of the decade.

As one of the nation's premiere public universities, Minnesota needs strong support from its alumni. The Medical School, too, has an outstanding reputation. But, to keep it that way, you and I must provide stronger support. And, that support must come now!

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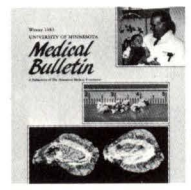
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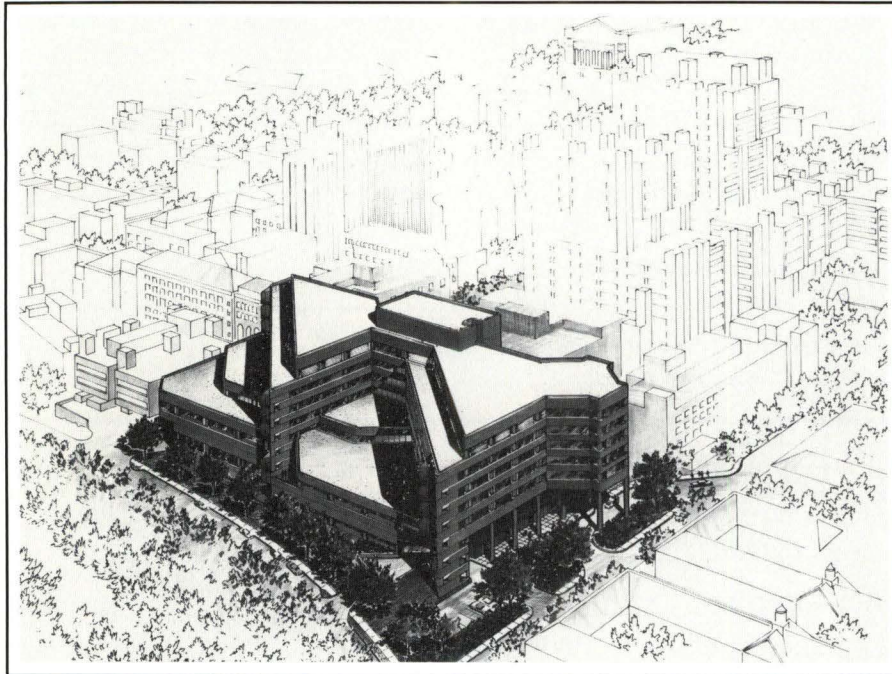
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Cover: Our friend, Jamie Fiske (top) is alive and well following her liver transplant in November and checkup in February. Patients are benefiting from new techniques in which open operations to remove large kidney stones (bottom) are being replaced with percutaneous removal following shock wave fragmentation (center).

Bonds sell quickly; new 432-bed hospital underway



The site for the new hospital is adjacent to the existing University Hospitals south of Diehl Hall and the Masonic Hospital. The project site is bounded on the east by Harvard Street, on the south by East River Road, and on the west by Health Sciences Unit KIE.

\$88,622 in Foundation grants awarded

The Board of Trustees of the Minnesota Medical Foundation approved 17 grants for medical research totalling \$88,622 at its quarterly meeting January 26.

The grants were made to faculty and students from the University of Minnesota Medical School and the School of Medicine at the University of Minnesota, Duluth.

The Foundation also announced that during the first six months of the 1982-83 fiscal year, gifts and grants of more than \$2.3 million were received, an increase of 87.6% over the same period last year.

"We're seeing increased major gift support from corporations and non-alumni individuals," said Eivind Hoff, executive director. "Corporations appear more interested in underwriting research by our faculty

than in the past, and our student financial aid programs have attracted increased gifts from individuals since federal programs have been cut," Hoff explained.

The Foundation also awarded \$512,871 in financial aid to University medical students during the first six months of the current fiscal year.

The following faculty members received research grants from the Foundation: Donald J. Buchsbaum, Therapeutic Radiology, \$4,130; Ronald D. Edstrom, Biochemistry, \$5,000; Dr. Scott A. Halperin, Pediatrics, \$5,440; Dr. Nathaniel R. Payne, Pediatrics, \$4,000 and Dr. Philip B. McGlave, Medicine, \$5,360.

Also, Dr. Mark S. Paller, Medi-
(See "Grants" page 7)

Construction is underway on the University of Minnesota's new 432-bed replacement hospital. The \$154.8 million in university bonds issued to build the new facility sold "like gangbusters", according to Frederick Bohlen, financial vice president.

The sale began early in December after the university received a AA-bond rating from Standard & Poor's, Bohlen said. "As hospital issues go, that rating lifted the University of Minnesota's issue right to the top of the list," he said. "Perhaps 5 percent of the hospital issues get a AA rating." Moody's Investors Service gave the issue an A-1 rating.

Bohlen said the issue was popular all over the country, but particularly in Minnesota and the Upper Midwest. Offered in denominations of \$5,000 and up, the bonds sold at interest rates from 8 to 11 percent.

"This is an issue with a variety of maturities and therefore a variety of rates," Bohlen said. "The long bond, which is the dominant bond, was offered at 11 percent. The average coupon is about 10.3 percent."

Bonds will be repaid through patient revenue. Bohlen and associate hospital director Clifford Fearing were directed by the regents at their meeting in November to put together a financing package for the hospital that would add no more than \$92 per day to patient costs at University Hospitals. The issue will keep the debt per patient day at \$83 — nearly 10 percent lower than the ceiling authorized by the regents. "We are very happy about that," Bohlen said. "We did considerably better than we expected to do."

The university has been struggling with long-term financing for the new building for the past two years. Originally priced at \$233 mil-

(See "Hospital" page 9)

Jamie: "perfectly normal little girl now"

To say that Charles and Marilyn Fiske are happy parents would be to understate what must be the most joyful of human emotions. Their 14-month-old daughter, Jamie, returned to her home in Massachusetts in February with glowing reports about her progress following a check-up for the liver transplant she received at the University Hospitals in November.

Finch to head medical illustrators

Martin E. Finch, director of the Department of Biomedical Graphic Communications at the University of Minnesota, has been elected president of the Association of Medical Illustrators (AMI).

The association is a 600-member group of professionals who explain medical science through drawings, slides, photographs and motion pictures. Their work is tailored for a wide variety of audiences including the general public, students, health professionals and researchers.

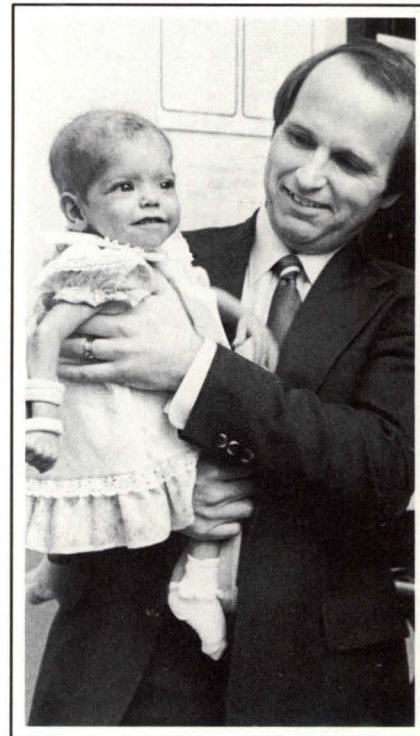
Finch, who has headed the department since 1968, also is an associate professor of surgery. He will serve as AMI president for one year, beginning in August 1983.

"Jamie is "a perfectly normal little girl now," said Dr. John Najarian, head of the transplant team that performed the operation that helped save Jamie's life.

The major danger period for rejection — 90 days — is over for Jamie, without any hint of a rejection problem, said Najarian. "The chance of rejection is now remote," he said. If rejection did start this late, it should be mild and easily treatable with drugs, he said.

To help other parents meet the financial need in paying for their children's liver transplants at University Hospitals, the Jamie Fiske Fund has been established in the Minnesota Medical Foundation. Charles and Marilyn Fiske have endorsed the fund that is designed to help other families. Donations can be sent to Jamie Fiske Fund, Minnesota Medical Foundation, 535 Diehl Hall, University of Minnesota, Minneapolis, MN 55455.

University Hospitals is one of



Jamie and her dad, Charles Fiske

three centers now doing liver transplants. The other centers are at the University of Pittsburgh and the University of Tennessee.



The press, the Fiskes and Drs. Najarian and Asber



Jamie goes home well

Nominations sought for Bacaner Research Awards

The Minnesota Medical Foundation is accepting nominations for the 1983 Bacaner Research Awards in Basic Medical Sciences at the University.

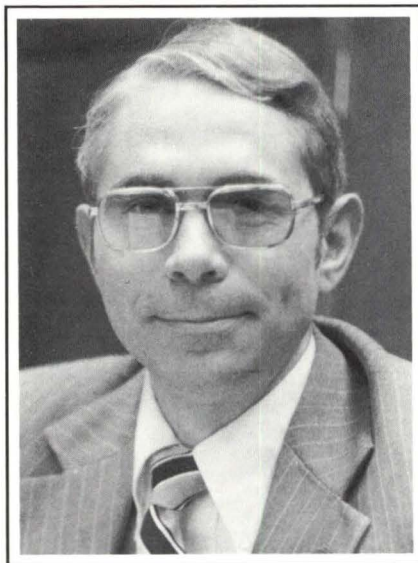
A \$500.00 cash award and certificate recognizing creative research is available annually to a qualified student in each of the graduate programs in Anatomy, Biochemistry, Laboratory Medicine and Pathology, Microbiology, Pharmacology, and Physiology on the Twin Cities campus.

Students will be chosen for the award by their departmental faculty on the basis of original research. Those chosen will receive the award and present the results of their research at the Sixth Annual Bacaner Research Symposium to be held during the week of May 9th, at the University of Minnesota, sponsored by the Foundation.

Eligibility for the 1983 Bacaner Research Awards is limited to students who have passed the final oral examination for the Ph.D. degree during the period January 1, 1982, to March 31, 1983.

Nominations should be made by the student's graduate advisor to the departmental head on official nomination forms. Deadline for receiving nominations is March 31, 1983.

The Bacaner Research Awards program is sponsored by the Minnesota Medical Foundation to encourage intellectual achievement by graduate students, and is underwritten by a gift to the Foundation in memory of Jacob and Minnie Bacaner.



C. Edward Schwartz named director for U of M hospitals

C. Edward Schwartz has been appointed general director of University Hospitals and Clinics.

Schwartz, 42, was chief operating officer of the University of Michigan Hospitals, a 1,000-bed referral center in Ann Arbor. He assumed his new post Jan. 15. He replaced John Westerman, who resigned January 1982 to become president of Allegheny General Hospital Corp. in Pittsburgh.

Neal A. Vanselow, vice president for health sciences, said Schwartz's background — especially his deep involvement in the University of Michigan's hospital replacement project — will greatly benefit the university as it undertakes its own \$125 million hospital renewal. "His expertise will also be advantageous in dealing with cutbacks in Medicare and Medicaid funding and in helping us keep costs down at University Hospitals," Vanselow said.

Schwartz, a native of Indianapolis, earned a master's degree in hospital administration from the Washington University School of Medicine, St. Louis, in 1968.

UMD's Haller receives funding for oxytocin secretion work

Dr. Edwin Haller, associate professor of physiology at the UMD School of Medicine, has received research grants totalling \$126,600.

Haller said a three-year renewal grant of \$123,248 from the National Institute of Health (NIH) will be used to study the "Central Regulation of Oxytocin Secretion." A \$3,352 grant from the University of Minnesota Medical Foundation will be used for work relating to the NIH grant.

The "oxytocin secretion" project studies the relationship between breast stimulation for milk secretion and the actual ejection of milk during nursing.

Dr. Haller joined the medical school staff in 1971. He teaches medical physiology, as well as graduate courses in endocrinology and reproduction.

His research interests include neuroendocrinology, the control of diabetes, and the regulation of metabolism in hypothermia.

Robert Lorinser receives Willmar Area scholarship

Robert J. Lorinser, third-year medical student received the 1982 Willmar Area United Fund Scholarship in Medicine.

The award of \$500 was made by the Minnesota Medical Foundation in November.

Lorinser, originally from Willmar, currently resides in St. Paul with his wife Peggy. One of six children, he graduated from Willmar Senior High School in 1974 and did his undergraduate work at St. John's University in Collegeville.

Lorinser is in the accelerated program at the medical school and is expected to graduate in June 1983.

1983 Stenstrom Lecture

Dr. Peter L. Davis, assistant professor of radiology at the University of California, San Francisco (left) was this year's K. W. Stenstrom Lecturer. One of the nation's leading experts on nuclear magnetic resonance in radiology, Dr. Davis spoke to approximately 150 radiologists who attended the annual meeting of the Minnesota Radiological Society. He discussed the clinical aspects of nuclear magnetic resonance, "a particularly timely topic," according to Dr. Merle Loken, head of the Division of Nuclear Medicine at the University of Minnesota. With Dr. Davis is Dr. John Coleman, president of the Minnesota Medical Foundation (right), and Dr. Spencer Robnik, a radiologist from Willmar.



University to study effect of drug on autistic children

A promising drug therapy for the treatment of autism has been approved for use in an experimental study by the department of psychiatry at the University of Minnesota.

Twelve to 15 children, ages 3 to 18, will participate in the study during the next two years, according to Dr. George Realmuto, assistant professor of psychiatry.

Minnesota is one of six medical centers in the United States testing the effects of fenfluramine in autistic children in a Food and Drug Administration study. The drug is more commonly known as a prescription medication for the obese.

Preliminary results from researchers at UCLA, released in the New England Journal of Medicine in July, showed that fenfluramine can improve intelligence levels in autistic children. The scientists cautioned that much more study is needed before the drug is made available for autistic individuals.

Autism is a baffling mental illness that occurs in about five out of every

10,000 babies. Autistic children seem to live in a dreamworld, generally avoiding contact with other people and often remaining totally silent.

About 40 percent of autistic children have an oversupply of the brain chemical serotonin. In their study of three autistic boys, the UCLA researchers reported that fenfluramine reduced serotonin levels and "this reduction was accompanied by improvements in behavior and cognitive function."

Realmuto, director of the inpatient child psychiatric unit at University of Minnesota Hospitals, has observed rapid improvement of autistic children taking the drug. He cautions that the medication does have side effects that need careful observation, adding that the multicenter study is designed to answer questions about the long-term effects of fenfluramine.

In the Minnesota study, children will receive fenfluramine daily for seven months. Parents will be asked to keep a daily diary recording any

changes in behavior and feelings of their children. Children will visit the university once a month for IQ testing and observation by psychiatrists and therapists. During this evaluation, patients will be videotaped to detect minor changes in behavior.

"We plan to accumulate a lot of data on language, cognitive function and social interaction," Realmuto said.

Realmuto cautioned that fenfluramine has not been approved for use in autistic people outside carefully controlled research projects such as the one at the university.

For more information on the program, contact Realmuto at (612) 373-8871.

Vanselow named to advisory panel

Neal A. Vanselow, M.D., vice president for health sciences has been named to an advisory panel for *Advance Magazine* published by the University of Michigan Medical School.



The Children's Rehabilitation Center at the University was one of six beneficiaries of the proceeds from the 1982 Minnesota State Bowling Proprietors Association Celebrity Bowl held in October. Dr. Fritz Kottke, professor and former head, Department of Physical Medicine and Rehabilitation (left) received the \$32,499.35 check from Bruce Engelsma, Celebrity Bowl chairman, at the organization's awards luncheon.

Festschrift honors Burtrum Schiele

Dr. Burtrum C. Schiele, professor emeritus, Psychiatry, was honored recently by his friends and colleagues at a Festschrift. Born in Colorado Springs, Dr. Schiele was a member of the Department of Psychiatry from 1937 to 1973, and is an internationally known consultant and researcher in pharmacology.

The Festschrift, "Psychopharmacology: Its' Past Accomplishments and Future Promises," was co-sponsored by the Department of Psychiatry, the Minnesota Psychiatric Society, the Mayo Clinic, and the Departments of Psychiatry at St. Paul Ramsey Medical Center and VA Hospital, Minneapolis.

Foundation gives UMD \$65,700 for medical education

The University of Minnesota-Duluth School of Medicine has received \$65,700 from the Minnesota Medical Foundation for medical education financial assistance.

Fifty medical students will receive financial assistance for 1982-83 from the Foundation's Family Practice Fund, according to Dr. Paul Royce, dean. The loan program consists of contributions by family practice preceptors who have worked with medical students since the medical school's inception. The funds are earmarked specifically for Duluth medical student aid, Royce said.

"The Minnesota Medical Foundation has always been a source of aid for Duluth students," Kay Geoffrey, Minnesota Medical Foundation student aid coordinator, said. "But this year, because many loan programs have been eliminated, we are helping more than 16 times the usual number of students."

"Without the generous contributions of the family physicians, these students would not have had the assistance necessary to keep them in school," John Brostrom, UMD assistant director of financial aids, said.

Schmalz gets AAMC post

Mark Schmalz, a third-year medical student from Minneapolis, has been elected to serve as the central region chairman of the Organization of Student Representatives in the Association of American Medical Colleges.

"This is an honor for you and also for the University of Minnesota Medical School," said N.L. Gault, Jr., M.D., dean of the Medical School.

Nominations open for student achievement award

Nominations for the 1983 Medical Student Achievement Award are being accepted by the Minnesota Medical Foundation.

Begun in 1971, awards are based on academic achievement, student leadership and community service. Eligibility is limited to students who are registered in undergraduate M.D. training programs in Duluth and Minneapolis.

It is anticipated that several awards will be made this year, according to Eivind Hoff, executive director of the Minnesota Medical Foundation. Cash prizes are \$1,000 each and citations.

Winners will be selected by the honors and awards committee of the Foundation from nominations submitted by not later than Friday, April 8, 1983. Results will be announced in May.

For additional information, contact Kathy Broderick, executive assistant, at the Foundation, 612-373-8023.

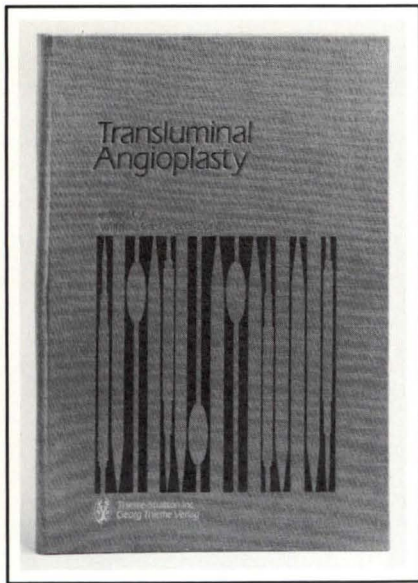
Bergen gets stipend

Randy Bergen, Phase D, received a student research stipend from the Medical Foundation for his work in determining the effect of pharmacologic agents on granulocyte function.

He completed his research in January prior to leaving for Africa where he is working in a missionary hospital.

Research benefit successful

The 1982 Children's Cancer Research Benefit concert held in October "was again a tremendous success," says the Minnesota Medical Foundation. Proceeds from the concert netted the fund \$47,000, according to Leslie Fox, development grants writer for the Foundation.



New book offers alternative

The publishing firm of Thieme-Stratton, Inc. has just released **Transluminal Angioplasty**, the first textbook on that rapidly expanding alternative to operative revascularization. Edited by Wilfrido R. Castaneda-Zuniga, M.D., associate professor of Radiology at the Medical School in Minneapolis, the book also contains contributions from 19 other pioneers in the field, including Kurt Amplatz, M.D., professor of Radiology, and James E. Lock, assistant professor of Pediatric Cardiology, in Minneapolis. The book contains practical discussions of the indications for and mechanisms, methods, complications, and results of transluminal angioplasty for control of renovascular hypertension in both native and transplanted kidneys; for correction of ischemic peripheral and cerebral vascular disease, congenital cardiac and vascular abnormalities, and vasculogenic erectile impotence; and for recanalization of coronary-artery bypass grafts, portocaval shunts, and hemodialysis arteriovenous shunts. **Transluminal Angioplasty** is available from the publisher at 381 Park Ave. South, New York, NY.

Two receive awards from American Heart Association

Two members of the faculty in the Department of Pediatrics have received research awards from the American Heart Association.

Dr. James E. Lock, assistant professor of Pediatrics, was awarded an Established Investigatorship for a five-year period ending June 30, 1988.

Dr. Jeffrey L. Platt, medical fellow in Pediatrics, received a Clinician-Scientist Award for the three-year period ending June 30, 1986.

Two students awarded Medical Foundation grants

Neal Bealka, Jr., Stillwater and Robert J. Pueringer, Anoka have received student research stipends from the Minnesota Medical Foundation. Both are third-year medical students at the University of Minnesota.

Pueringer received \$800 for his research about the differentiation of cells in bone marrow culture. Bealka received a \$1,200 biomedical research stipend for his work in liver function abnormalities on total parenteral nutrition.

The Foundation's student research support program provides learning opportunities for medical students who have a serious interest in research and the potential for future careers in biomedical research and academic medicine. Almost \$20,000 was awarded by the Minnesota Medical Foundation to medical students for their research projects last year.

Grants from page 2

cine, \$7,500, Dr. Mary Ella M. Pierpont, Pediatrics, \$9,000; Aloysius J. Quebbemann, Pharmacology, \$5,000; Dr. Ralph R. Quinones, Pediatrics, \$3,000 and George J. Trachte, Pharmacology (UMD), \$9,000.

Phase D students receiving research awards were Michael O. Adkins, \$1,200; Neil M. Bealka, Jr., \$1,200; Debra L. Choquette, \$1,200; Joel D. Friedman, \$1,200; Eric L. Johnson, \$1,000; Terri Johnson, \$1,200 and Robert J. Pueringer, \$800.

Special grants were awarded to the following faculty members:

Dr. Franz Halberg, professor, Laboratory Medicine and Pathology, \$7,500 to support interim needs of his Laboratory of Chronobiology, with particular reference to his research involving high blood pressure; Dr. James Moller, professor, Pediatrics, \$5,892.00 to underwrite costs of a computer program aimed at computer diagnosis of congenital heart disease and Dr. Jack H. Oppenheimer, professor, Medicine, \$10,000.00 to help toward replacement costs of a 13-year-old unrepairable Beta Liquid Scintillation System used and shared by endocrinology investigators studying thyroid hormones, lipogenic enzymes, and related research programs in rheumatology, immunology, and pediatrics.

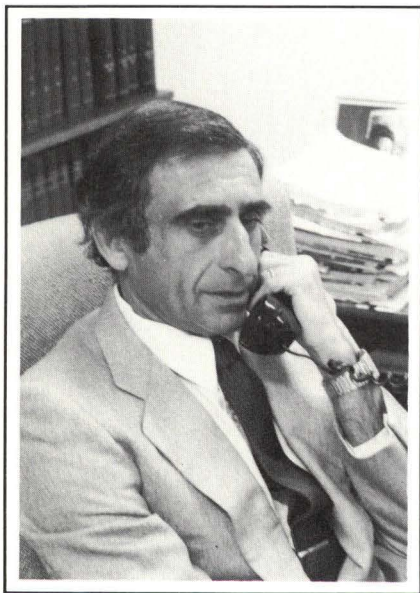
The Medical Foundation has awarded \$333,344 in special grants and research grants during the first three quarters of 1982-83.

Nationwide cholesterol study passes recruitment milestone

A national cholesterol study has passed a "milestone" in the process of patient recruitment at the University of Minnesota.

Henry Buchwald, M.D., professor of surgery and biomedical engineering, and the principal investigator for the program on the Surgical Control of the Hyperlipidemias (POSCH), said, "The study has entered over 700 volunteers out of the needed 800 and is well on its way toward answering one of the most compelling questions facing the medical community today — Will lowering cholesterol retard, arrest, or reverse atherosclerosis (narrowing of the arteries) and reduce the risk of heart attack?"

All volunteers have survived a single myocardial infarction within the five years prior to entering the program. They have a total cholesterol concentration greater than 219 mg%; or greater than 200 mg%, together with an LDL concentration of 140 mg% or greater.



Dr. Henry Buchwald, professor of Surgery and Biomedical Engineering, is study's principal investigator.

Patients are between the ages of 30 and 64 at the time of entry and are free of diabetes, stroke, obesity and heart surgery.

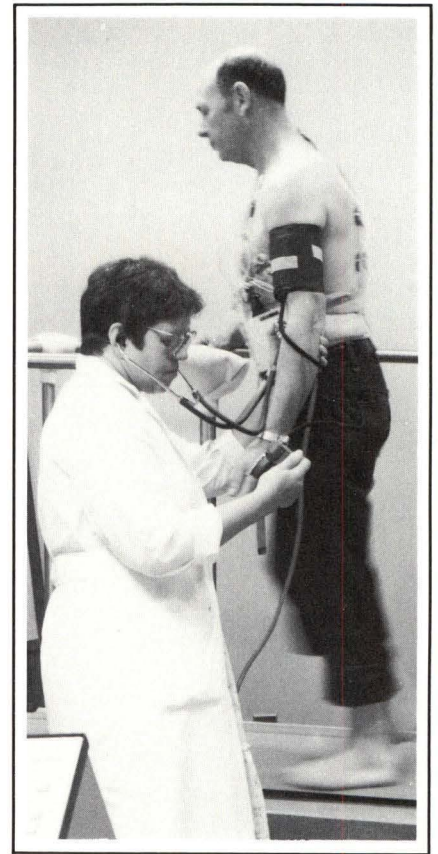
Half have, half have not

Half of the volunteers have had the partial ileal bypass and half have not. It is a bypass of the distal third (about 200 cm) of the small intestine and causes a decrease in the cholesterol absorption from the small intestine into the body. It also causes additional amounts of cholesterol to be secreted into the intestine in the form of bile acids and excreted from the body. The procedure was developed at the University of Minnesota and was introduced in 1963 as treatment for hyperlipidemia.

The amount of cholesterol lowering seen in the first 490 volunteers who have been followed over the past four years shows that the surgery group has attained an average total cholesterol reduction of 30 percent with a 41 percent reduction in the LDL, the so-called "bad" cholesterol. In the group not receiving surgery, there have been no significant changes in the total cholesterol or LDL levels, but a significant 7 percent reduction in HDL levels at three and four years after entry into the program, which can be attributed to a natural aging process. In contrast, the surgery group experienced a "slight and persistent" rise in their levels of HDL, the so-called protective cholesterol.

Annual evaluations

The effects the lipid lowering has on the incidence of atherosclerotic coronary heart disease clinical events and endpoints are being evaluated as the participants are followed. All study participants have annual full clinical evaluations, including resting and exercise ECG-



Shirley Heyer, nurse practitioner, checks patient during treadmill test.

VCH studies. The extent and distribution of atherosclerotic vascular lesions are evaluated at the third and fifth years of the study by peripheral and selective coronary arteriography.

The study core facilities are located at the University of Minnesota with regional clinical centers at the University of Southern California, Lankenau Medical Research Center in Philadelphia and the University of Arkansas. Researchers hope to release results before the end of the decade.

"It is only with a randomized controlled study such as POSCH that a definitive answer to the cholesterol-heart disease question can be found. Information obtained through this clinical trial will be invaluable in the treatment and possibly prevention of atherosclerosis," said Buchwald.

David Klein selected winner of Cecil Watson Award

Dr. David Klein, a fellow in Pediatric Endocrinology, has been selected as the winner of the 1982 Cecil J. Watson Award.

The award is co-sponsored by the Minnesota Medical Foundation and the Minneapolis Society of Internal Medicine. It is given annually for outstanding research achievement by a resident in clinical medicine, as judged by the Honors and Awards Committee of the University Medical School.

Klein's research paper was entitled "Absence of glomerular basement membrane heparan sulfate proteoglycan in the congenital nephrotic syndrome."

Dr. Watson, after whom the award is named, is a Regents Professor Emeritus of the University, having served with great distinction as head of its Department of Medicine for many years.

A cash prize of \$1,000 and the Watson Award Certificate will be presented to Klein April 20 at the Spring meeting of the Minneapolis Society of Internal Medicine.



The Pediatric Oncology Fund in the Medical Foundation was made \$800 stronger recently as a result of a gift from the Chester Bird American Legion Post in Golden Valley. Dr. Mark Nesbit, professor of pediatric oncology (right) accepted the check from (left to right) Norm Fiske, Jim Reiter, post commander; John Ulka, Fay Fiske and Dick Leonard. The gift was the result of a summer golf outing.

Hospital from page 2

lion and designed as a 10-story building, the project was scaled down in 1982 to eight floors at a

cost of \$125 million.

In the spring of 1981, the Legislature authorized the sale of \$190 million in state general obligation bonds to pay for the project, but sale of state bonds has been held up by Minnesota's fiscal problems.

The university had also considered an agreement with a group of private investors who would build the hospital on land leased from the university, and then lease the building to the hospital. That plan fell through when the unforeseen changes in Medicare and Medicaid regulations made the plan unattractive.

The new building will include space for medical-surgical beds, pediatrics, newborn intensive care, intensive care and the bone marrow transplant unit, along with therapeutic radiology, new operating rooms and laboratories and diagnostic departments that relate directly to patient care.



Members of the Medical Foundation Editorial Planning Group met January 7 to begin developing long range goals and editorial objectives for future issues of the Medical Bulletin. Left to right: Eivind O. Hoff, executive director of the Foundation; Clayton Kaufman, station manager, WCCO-Radio AM; William Carey, director of University Relations, University of Minnesota and N.L. Gault, Jr., M.D., dean of the Medical School. Others on the committee include Elizabeth Aronsen, Phase B medical student, Don Asp, M.D., president of the Medical Alumni Society and H.E. Westmoreland, Westmoreland, Larson and Hill Advertising Co. in Duluth.

Once two different departments, Laboratory Medicine and Pathology today finds itself in forefront nationally

By Martha Roth

The Department of Laboratory Medicine and the Department of Pathology have a distinguished history at the University of Minnesota: Pathology was part of the first Medical School, opened in 1888, and under the direction of E.T. Bell it became an outstanding department. Such influential teachers as S. Marx White, H.E. Robertson, Moses Barron, and Harold Diehl, later dean of the Medical School, contributed to its luster.

Laboratory Medicine, under Gerald T. Evans (described by Robert Good as "one of the young Turks from Canada"), became the first such university department, in 1959. Since 1954, Laboratory Medicine had been approved by the United States Public Health Service for training clinical pathologists, but, under Evans and his successor, Ellis Benson, it became "a model for clinical pathology departments throughout the United States," according to Good.

Ellis Benson brought the two departments together in 1973. He says that his precursor, Gerald Evans, "conceived Laboratory Medicine as an island between the clinical fields and the basic

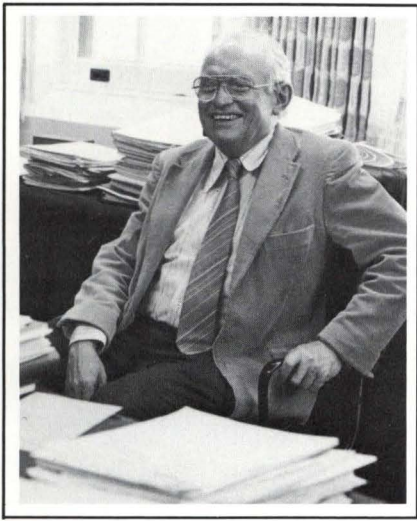
sciences." By bringing it into the same academic unit as Pathology, Benson has created a bridge.

Pathology has greater breadth and Laboratory Medicine a more traditional academic base, in their present linkage. The Department has space for many innovative programs that have helped to bring it into the front rank nationwide, including Immunobiology, Medical Genetics, Clinical Virology, Chronobiology, Environmental Pathology, Health Computer Sciences, and a Pathology Outreach Program.

A Teaching Department

"We teach the Phase A and B students in our undergraduate pathology course," says Dr. Benson, "and we offer Master's degrees in laboratory medicine and medical technology. We have a PhD program in Pathobiology that we're very proud of. It's a basic science degree program, for serious investigators. Then, of course, we offer fellowships to medical graduates. This year we have 33, in either clinical or anatomic pathology, or a combination of the two. The combined residency takes an extra year. And we ask all our residents to take a rotation of at least six months in a research laboratory.

"A great deal of our teaching, residency training, and research goes on at our affiliated hospitals: at the Veterans' Administration, under Miguel Azar, at Mt. Sinai, under Patrick Ward, at Hennepin and Ramsey County Hospitals, under John Coe and Erhard Haus, at North Memorial, under Seymour Handler and his associates, at Abbott-Northwestern under Craig Freeman and his associates, and at United Hospitals, St. Paul, under Jesse Edwards.



Dr. Ellis Benson, professor and head of the Laboratory Medicine and Pathology, brought the Department of Laboratory Medicine and the Department of Pathology together into one academic unit creating "a bridge" between the clinical fields and the basic sciences.

"Our Medical Technology program, directed by Ruth Hovde, is still tops, and we're hoping to expand its resources still further, in the near future. Technology changes rapidly, and the program needs to change to keep pace with scientific developments, new instrumentation, and new therapies," said Dr. Benson.

The Department offers a course in Laboratory Medicine for undergraduate medical students, taught by G. Mary Bradley, director of the Outpatient Laboratory. This Phase B course includes the use and performance of basic laboratory procedures.

The Phase D curriculum includes an elective course, taught by Drs. Ward Howitz & Fuhrman at Mt. Sinai Hospital, on the interpretation and integration of laboratory procedures into clinical decision-making.

The Health Sciences Computer Program is also in the Department of Laboratory Medicine. "They do a lot of teaching especially in the School of Public Health: systems analysis, pattern recognition — patterns in diabetes, for instance, and epilepsy. Computer analysis is a

wonderful tool. Donald Connelly, in our Laboratory Data Division, has recently completed a project analyzing the process of medical decision-making.

"A lot goes on in this department," he says, cheerfully understating the size and complexity of this enormous teaching, research, and clinical enterprise. "We rule nothing out. Of course, if we had still more resources, we could have still more going on."

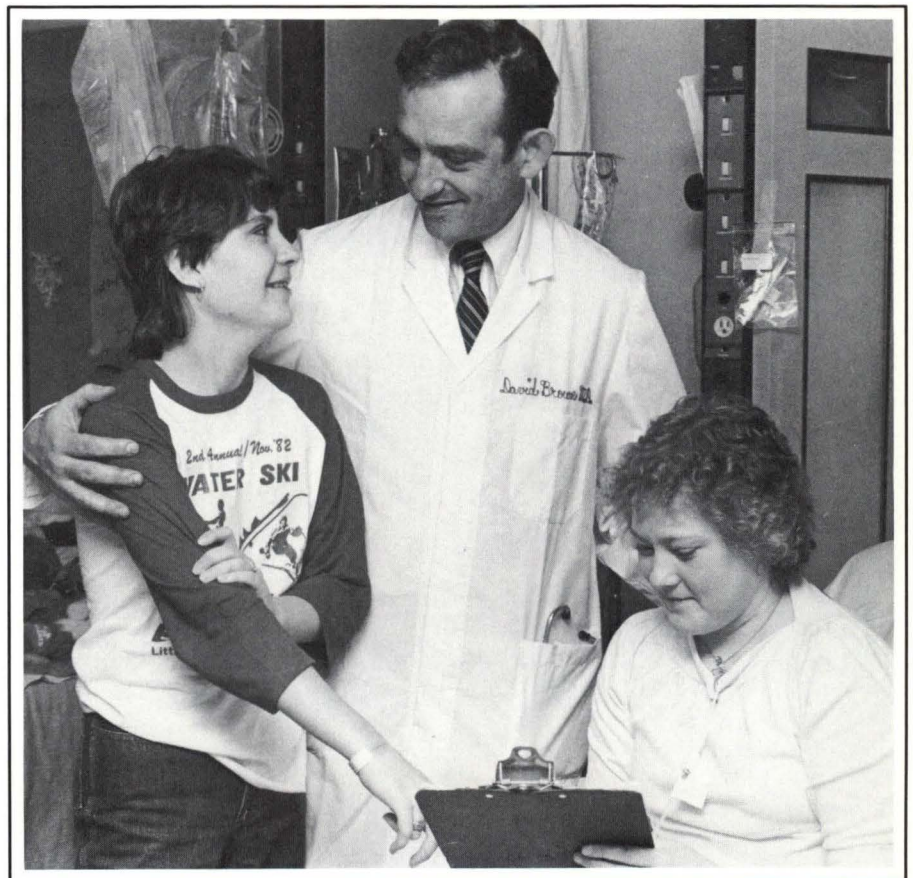
A Clinical Department

Ellis Benson is the only department head in the Health Sciences who sits on both the Council of Clinical Chiefs and the Council of Basic Sciences. "This department includes both basic and clinical sciences: Often, the same people work both with patients and in the lab," he says.

"For example, David Brown, the director of Laboratory Medicine, is basically a pediatrician, with a research interest in diabetes. Fritz Bach, head of the Immunobiology Program, is a brilliant research immunologist, but he is also a physician who treats patients with disorders of the immune system." The mission of the clinical laboratories, says Brown, is "the implementation of innovation. We carry the fruits of research out of the laboratory to the patient's bedside."

Brown's division includes the clinical laboratories such as the Division of Clinical Chemistry, headed by Michael Steffes, which is further subdivided into an Endocrine and Metabolism service, Immunochem-
(Continued on page 12)

Dr. David Brown, director of Laboratory Medicine, with hospitalized diabetic patients Dorian L. Sharkey, left, and Nadine Brettingen.



istry, Medical Microscopy, and Drug Analysis, under Larry Bowers. Esther Freier serves as co-director of Clinical Chemistry, and Walid Yasmineh is director of Enzymology as well as director of Graduate Studies for Laboratory Medicine.

Within the Division is also the Coagulation Program, directed by J. Roger Edson. Coagulation includes the Hemophilia Treatment Center, established by a grant from the Bureau of Community Health Services. Patients with bleeding disorders are referred to this program and screened. The program has generated the country's foremost registry of hemophilia and related clotting disorders.

Describing Dr. Benson as "a prince and a gentleman," David Brown attributes the success of the Department to his "imaginative and indefatigable" administration. The Pathology Outreach Program is a sort of extension service offered by the Department to hospitals and clinics throughout the area. Dr. Brown directs the service, in addition to his other clinical, research, and administrative responsibilities.

"Quietly, we rival Mayo," he says. "We provide advice on diagnostic techniques and treatment. Last year we served at least 500 clients, at least 30 of them intensively."

Many other subdivisions come under the broad heading of Laboratory Medicine: Health Computer Sciences, directed by Lael Gatewood, Hematology, directed by Richard Reunning, Blood Bank, Medical Genetics, Environmental Pathology, Immunology and Immunopathology, Laboratory Data, and Clinical Microbiology, directed by Henry H. Balfour. Dr. Balfour's laboratory has recently concentrated on virological research, specifically on cytomegalovirus, a frequent infective agent in patients who have had organ transplants, and herpes virus. They have had en-

couraging clinical results in both types of virus infections with the use of acyclovir, an anticancer drug.

David Brown currently supervises a research project that has been generated by his division's own internal data analysis. "We use more platelets in this hospital than any place in the United States, and we don't quite know why. We're trying to find out, though; we're singling out transfusion practices and objectively studying the effectiveness of platelet therapeutics. Right now, we're developing criteria for a prospective study, including an evaluation of the indications for platelet therapy.

"One cause might be the volume of transplant cases here; we do a larger number than any other hospital. Another might be the volume and quality of our medical oncology. We want to arrive at the stage where platelet therapy is an application of technology, not just a bunch of drug procedures and tests."

A Research Department

Andreas Rosenberg is director of Research Programs and Activities in the Department. He says, "The secret of our success is that many of our outstanding investigators are treating physicians. Another secret, of course, is our inclusiveness. I think Ellis Benson's motto is, 'If you can do something well, do it; we'll call it pathology later.'"

Among the outstanding research programs in the department are

— *Immunobiology*, directed by Fritz Bach;

— *Chronobiology*, directed by

Franz Halberg, whose colleagues sometimes call him "the father of chronobiology." Originally a physiologist, Dr. Halberg was one of the first cancer biologists to recognize that patients' responsiveness to treatment varied with the time of day, as did their serum levels and excretion of metabolites. He coined the term, "circadian rhythm" to describe this aspect of therapy;

— *Immunopathology*, directed by John Kersey, which encompasses the vital work on bone marrow characterization that complements the organ transplantation programs of the Department of Surgery;

— *Immunology and Aging*, a new program headed by James O'Leary;

— *Chemical carcinogenesis and cancer prevention*;

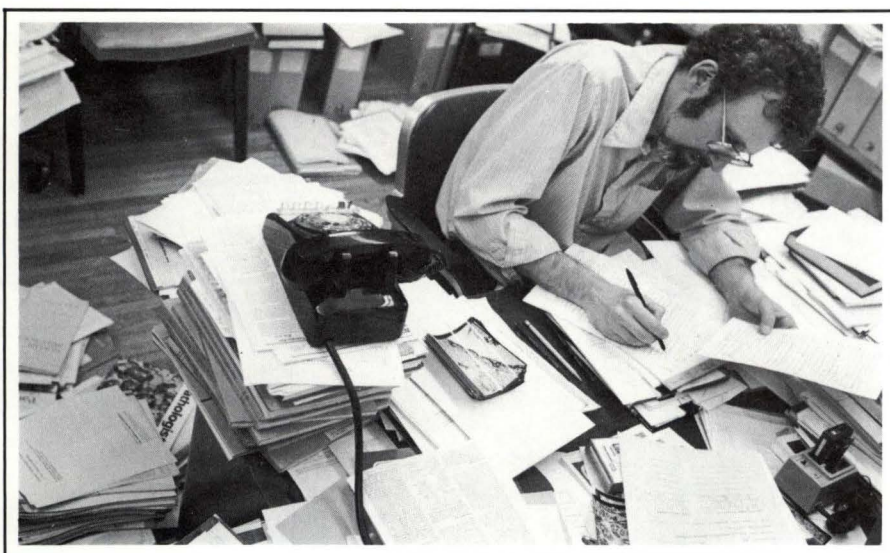
— *Chromosomal aspects of cancer*;

— *Hemoglobin-Red Cell Project*, the large-scale, long-term, multidisciplinary project funded by the National Institutes of Health, on which Rosenberg himself, Ellis Benson, and John Eaton, director of Medical Genetics, are all investigators, along with workers from other departments within the Health Sciences, like Medicine and Pediatrics, and elsewhere in the university, including IT (Chemistry) and CLA (Anthropology).

Rosenberg describes the project as "the exact opposite of a scientist alone in the lab. We do nothing alone, on the hemoglobin-red cell project. We have many disciplines engaged in the study — polymer chemistry, physical chemistry, the blood bank, physiology. In my lab we are studying cell dynamics, structural fluctuations in macromolecules, and how proteins move on cell membranes."

The department's clinical work generates income, which is pooled; from the pool comes salary and program enhancements. According to Rosenberg, "Nobody comes here to make money; you come here to

This is the fourth in a series of six articles by Martha Roth featuring the University's six basic science departments. The series will continue in the Spring issue of the Medical Bulletin with a story about the Department of Biochemistry.



Dr. Louis P. "Pepper" Dehner, director of Anatomic Pathology, works on a new edition of his book, *Pediatric Surgical Pathology*.

have fun. Nobody wants to leave; Benson allows you to do precisely what you want to do.

"But we are suffering for space. We have thirty NIH programs ongoing in this department. We should have thirty thousand square feet of laboratory space, just figuring by the roughest rule of thumb. And we don't have the space. We need another fifteen or twenty thousand feet. Where is it going to come from?"

"Many of us are spread out all over campus. I have three labs. I figured out that I spend an hour and a half every day traveling between my laboratories, and that's too much," said Rosenberg.

Counting teachers, clinicians, laboratory investigators and technologists (but not counting fellows, post-doctoral fellows, graduate students, or technicians), there are more than 80 faculty members in the Department of Laboratory Medicine and Pathology. Many are nationally known; all are distinguished. The *Bulletin* has focused only on the work of a few investigators to try to give a fuller picture of the depth and range of departmental activities.

Anatomic Pathology

"Clinical pathology is laboratory medicine. Anatomic pathology is everything else," says Louis P. ("Pepper") Dehner. ("I've been called Pepper since I was two years old; I've never quite known why.") Dehner is co-director of the Division of Anatomic Pathology, with Juan Rosai, internationally known pathologist who is the author-editor of *Ackerman's Surgical Pathology*. Rosai is on sabbatical leave this year, so Dehner directs the program alone, while preparing a new edition of his own book, *Pediatric Surgical Pathology*.

"The area of pediatric neoplasia, childhood cancer, is especially exciting right now, because there is so much more that can be done for a child with malignant disease," he says. "In the past, all you could do was surgery — try to extirpate the tumor. Today, surgical management might be the first stage, or the role of surgery might be just that of obtaining diagnostic tissue that can enable the most effective therapy to be determined.

"It's increasingly important for pathologists to be able to identify specific tumor subtypes. For this

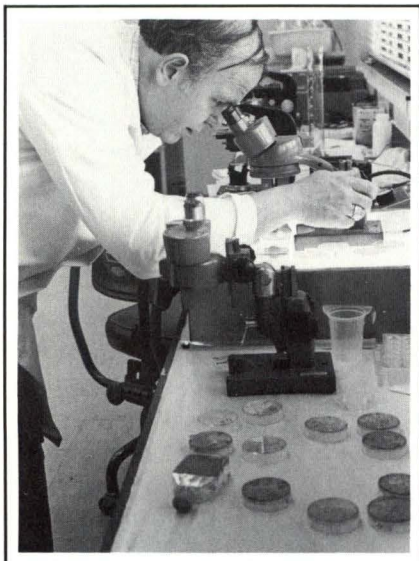
reason, and because all my research depends on human material, slides of tissue that I have seen, we're attempting to establish a computer capability, a way of automatically retrieving material. I've been asked to review the subject of soft-tissue tumors in children for a major publication. At this moment, I'm not sure where to begin case retrieval. I need a five-year retrospectus, and I can't take the time to go back and retrieve that material."

Formerly director of the Residency Program, Dehner's major responsibility now is to the graduate program in Pathobiology. "On a micro-level, research in pathology goes down to electron microscopy. In the past, I've collaborated with Stan Erlandsen, of the Anatomy Department on immunohistochemical techniques. We were looking at diagnostic problems in immunocompromised patients, mainly cancer patients who were receiving therapy that depressed their immune systems and transplant patients who were deliberately immunosuppressed so they wouldn't reject their transplants, as well as patients with primary immunodeficiency disease.

"By the way, you know Bob Good established the first Immunodeficiency Registry here, when he was head of immunology. John Kersey, in the Immunopathology Division, maintains it now.

"The work we do here in anatomic and surgical pathology is a crossroads for many interests. Richard Sibley, for example, our director of diagnostic electron microscopy, is interested in renal surgical pathology. He has become a key individual on the transplant team; he's one of the world leaders in the area of identification of tissue rejection: heart, kidney, liver, pancreas.

"Dale Snover, co-director of the autopsy service in surgical pathology, has evolved into one of the de-



Dr. Vincent F. Garry, director of Environmental Pathology, at Stone Laboratories.

veloping young experts on graft-vs.-host disease. This is a potentially life-threatening complication of bone-marrow transplantation, which is done in patients with leukemias and lymphomas.

"What we have here is a group whose efforts are collaborative with most of the important clinical research going on in this institution. You know, pathology itself used to be called 'the mother of medical science.' It's a straddling point between basic and clinical science. Observations from the basic sciences are integrated into pathology and channeled to the bedside.

"We have a superb department, and the yearly measure of that is the quality of the young people who want to come here and take their training with us. In my eight years here, I've seen the recognition of this program grow. You know what an expert is? An expert is someone who's recognized fifty miles out of town, but not in town. Well, we're now recognized in town," said Dehner.

Environmental Pathology

In a low brick building that nestles under the huge grain elevators

north of University Avenue, the Environmental Pathology Laboratory carries on its politically sensitive work. A plaque in front informs the visitor that the building is the "Royal and Olive W. Stone Laboratories, given to the Minnesota Medical Foundation by the Stones as a bequest. The Foundation leases the space to the University.

Vincent F. Garry is director of Environmental Pathology. He spends "too much" time at the State Legislature, attempting to convince the elected representatives of Minnesota that the vital work his laboratory performs should be funded, even though it may be unpopular with some local employers.

"The major emphasis in environmental pathology is the assessment of occupational and environmental carcinogens. Our long-term project, the General Health and Cancer Incidence Survey, is a computerized inventory of a small population, about 500 people. We check every index we know. We do chromosome studies; we check urine and blood for mutagenic substances. If necessary, we'll perform microbiological assays. We look at materials in the workplace and in the en-

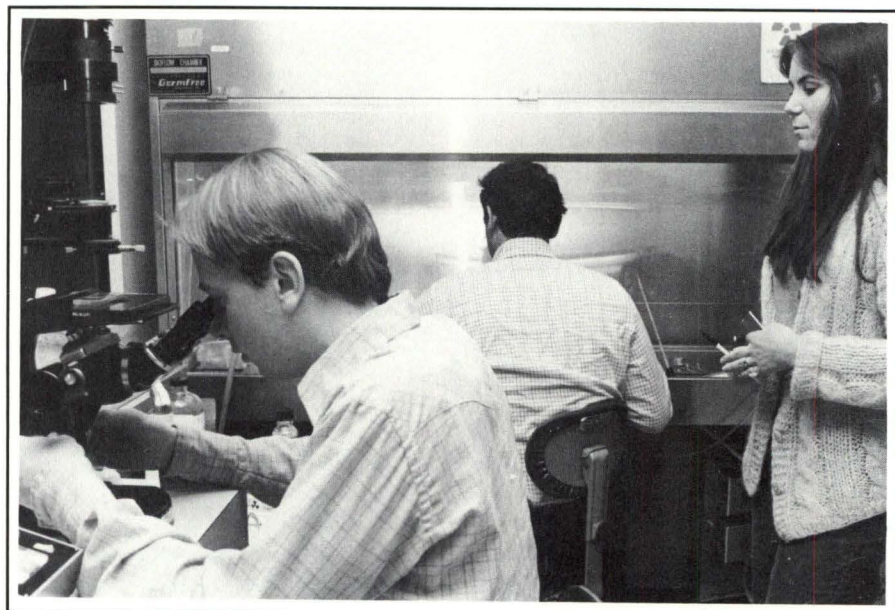
vironment." He gives one of his frequent, wholly winning grins. "We're those wonderful folks who brought you formaldehyde poisoning."

"And we've done a lot more than show formaldehyde fumes coming out of polyurethane paneling. We're involved in patient care, usually at the physician's initiation. A recent case we had was a patient with CPPD (chronic progressive pulmonary disease); we found that an ingredient of a common wood preservative, pentachlorophenol, was involved in that case."

Industrial chemists come up with new and more complex adhesives, solvents, preservatives, and other materials all the time, and both workers and do-it-yourselfers are at increasing risk from contact with substances whose effects on lungs, skin, and chromosomes is unknown.

"But there's danger in old stuff, too," Garry cautions. "Two fellows were remodeling a house, and they both came down with the same symptoms, including severe abdominal cramps. It looked to the physi-

Working on environmental carcinogens at Stone Laboratories. Karl Kersey, postdoctoral fellow; John Weinke, graduate student; and Terry James, undergraduate student and laboratory technician, test benzo(a)pyrene metabolism in human cells.



cian like arsenic poisoning, and he called us in. Sure enough, there was arsenic in the old plaster in the house they were working on, in amounts sufficient to cause symptoms of arsenic poisoning."

Employers frequently contract with the Environmental Pathology laboratories to determine industrial hazards, and laboratory personnel also work closely with the Minnesota Department of Health. One of their more surprising recent discoveries was that ethylene oxide (EO), a gas commonly used to sterilize hospital equipment, caused flu-like symptoms in patients. They demonstrated that it also caused some chromosomal damage, leading the Department of Health to tighten hospital-supply regulations.

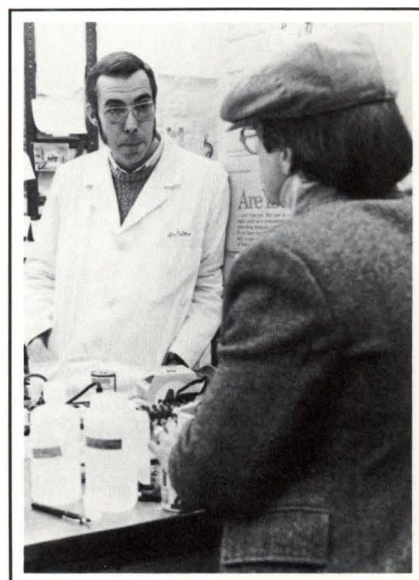
The staff is small, consisting of Garry, a pathobiologist, three graduate students, and a post-doctoral fellow, but their accomplishments are large and of great importance for the people of Minnesota. "One of our projects is looking at the reproductive effects of substances in the environment," Garry explains. "Most things that cause congenital birth defects are not mutagens." That is, unlike carcino-

gens they don't cause cells to mutate; rather they damage the developing embryo. "These teratogens also seem to be specific to a species — like thalidomide.

"The cancer process is different," he continues. "Cells have a societal relationship, like people. They live in contiguity with one another. When relationships are broken, they become wild. What cancer does is break up the 'society' of a tissue. It loses normal relationships. Cells don't grow in orderly single layers; they pile up.

"Environmental pathology is the extension into an industrial setting of what laboratory medicine ordinarily does. We use the same tools, and we do the same kind of research. In this laboratory, we collaborate with Andreas Rosenberg, on the Hemoglobin-Red Cell Project, and with Lee Wattenberg, who looks at cancer and mutation. We've collaborated with people in Pharmacology, Medical Oncology, the Health Department, St. Paul/Ramsey Hospital.

"Minnesota Medical Foundation provides us with small research grants and minimal operating funds. But we need more money to sup-



On Friday afternoons the Dight Institute (genetic counseling) houses informal get-togethers. Here Dr. John Eaton chats with a former graduate student.

port more graduate students; we need at least three more serious investigators looking at reproductive abnormalities. And, we should have our own gas chromatograph. We need to establish base-line tolerances for a lot of substances in the environment. Increasingly, people are coming in contact with things that were never there before. We don't know anything about their effects, and we should."

Cell Proteins

Leo Furcht, Stone Professor of Pathology, investigates proteins inside cells, between cells, and on cell membranes. Two glycoproteins in particular, laminin and fibronectin, seem to influence the spread of malignant cells. "The proteins may actually be guiding the tumor cells," says Furcht. "They are present in the basement membranes, in the walls of blood vessels, in the lining of internal organs, kidneys and pancreas. We can put these proteins down on filters and watch cancer cells move across them."

About ten graduate students work with Furcht in his laboratory, (Continued on page 16)



Saturday morning at Lake of the Isles: Stone Professor Leo Furcht, second from left, with running companions (L-R) Diane Page, Dr. Stefan J. Boros and Alan Page, Minneapolis attorney and former Minnesota Viking lineman.

including post-doctoral fellows and medical fellows. "I really like to work with students," he says, "especially students who want to spend some time learning to do research. You get excitement and enthusiasm in a university that you don't get in a private practice setting.

"I've worked with people in other departments: Anatomy, Pediatrics, Physiology, Microbiology, Medicine. This is a stimulating department, the most competitive as far as fellows are concerned. It's the top department in the country for combined anatomic and clinical pathology," said the Stone Professor.

Furcht heads the residency program this year. One of the graduate students who works under his direction, Sally Palm, investigates cells in the linings of nerve fibers, in the laboratory of anatomist Paul LeTourneau.

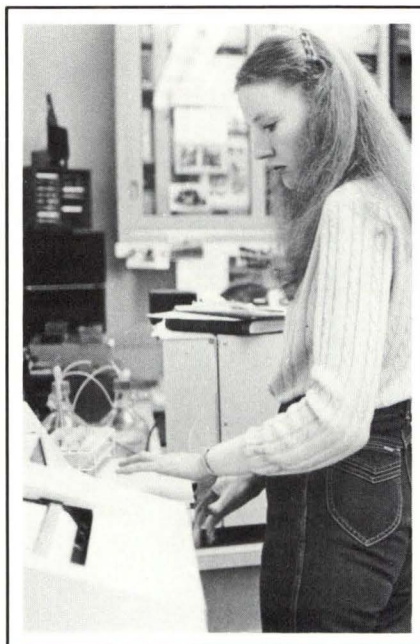
"This medical school is particularly interactive," Furcht continues, "and I value that. I think we've got the best set-up in the country, here, though the lack of a molecular engineering division in this department is a major deficiency. We could be probing protein function, using new techniques of investigating protein synthesis. We could quantitate the migration of cancer cells; we have to do it manually now, and it takes a long time.

"If we had a computerized image analyzer, compatible with either light or electron microscopy, we could look for antibodies and we could relate our investigations to specific proteins. All we need is more money or the equipment."

Like many of his colleagues, including Pepper Dehner, Leo Furcht is almost as avid about running as he is about research. On weekend mornings, he runs with a neighborhood group.

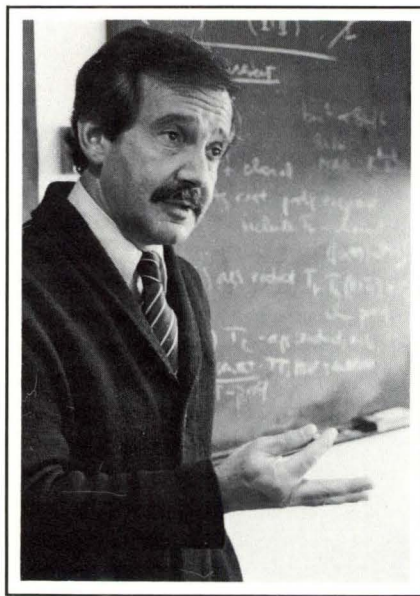
Medical Genetics

Director of Medical Genetics is



Dr. Patricia Ward, a PhD candidate in microbiology, checks some results in the Dight Institute of Human Genetics where she works with Professor Eaton.

John Eaton, who by training is as much an anthropologist as a laboratory scientist. He works closely with hematologists in the Department of Medicine on a variety of projects,



Dr. Fritz Bach, director of the Immunobiology Research Center, pioneered the matching of histocompatibility responses in donor and recipient for the first successful matched bone marrow transplantation.

including sickle-cell and infectious disease, both of which have to do with the oxygen-carrying properties of hemoglobin.

"When I was a graduate student at the University of Michigan," he says, "I got interested in sickle-cell disease, so I built myself a laboratory in the basement of the building in which I was working. I thought that if I could keep the cells from losing oxygen, they might not sickle; and that maybe I could do that by tinkering with the hemoglobin.

"But there are fashions in sickle-cell research; it's a highly political disease. I've changed the emphasis of my work. Recently, I've gotten interested in wound infections. Bacteria like *E. coli*, that frequently cause serious surgical infections, feed on iron. Hemoglobin is crucial to their survival. But there's another blood protein called haptoglobin, that binds free hemoglobin so that bacteria can't use it. We've successfully prevented surgical infections with haptoglobin in rats. Human haptoglobin needs to be purified; we're working on synthetic analogs, but there's no reason why prophylactic haptoglobin could not be given to human beings to prevent infections. You could treat tampons with it, to avoid toxic shock.

"Another fascinating project we're working on in the infectious disease area has to do with the whooping-cough organism, *Bordetella*. It makes the enzyme adenylate cyclase. Adenylate cyclase is a precursor of cyclic AMP, which shuts off cellular functions.

"We've taken adenylate cyclase from the lungs of animals that have been infected with whooping cough. It's extremely resistant; survives boiling for ten minutes, for example. You can boil it, then inject it into cells, and it makes cAMP and shuts off the cells. Medical fellow, Dennis Confer, and Arne Slungaard are trying to cure cancer with adeny-

late cyclase, on the theory that if it makes normal cells shut down, cancer cells will do likewise."

Describing his laboratory as "kind of a co-op," John Eaton, like others, wishes there were more resources to share. "We could do more *basic* work, on projects that have a little less chance of success than the ones we're doing now. When money's tight, nobody approves any project that isn't going to succeed. I've had research proposals turned down, with the words, 'It's not clear that this can be done.' Well, if it were clear, then the project wouldn't be worth doing."

Immunobiology

Immunobiology has a proud tradition at the university, dating back at least to the 1950s and 1960s, when Robert Good and Jorge and Edmond Yunis worked here on the human histocompatibility complex (HLA), and immunotherapy and suppression of immunity to prevent rejection of transplanted organs.

More recently, immunologist Fritz Bach, who in 1974 pioneered the 'matching' of histocompatibility responses in donor and recipient for the first successful matched bone marrow transplantation, has headed a team of talented investigators in the Immunobiology Research Center.

Their work includes research on recombinant DNA; protein chemistry; cell-mediated immunity; response to viruses, specifically Herpes; and immunogenetic studies relating to clinical transplantation and disease.

Bach says, "If an organ is transplanted between two people who differ for the important cell characteristics called HLA antigens, the 'foreign' antigens on the transplant tissue are likely to evoke an immune response in the recipient, which will result in rejection of the graft."

Since more transplants are performed at the University of Minnesota Hospitals than anywhere else, it's quite appropriate that immunology, which provides a scientific rationale for advancing transplantation as therapy, should also be an outstanding aspect of Minnesota's health sciences research.

Joyce Zarling, a world authority on so-called natural killer (NK) cells, works with Bach, on immunity to tumors. Her research is experimental, on mice, but eventually may be applicable to human patients with cancer, "once the basis of development of anti-tumor immunity is understood."

Jeffrey McCullough, director of the Blood Bank, heads a major effort to locate large numbers of potential bone marrow donors and to characterize them fully with regard to HLA. This is so that "unrelated donors can be found for patients who need transplants and

have no appropriate family member."

Bach comments, "Robert Good was fond of saying, 'There is no disease that does not have an immunological component.' Well, the immune system is so involved in all disease that merely to say that is meaningless. But understanding immunity, and learning to manipulate it, will certainly be the key to therapy for many diseases that are now clinically baffling.

"I think we're almost there. The next fifteen years will be critical, and if this department can keep pace with developments in molecular biology, specifically recombinant DNA technology, we can remain in the forefront. However," he smiles, "immunology is transdepartmental."

Chemoprevention of Cancer

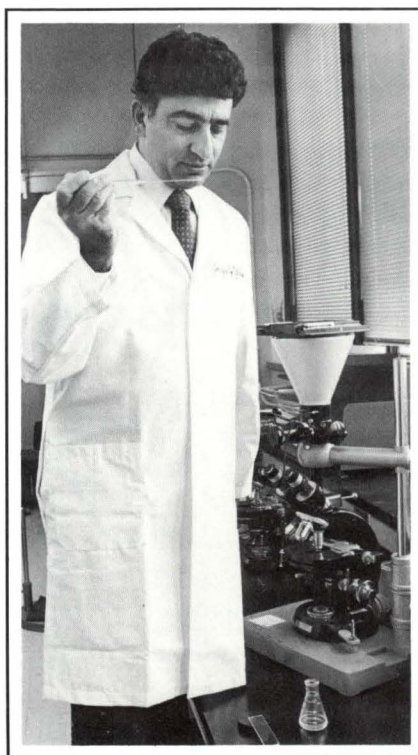
"Basically," says Lee Wattenberg, "we do research on how to prevent cancer." Wattenberg and his colleagues have found several groups of "material" that either prevent the formation of cancer-producing substances within the body or block or suppress those substances once they have been formed.

Much of this "material" occurs naturally in foods. Wattenberg says, "It's clear that it is impossible for human beings *not* to eat at least some of these foods"; he and his colleagues are now investigating how much "material" can be ingested, either in natural forms or synthetically, without causing undesirable side effects.

"Some material actually prevents the formation of cancer-producing substances. Nitrosamines do this, and so do vitamins A and E, but in amounts that would be toxic to humans if they were ingested.

"Some of the material contains blocking agents that, one way or another, enhance the body's ability to detoxify hazardous substances.

(See Lab Med page 27)



Dr. Jorge Yunis prepares to stretch some chromosomal material.

A Bulletin Feature

Snap, crackle, pop of kidney stones reduces cost, pain for patients

By Judith Gunn Bronson, M.S.

F_{z-z-z-zt! ZAP! Kra-a-aK!!}

Around the Department of Urologic Surgery at the University of Minnesota Medical School, those are not the sounds of a video game. They're the sounds of kidney stones being destroyed.

Work on the closed (without a major operation) destruction of stones began at the University in the late 1970's under the direction of Arthur D. Smith, M.D. (now chairman of the Division of Urology at Long Island Jewish Hospital — Hillside Medical Center in New York) and Paul H. Lange, M.D., professor of Urologic Surgery and chief of the Urology Section at the Minneapolis Veterans Administration Medical Center. Crucial to the success of the venture was the participation of radiologists Wilfrido R. Castaneda-Zuniga, M.D., and Kurt Amplatz, M.D., of the University and Robert P. Miller, M.D., and Donovan B. Reinke, M.D. of the Minneapolis VA.

One of the critical ingredients of the new approach to stones had been created many years earlier but largely ignored. In 1955, Willard E. Goodwin, M.D., and his associates at UCLA wrote in the *Journal of the American Medical Association* about draining an obstructed kidney via a tube passed directly into the organ through the skin. A "trocar nephrostomy," they called it. A "percutaneous nephrostomy," it soon came to be called.

Like Ronald Reagan

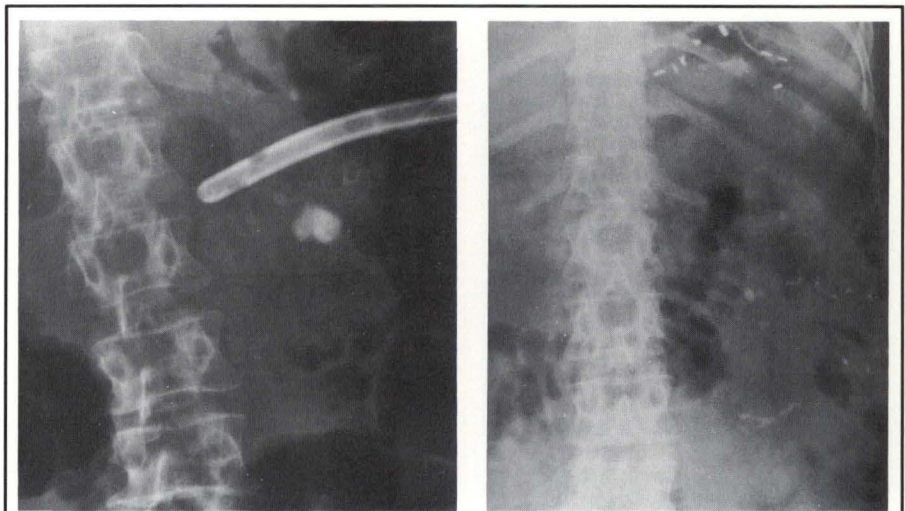
Years later, Dr. Goodwin liked to joke that the reason little use was made of the new technique immediately was that it "came from 'out West,' like Ronald Reagan, and so [was] automatically discounted!" In fact, as he went on to note, little use could be made of percutaneous nephrostomy except for drainage in the absence of a real-time imaging method that would let urologists and radiologists see what they were doing inside the body while they were doing it. The introduction of fluoroscopy permitted exactly that, and it proved to be the second critical ingredient in the new approach to stones.

Reasoning that the percutaneous nephrostomy could be as useful a pathway into the kidney as the urethra had been into the bladder since some ancient Egyptian physician created the first catheter from a hollow reed, the University-VA team began its work. At first, they limited their efforts to patients who were too sick for standard procedures, thus taking advantage of the fact that a percutaneous nephrostomy requires only local anesthesia and sedation.

The team quickly discovered ways to use the nephrostomy tract and urethra together to insert ureteral stents that could not be passed in the usual fashion because of severe obstruction, to remove ureteral stones with a wire stone basket, and to relieve narrow strictures between the ureter and the bladder or the ureter and an intestinal-diversion loop.

Leadership established

In 1978, they published the first of the extensive series of medical articles that established the University of Minnesota's leadership in this new area of urology. (A copy of the bibliography can be obtained from the Department of Urologic



In the x-ray above (left), this woman had undergone four prior open stone operations. She was referred with a nephrostomy tube in the left kidney after open operations had failed. A 7 × 3 mm stone is impacted at the top of the ureter. In the photograph on the right, the large stone was removed percutaneously with Mazzariello-Caprini forceps, and the smaller fragments (still visible) were removed through a flexible nephroscope with Randall's forceps. The entire procedure took an hour.

Surgery, Box 394 University Hospitals, 420 Delaware St. SE, Minneapolis, MN 55455.)

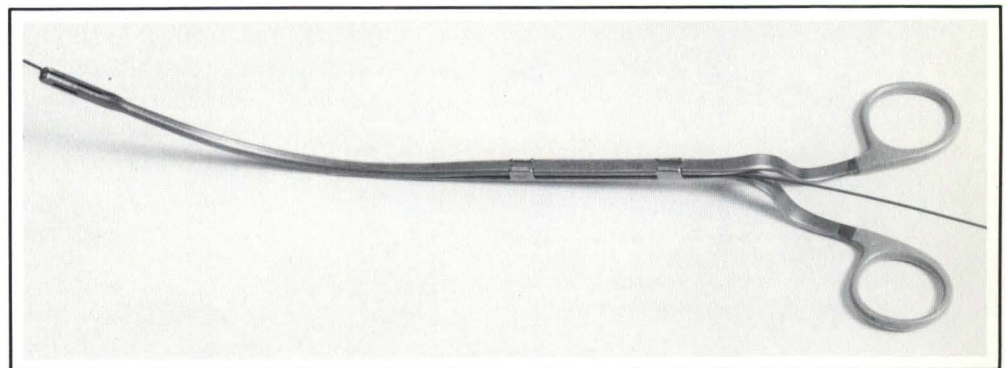
One of the most heartening features of this early work was the ease with which the sometimes critically ill patients tolerated percutaneous nephrostomy. Gradually, the team began using the new methods as their preferred approach even in patients who were good operative risks.

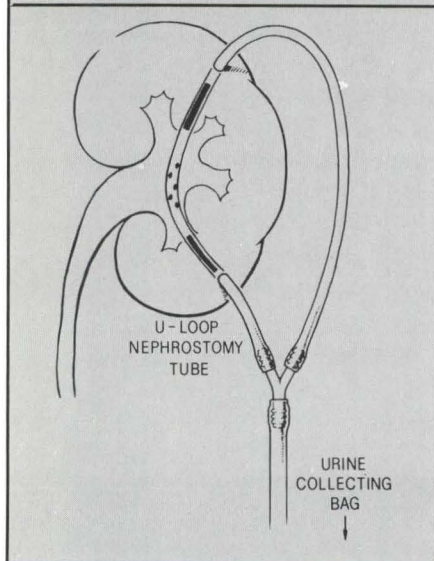
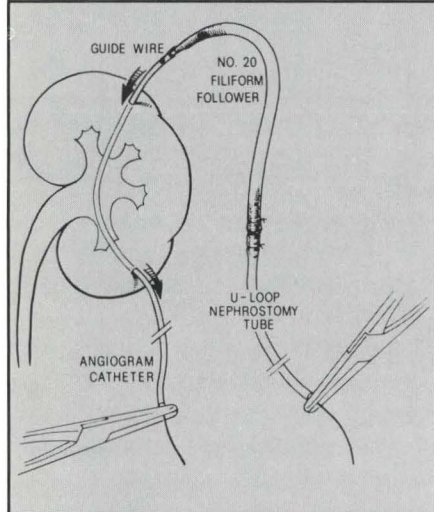
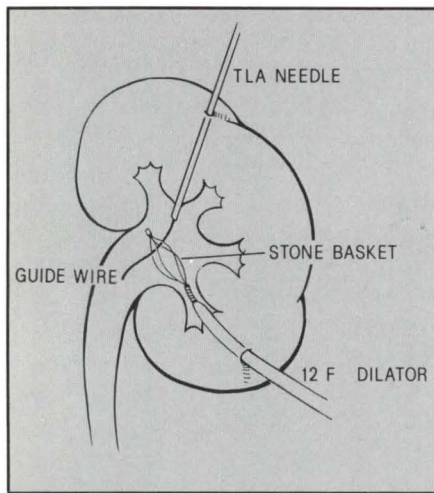
"Many physicians now believe that percutaneous nephrostomy will replace open nephrostomy in many cases, and that percutaneous

Mazariello-Caprini forceps (V. Mueller Co.). The University team had a groove cut in them, into which the angiographic guide wire fits.

nephrostomy and its applications may change the approach to diagnosis and treatment of many urologic conditions," Drs. Smith and Lange and Department Chairman Elwin E. Fraley, M.D., wrote in the *Journal of Urology* early in 1979. They urged all urologists to become proficient in percutaneous nephrostomy and its applications, and they introduced a new word to describe the field — *endourology*. "It is now evident that percutaneous nephrostomy and its applications will alter the practice of urology," the authors concluded, "but if we view this as an opportunity and a challenge, rather than as a threat, our patients will benefit and

(Continued on page 20)





For long-term nephrostomy drainage, a U-loop (circle tube) system is preferable, as it prevents dislodgment of the drainage tube. This can be inserted percutaneously, as shown here.

our specialty will be enhanced. . . .”

Sooner than expected

Their prophecy was fulfilled sooner than the authors expected. A year later, Dr. Smith began editing the first textbook on the subject, which included chapters by 39 authors at 16 institutions. (*Symposium on Endourology*, the *Urologic Clinics of North America*, volume 9, number 1, February 1982. W. B. Saunders Co., Philadelphia. 195 pp. \$19.00) And during the past several months, in conjunction with the Department of Continuing Medical Education, the Departments of Urologic Surgery and Radiology have taught several sessions of an intensive course in endourology that will soon be available on video tape.

The early percutaneous approaches to stones were hampered by the lack of instruments designed for use in a nephrostomy tract. Nevertheless, many kidney and ureteral stones were removed, often from patients who had already undergone several open stone operations, in whom another open operation would have been extraordinarily difficult. Small forceps and wire stone

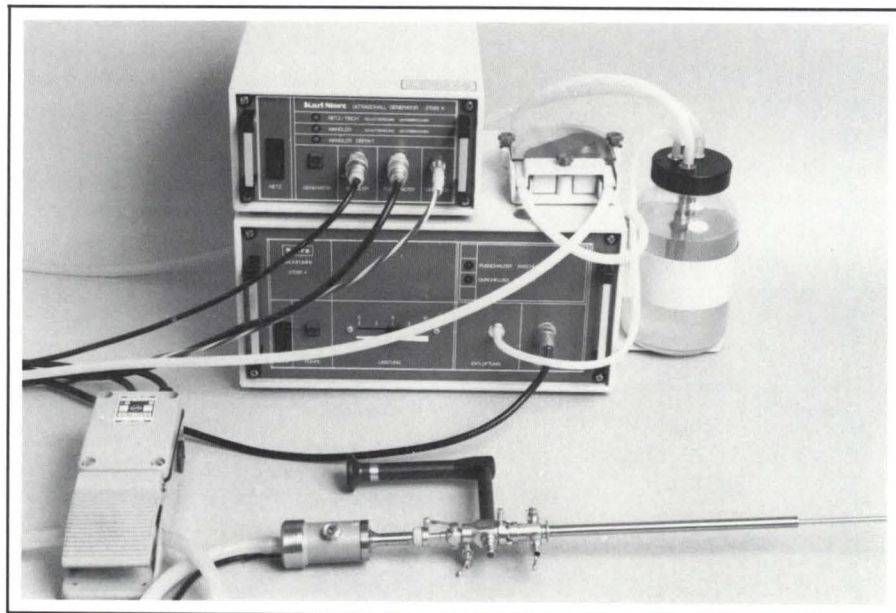
baskets were used to pluck out some stones. A few kidney stones were floated in irrigating fluid and then sucked out through a percutaneous nephrostomy tube. In one patient, the team dissolved a cystine kidney stone by irrigating the kidney collecting system with a solution of acetylcysteine.

More-appropriate instruments soon appeared, such as the Mauermeier stone punch and the Mazzariello-Caprini forceps. The latter instrument, designed for the removal of biliary-tract stones, proved ideal for percutaneous kidney stone removal, because the jaws open by a rotating, rather than a scissoring, action. Thus the shaft diameter does not change greatly when the jaws are opened, making it easier to manipulate the instrument in the 1/4-inch percutaneous nephrostomy tract.

Breakthrough

The breakthrough in percutaneous stone removal (“percutaneous nephrostolithotomy,” as a

An ultrasonic lithotripter, used in the stone program at the University. This piece of equipment costs approximately \$16,000.



Letters

new member of the team, Ralph V. Clayman, M.D., assistant professor of Urologic Surgery, named it) was the introduction of ultrasonic lithotripsy and electrohydraulic lithotripsy. Both use shock waves to crumble the stone. Larger fragments are then removed with forceps, while smaller ones are dissolved or allowed to drain out with the urine.

The University team now uses the percutaneous approach as their initial one to all kidney stones, even large branched ones, and most ureteral stones. In many cases, more than one technique must be used; for example, lithotripsy, irrigation and forceps; but the success rate for percutaneous stone removal is now 90 percent. The complication rate is lower than that of open stone operations, and those complications that do occur are less serious. At present, the average hospital stay is seven days, but this time has been declining with the introduction of better instruments and the increasing experience of the nephrostolithotomy team.

Patients appreciative

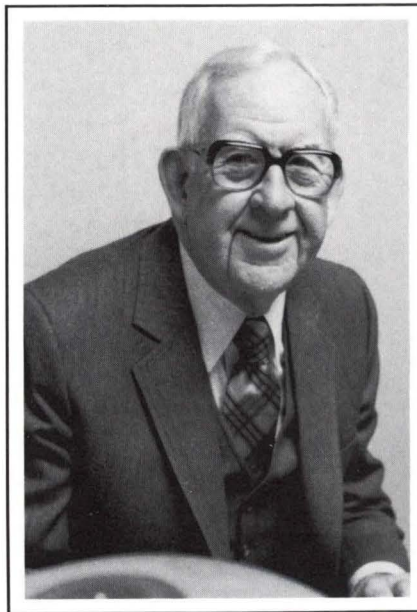
The patients appreciate the new techniques as much as the physicians do. One patient had suffered for 14 years with a kidney stone because he was afraid of surgery. Another patient was able, at last, to fulfill a long-time dream of joining the Armed Forces after a kidney stone was extracted percutaneously.

The University now operates a Stone Clinic, built on removing present stones percutaneously and preventing further stones from forming. It utilizes the services of the nephrostolithotomy team, a specialist in the metabolic aspects of stone formation, and a dietician and holds sessions every Friday. For information, call the Department of Urologic Surgery at (612) 373-8780.

Editor:

There are many implications that could be drawn from the report that I have joined Group Health in Canton, China. It is true that HMO's have been viewed by some as socialized medicine, possibly even a communist plot. And, to be sure, Group Health in particular has grown rapidly in recent years. Also, I did indeed live in Hong Kong for about 8 years, visited Canton and speak Cantonese. Beyond that, the report is a complete mystery until I recall that I may have sent you my alumni information handwritten.

Ross S. Olson MD
5512 14th Avenue South
Minneapolis, Minnesota 55417



Dr. Harvey O. Beek, Class of 1933, will chair the 50th Class Reunion of medical alumni June 2-3, in Minneapolis. With assistance from classmate Dr. Harold Buchstein, plans are underway for this very special occasion. Class members are urged to return the information forms that were sent to them in February.

Oversights missions and bservations

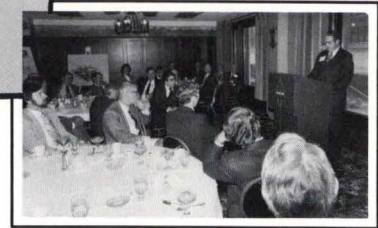
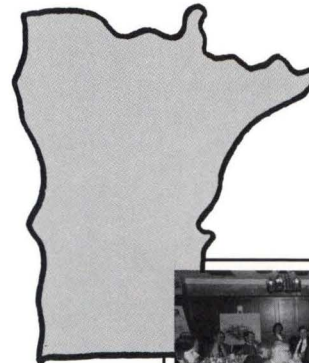
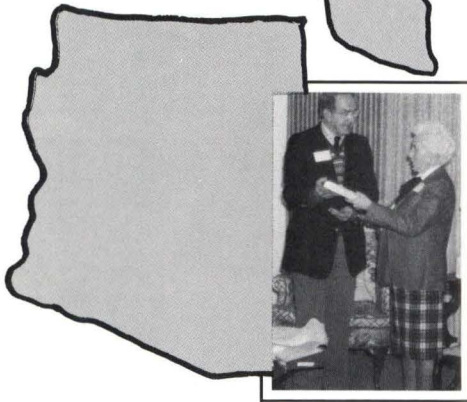
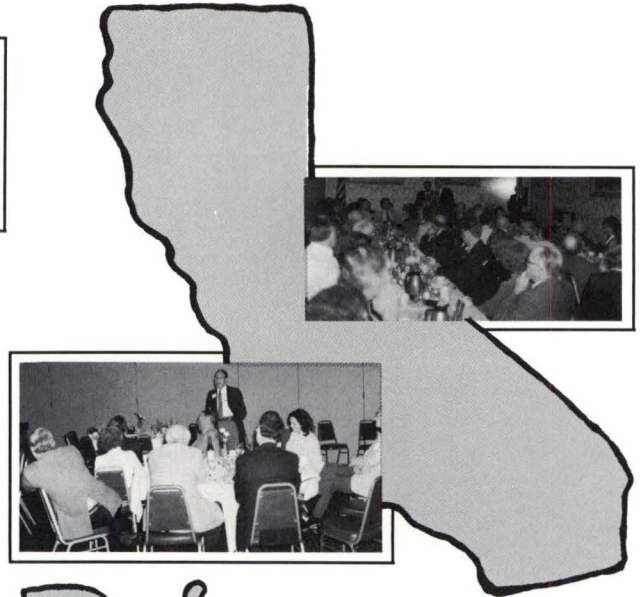
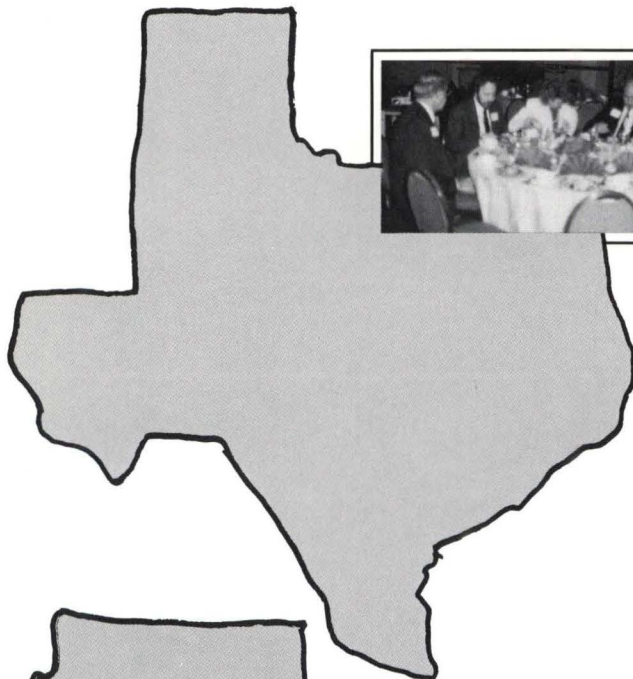
Dr. Stanley M. Goldberg, '56 Minnesota medical graduate and head of colon and rectal surgery at the University of Minnesota, really believes that physicians should support the work of the Minnesota Medical Foundation.

He was embarrassed that his name didn't appear in its usual place on the Dean's Club donor list in MMF's 1982 Annual Report. Well, it should have, because his contribution was made and an error omitted the listing in the Report.

Dean's Club members contribute from \$500 to \$999 to the Foundation during the year being reported. The Foundation offers this belated thank you to Stan and Luella Goldberg for faithful annual support which did *not* miss 1982.

And . . . We apologize to Dr. Stanley Erlandsen for omitting from the last issue of the **Bulletin** appropriate photo credit. The photographs of *Giardia lamblia* appearing on the cover of the Fall issue were, indeed, taken by Stan.

And . . . Dr. L.M. Hammar, Mankato, made his 14th consecutive annual Centurion Club donation to the Minnesota Medical Foundation in 1982. Unfortunately, his name was also omitted from the 1982 Annual Report. Dr. Hammar is a member of the 1935 class in medicine.



Like an interim church pastor, Neal Gault is just as much at home on the road as he is at home. Dr. Gault, dean of the Medical School, took his message and road show to some Minnesota medical alumni in February, courtesy of the Minnesota Medical Foundation.

First stop was in Dallas, TX for a meeting with alumni leaders to begin building a chapter of medical alumni in that region of the state.

Then on to Prescott, AZ where the dean called on a foundation to request support for the University's diabetes and pancreas transplant programs. Then to Sun City, AZ where he presented a President's Club plaque to Ms. Sam Boyer, widow of the late Dr. Sam H. Boyer who is credited with mustering support for the establishment of the School of Medicine in Duluth.

On Saturday, it was on to San Jose, CA where

Dean Gault joined alumni for a luncheon, giving them an update on the Medical School and answering their questions about former and current faculty members. After lunch, he headed north to Oakland for dinner with medical and non-medical alumni from UMD and the Twin Cities.

A week following his return from the Southwest, Dean Gault, joined by officials of the Medical Foundation, was on his way to talk to some 30 medical alumni in Rochester, MN where he discussed the new hospital currently under construction in the Health Sciences complex on campus.

Groups of medical alumni throughout the country who are interested in having the dean or other Medical School representative visit for a meeting are asked to contact the Alumni Office, the Dean's Office or the Minnesota Medical Foundation.

I would like further details of the Pooled Income Fund. Please contact me.

Please provide specific information regarding the tax deduction in my particular case.
My date of birth: _____

If two-life plan is desired, date of birth of second beneficiary: _____

NAME _____

ADDRESS _____

City _____ STATE _____ ZIP _____

PHONE (AREA) _____

Return to: MMF, 535 Diehl Hall, University of Minnesota, Minneapolis, MN 55455

----- (Please clip and mail in your envelope) -----

Cooperation asked in reducing duplicate mailings

As the Minnesota Medical Foundation continues its efforts of stewardship, it is important to look for every area in which savings may be possible.

One area we are pursuing is reduction in the number of duplicate mailings sent out. Over the last several years the Foundation has moved to centralize its mailing lists to help avoid the proliferation of small separate lists, which were a major factor in the multiple mailings some receive.

However, during this centralization process, a number of these

duplicate names and addresses became a part of the main computer system in spite of review procedures. We are now beginning a concerted effort to eliminate duplicates from the computer and we need your help. The surest, most cost-efficient way for us to identify and remove duplicates is for people receiving them to let us know.

We realize most people are busy and have trouble finding time to write, so we have tried in this issue of the **Medical Bulletin** to make notification easy. If you receive more than one copy of this publica-

tion, please take the labels off *all* the copies you received, stick them on the tear-off sheet below (use the back also, if necessary), and send them to us as indicated, with any corrections that may be needed.

We currently estimate that 5 percent of the addressing data base represents duplicates. If we can reduce the number of duplicate mailings it would result in a meaningful savings in postage, publishing, and time. The Medical Foundation thanks you for your cooperation.

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535 Diehl Hall
University of Minnesota,
Minneapolis, MN 55455**

MINNESOTA MEDICAL FOUNDATION

1983

DR. J. JACOB KAPLAN AWARD FOR MEDICAL RESEARCH

The Minnesota Medical Foundation announces 1983 competition for the DR. J. JACOB KAPLAN AWARD, the largest individual prize for distinguished medical research accomplishment by a student at the University of Minnesota.

The award includes a cash honorarium of \$1,500.00, and is offered annually for the most meritorious student paper on either clinical or basic medical research.

The award is given on a rotating basis for research in three fields of medicine: **Gastroenterology, Cardiology, and Immunology in Diagnosis and Treatment of Cancer.**

1983 competition is in the field of Gastroenterology.

The award honors great medical teaching at the University of Minnesota in the tradition of Owen H. Wangensteen, Maurice B. Visscher, Robert A. Good, Elias P. Lyon, and E. T. Bell.

It is intended to encourage and recognize scholarly achievement in medical research by young investigators.

This program is sponsored by the Minnesota Medical Foundation, medical benefactor of the University, with an endowment contributed by the late Dr. J. Jacob Kaplan, Medical School Class of 1939, and his family.

Eligibility Requirements

Applicants must be currently enrolled as an undergraduate or graduate student at the University

of Minnesota, Minneapolis or Duluth campuses, or have accomplished medical research under supervision of any Medical School department. Enrollment during the previous academic year will also qualify an applicant. Applications must be accompanied by a brief statement of sponsorship by a member of the faculty, and may be filed in the name of single or co-authors.

Manuscripts must be previously unpublished, and must describe medical research conducted during any of the three previous years (1980-81-82), at least a portion of which was conducted at the University of Minnesota. The research may cover more than a single year's work, and must have been primarily conceived and conducted by the student.

The winning paper will be selected by the Honors and Awards Committee of the Medical School, which will have final authority on questions of eligibility and merit.

Field of Competition for 1983: **Gastroenterology.**

Application forms may be obtained from, and completed applications should be returned to:

EXECUTIVE DIRECTOR
Minnesota Medical Foundation
535 Diehl Hall — University of Minnesota
Minneapolis, Minnesota 55455
Phone: (612) 373-8023

The **deadline** for submission of papers: **June 30, 1983.**

Professorship established in honor of Dr. Harold Scheie, Minnesota alumnus, Eye Institute founder

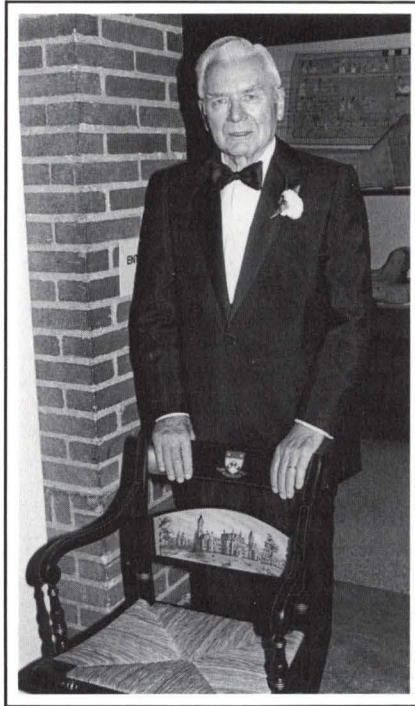
A research professorship in ophthalmology in honor of Minnesota alumnus Dr. Harold G. Scheie, founder of the Scheie Eye Institute and professor emeritus of ophthalmology, has been established at the University of Pennsylvania.

The announcement in November of the Harold G. Scheie Research Professorship in Ophthalmology coincided with the observance of the eye institute's 10th anniversary. The institute is located at the Presbyterian-University of Pennsylvania Medical Center, and it houses the University's Department of Ophthalmology, which is in its 108th year.

The University established the endowed chair in Dr. Scheie's name to recognize his distinguished career and the profound influence that he has had on the field of ophthalmology at the University of Pennsylvania and throughout the world.

Dr. Scheie, ophthalmologist, teacher, author and humanitarian, is known most for establishing techniques in eye surgery that now are used throughout the world.

The son of homesteader parents, Dr. Scheie spent his early years living in a sod house on the Berthold Indian Reservation in North Dakota. He graduated from high school in Warren, Minnesota, where he was captain of both football and basketball teams. He worked his way through The University of Minnesota, both undergraduate and medical school. After graduating from the Medical School in 1935 with honors, he went to Philadelphia to stay, first as an intern at the Hospital of the University of Pennsylvania and then as the first doctor to complete his residency in ophthalmology at The Hospital of the University of Pennsylvania.



Dr. Harold Scheie proudly displays the new Research 'Chair' in ophthalmology named for him at the University of Pennsylvania School of Medicine. The establishment of the chair was announced in November.

Dr. Scheie joined Dr. Francis H. Adler, then chairman of the Department of Ophthalmology at University of Pennsylvania, in private practice in 1940, but was soon called into active duty during World War II. In 1943, Capt. Harold G. Scheie served as head of the ophthalmology section of the 20th General Hospital in Ledo, Assam, near the Burma border. One of his patients there was Lord Mountbatten, the Commander and Chief of Allied Forces in the China-Burma-India theater. The British Lord and the American doctor remained friends until Lord Mountbatten's death in 1979.

Dr. Scheie remained in the Army Reserve after release from active duty and retired as a brigadier general in 1964.

Following World War II, he re-

turned to the University of Pennsylvania as professor and then in 1960 as chairman of the department of ophthalmology.

Dr. Scheie is known, among other things, for modifying an established technique for aspirating congenital, or soft, cataracts and developing a cautery procedure for glaucoma that is now used worldwide. He also delineated a rare, inherited, metabolic disease that is now called the Scheie Syndrome. Through the years, he held a great interest in infantile glaucoma: he confirmed the effectiveness of Barkan's operation (goniotomy) for the condition and developed a new procedure, goniopuncture, for selected patients. Dr. Scheie recorded these and other ophthalmologic developments in over 200 scientific papers and books.

In 1972, the chairman of the department of ophthalmology became director of the new Scheie Eye Institute at Presbyterian-University of Pennsylvania Medical Center, Philadelphia. The Institute — built entirely with private funds largely provided by former patients — realized an idea that Dr. Scheie envisioned in the 1950's when the department of ophthalmology was outgrowing its quarters at the Hospital of the University of Pennsylvania.

He retired as chairman of the department in 1975, but continues his practice at the Institute where he serves as Founding Director.

He has been a member of over 100 organizations including the Academia Ophthalmologica Internationalis; American College of Surgeons on the Board of Regents (1964-1972); the American Medical Association, secretary of the section of ophthalmology (1954-1959)

(See "Dr. Scheie", page 29)

Class Notes

'27

Harold C. Ochsner, Sr., Indianapolis, IN, presented the \$2,500 check of the Fifty Year Club of American Medicine to the AMA-ERF at the opening session of the Interim Meeting of the House of Delegates of the AMA in Miami in December. Dr. Ochsner is a life member and president-elect of the Fifty Year Club.

'37

Edmund B. Flink was a visiting professor in the Department of Laboratory Medicine at the University of Minnesota Hospital from October 11 to October 22. He delivered the Gerald T. Evans Lecture on October 15. He currently is the Benedum Professor of Medicine at West Virginia University and formerly chairman of the Department of Medicine. He was a member of the Department of Medicine at the University of Minnesota from 1937 to 1960.

'38

Robert Tudor is one of ten recipients of the Distinguished Service Award presented recently by the National Interscholastic Athletic Administrators Association. Awards were presented in Indianapolis, IN at the National Conference of High School Directors of Athletics in December.

A tireless and enthusiastic supporter of interscholastic athletics, Dr. Tudor has developed and coordinated programs in sports medicine on the high school level for the past 25 years in North Dakota. His expertise and extensive service have been particularly influential in the com-

munities of Bismarck and Minot, but have also spearheaded significant strides statewide.

A consultant on sports medicine for the Bismarck public schools, Tudor is a member of two hospital staffs and a pediatrician for the state's largest clinic.

'42

Valentine O'Malley has been named deputy state health commissioner for the State of Minnesota. Dr. O'Malley has been in private practice in St. Paul, MN since 1955. He was state Health Board president in 1977, chief of staff at St. Joseph's Hospital from 1967 to 1969 and chief of the outpatient chest clinic at the Fort Snelling VA Hospital from 1950 to 1952.

'47

Ben P. Owens, family physician from Hibbing, MN and last year's Minnesota Family Physician of the Year, has been named chairman of the state's Health Advisory Council by Minnesota Governor Rudy Perpich.

'53

E. C. Countryman (Jackson) is working at the Highland County Plasma Donor Center in San Jose, CA. At the recent medical alumni meeting there, she said she'd be happy to see or hear from any of her classmates from class years '51 or '53.

'56

M. J. Rosenholtz, Columbia, MO., reports that he continues to be very active in Common Cause, having served

this past summer and fall as interim state chairman.

'59

Grune & Stratton, Inc. has released a new book authored by Robert T. Dale, now practicing ophthalmology and ophthalmic surgery in Rochester, NY. The book, *Fundamentals of Ocular Motility and Strabismus*, is 464 pages, illustrated and sells for \$59.50.

'61

Joseph J. Westermeyer, St. Paul, MN., has been reappointed to the Alcohol-Drug Task Force of the National Board of Medical Examiners. He has also been appointed as consultant to the World Health Organization to develop a teaching manual for alcohol and drug abuse to be used in medical centers and medical schools.

'64

Craig Christianson delivered a baby in December. So what, you might ask. Dr. Christianson answered a call from the Delano, MN Sheriff's office late one evening to attend an expectant mother about a quarter-mile away. Since the area was in the midst of receiving a record snowfall, Dr. Christianson said, "I just jumped onto my cross-country skis, got my little black bag and went out there." The trip took about 25 minutes and the doctor arrived with time to spare before delivering the new baby. After making sure the baby and the baby's family were doing fine, he went home . . . on skis, of course.

'72 John Carson recently accepted an opportunity to be commissioned as a lieutenant commander in the U.S. Navy. He began training in the Navy's six-month undersea medical officer course in New London, CT in January.

'75 John W. Bachman was chosen Outstanding Young Minnesotan by the Rochester Jaycees. Dr. Bachman completed his family practice residency in Duluth, MN. and is now practicing in Zumbrota, MN.

'77 Carolas Abraham Gutierrez is in private pediatrics practice in El Paso, TX. He is president of the El Paso Pediatric Society, a member of the American Medical Association, Texas Medical Association and the El Paso County Medical Society. A fellow in the American Academy of Pediatrics, Dr. Gutierrez completed a three-year pediatric residency at the University of Washington Hospitals, Children's Orthopedic Hospital and Medical Center in Seattle, WA.

'79 Ada Helleloid, having completed her family practice residency training in Worcester, MA, is now on the staff of a 46-bed hospital in Pakistan. Dr. Helleloid's brothers, Burton ('77) and Charles ('74) both practice in International Falls, MN.

"Lab Med" from page 17

Certain phenolic compounds and BHA, the anti-oxidant food additive, do something which is extremely simple: they take the hazardous substance, the carcinogen, and convert it to a form that will be excreted in the urine or bile. We're trying to manipulate this response.

"Then, there are compounds which — once the target site has been hit, so to speak; once the carcinogen has acted — suppress the development of the neoplastic process. They stop the cancer cold. How they do this, the mechanism by which they sit on the cancer process, is unknown.

"Some of these compounds are called retinoids, and some of them occur naturally in cruciferous vegetables — the cabbage family. Coffee beans are high in phenolic compounds, before they are roasted. Citrus oils seem to exert suppressant effects. We lack resources, in this lab, to screen all of these substances, but we're trying to develop techniques for screening foods to pick up the occurrence of blocking or suppressing agents."

About ten co-investigators — technicians, graduate students, and fellows — work with Wattenberg, and they collaborate with Vincent Garry, in Environmental Pathology, Richard Estensen, and Danuta Malejka-Giganti, at the VA Hospital.

"This laboratory operates at about 50 percent of optimal capacity," Wattenberg says. "We have three crude materials that we know contain inhibitors, and we can only tackle one of them. It's absurd that we lack resources for mounting a preventive program."

Chromosome Banding

Jorge Yunis and his colleagues have developed a technique of stretching human chromosomes so

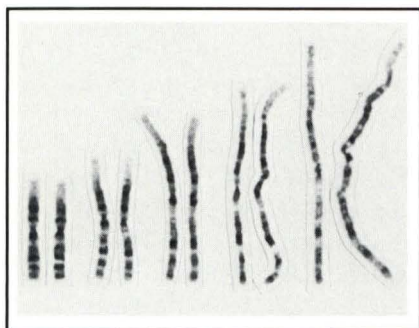
that many more segments, or "bands" as he calls them, can be visualized than ever before. "Before 1976, investigators were able to visualize 300 bands per haploid pair of chromosomes," says Yunis; "by that year, we were able to increase the number to 1,200." This year, he says they will publish results showing identification of more than 3,000 chromosome bands.

Visualization of the bands on a chromosome allows the investigator to localize genes. Under electron microscopy, the genes show "like beads on a string," to use Yunis' vivid image. "We can now localize and identify chromosomal abnormalities that lead to a number of birth defects: infertility, habitual abortion, and various degrees of brain dysfunction." Yunis' laboratory has been cited by the March of Dimes for their contributions to the field of birth-defect research.

Their work has also proved important to paleo-anthropology. They have published a number of comparisons of human chromosomes with other primates. Humans share about 21 of their 23 chromosome pairs with certain other primate species. "From what is missing," says Yunis, "we can deduce what characteristics a 'missing link' might have had" — the so-called hominid ape that is sometimes thought to represent the evolutionary link between present species of primates and humans. "These chromosome bands are like the footprints of evolution," said Yunis. "We can see the whole genome."

It is in the field of cancer research, however, that their work has had the most immediate impact. "Before 1980, it was thought that chromosome defects were present in only 50 percent of cancer patients. Since 1980, with our high-resolution chromosome-banding techniques, we have studied 300

In Memoriam



No. 1 human chromosome, left, showing bands visible in ordinary state, through stretching to right, maximum visibility of bands.

consecutive patients with cancers, some with leukemias, some with lymphomas, and some with solid tumors, and we have found chromosomal defects in 98 percent in this series.

"At this point, we can say that probably 65 percent of cancers are correlated with specific, identifiable chromosome defects. And this has prognostic value: we have identified 30 specific cancers which can be correlated with specific defects, and we can identify the subtypes of leukemia or lymphoma and predict with great accuracy the patient's response to certain kinds of therapy.

"The two main types of chromosome defects are translocation, which is more common in leukemias and lymphomas, and band loss or deletion, which is more common in solid tumors. Our immediate future prospect is to identify the oncogenes, the cancer genes, and to investigate the possibility of treatment by inactivating these genes," Yunis explained. ☂

Dr. Llewellyn R. Peck, '29, Hastings, died December 22, 1982 in Cannon Falls Community Hospital. He was 77. Dr. Peck was an intern at the former St. Barnabas Hospital, Minneapolis, for a year. He set up practice at the former St. Francis Hospital, Hastings, with his father, Dr. L. D. Peck, who died in 1947.

Dr. Peck continued as a general practitioner at the hospital until it was converted into a nursing home in the mid-1950s. He then ran the home until he retired in 1962.

Dr. David H. Kaplan, '31, Edina, died January 19. He was 76. Dr. Kaplan was retired chief administrator of Veterans Administration Out Patient Clinic at Fort Snelling, and was a member of B'Nai Brith, Maccabees, AMA, Ramsey County Medical Society and A.F. and A.M. Masons.

Dr. Russell F. Hanson, '66, '72 PhD, Minneapolis, died November 19, 1982 of injuries received in an automobile accident. He was professor of medicine at the University of Minnesota, noted for his research in gallstone disease. Dr. Hanson's research received support from the Minnesota Medical Foundation.

Dr. William N. Makaroff, '32, Santa Rosa, CA, died October 13, 1982. He was Food for Peace Program Officer in Chile from 1962 to 1964 under the AID program. During that time, he perfected a set of grids which showed how to balance the protein content in grains.

Dr. Conrad Karleen, '38, '29 DDS, Minneapolis, died December 1, 1982. He was 78. Dr. Karleen received his dental degree from the University in 1929 and nine years later received his medical degree, having worked his way through the University's Medical School practicing dentistry in Minneapolis.

During World War II, he served in the Army and was stationed at a hospital in Springfield, MO, where

he reconstructed the faces of servicemen who suffered facial wounds. After the war, from 1945 to 1947, he continued doing reconstructive surgery on soldiers at an Army hospital in El Paso, Texas.

He had a private plastic surgery practice in downtown Minneapolis from 1947 until his retirement in 1975. From 1947 to 1972, he also was clinical professor of surgery at the University of Minnesota. University of Minnesota.

He was emeritus professor of surgery at the University of Minnesota and a member of several medical societies, including the Hennepin County Medical Society, American Society of Plastic and Reconstructive Surgeons, American Society of Maxillo-Facial Surgeons, Minneapolis Surgical Society and the Minnesota Academy of Medicine.

Dr. Bernard G. Zimmermann, '53, St. Paul, died December 4, 1982. Dr. Zimmermann had been on staff in the Department of Surgery at the University of WV.

Dr. Julian L. Berman, '60, Minneapolis, died December 4, 1982. He was 47. Dr. Berman was director of medical education and patient care at Minneapolis Children's Center. He had been a faculty member at the University and was also professor and chairman of the Department of Pediatrics and associate dean for clinical facilities and graduate medical education at the Chicago Medical School.

The Medical Bulletin has also received word that the following alumni are also deceased:

Dr. James Currens, '43, Boston, MA.

Dr. Wilford F. Widen, '20, Minneapolis, MN.

Dr. Robert L. Wylie, '44, Los Angeles, CA.

Calendar

Dr. Scheie from page 25

and chairman of the section in 1960; and the American Ophthalmological Society as president of council in 1970. He received more than 50 honors and awards including the highest award in ophthalmology, the Howe Award from the American Medical Association in 1964. International honors include Honorary Member of the Order of the British Empire (followed World War II); Personal Medal from the British Minister of Defense from the Earl Mountbatten of Burma in 1964; and Election of Honor to the Royal Scientific and Humanistic Society of Gothenburg, 1966. He received the Horatio Alger Award from American Schools and Colleges Association, 1974, a Distinguished Pennsylvania Award, William Penn Committee, Greater Philadelphia Chamber of Commerce in 1977; the Penn Club Award in 1972; the Pennsylvania Award for Life Sciences from the Governors Committee of 100,000 Pennsylvanians in 1969, the Strittmatter Award from the Philadelphia County Medical Society in 1976; an honorary doctorate of Law from the University of Pennsylvania in 1978; and an honorary doctorate of Medical Science from Villanova University in 1968. He was honored by a resolution of the City Council of Philadelphia in June, 1982. Two of his many lectureships include the Mary Louisa Prentice Montgomery Lecture in Ophthalmology at Trinity College, Dublin, Ireland, 1969; and the James A. Craig Lecture in Ophthalmology (Queen's University of Belfast), November 1969.

Dr. Scheie is married to Maryann Tallman Scheie, and has two children: Eric Glendon Scheie and Nancy Ware Scheie.

Mar. 19,20	Endourology: Percutaneous Access to the Urinary Tract Health Sciences Unit A, U of M, CME 612-373-8012
Mar. 24,25	Gynecology Update for Primary Care Physicians St. Paul-Ramsey at St. Paul Hotel, CME 612-221-3992
Mar. 26	Hospital Medical Staff Leadership Conference 8 a.m.-3:45 p.m., Sheraton Midway, St. Paul, MMA/MHA. Call 612-378-1875
Apr. 6,7	Behavioral Medicine: Diabetes, heart disease, cancer and pain: medical and behavioral strategies; Coffman Memorial Union, U of M. Call CME 612-373-8012
Apr. 8,22	Treatment of Family Sexual Abuse: Advanced Training Project, U of M, CME 612-376-7520
Apr. 8,9	Common Colorectal Problems for Primary Care O of M, CME 612-373-8012
Apr. 13,15	33rd Annual Spring Refresher of the Minnesota Academy of Family Physicians, Radisson South Hotel, Bloomington, MN
Apr. 21,23	Allergy and Clinical Immunology, Mayo Memorial Auditorium, U of M, CME 612-373-8012
Apr. 25,26	Current Management of Vitreo-Retinal Disease, Holiday Inn, Downtown Minneapolis, CME 612-373-8012
Apr. 27	Quarterly meeting of the Minnesota Medical Foundation Board of Trustees, 5 p.m.; Minnesota Mutual Life Insurance Company, St. Paul Call 612-373-8023.
Apr. 27,29	AAMC — GPA's 1983 Regional Conference, St. Louis, MO
Apr. 29,30	Medical Evaluation for Disability Claims, Marriott Inn, Bloomington, MN, CME 612-373-8012
May 2,6	Family Practice Review and Update, Radisson Hotel, St. Paul CME 612-373-8012
May 16,17	Topics and Advancement in Pediatrics, Mayo Memorial Auditorium, U of M, CME 612-373-8012
May 18,20	The First World Congress on Cancers of the Skin, New York City. Minnesota Medical Association Annual Meeting, Radisson South Hotel, Bloomington. Call 612-378-1875
May 23,24	Congenital Heart Disease, Mayo Memorial Auditorium, U of M, CME 612-373-8012
May 25,27	Current Concepts in Radiation Therapy, Mayo Memorial Auditorium, U of M, CME 612-373-8012
June 2,3	50th Reunion for the Medical Class of 1933. Call 612-373-8023
June 9,10	Medical research symposium on the medical, psychological and physiological aspects of marathon running, 8:30 a.m.-4:30 p.m., UMD School of Medicine, Duluth. Call 218-726-7581
June 10,11	Clinical Hypnosis, Earle Brown Center, U of M, St. Paul CME 612-373-8012
June 15,18	Gastrointestinal Surgery, Willey Hall, U of M, West Bank, CME 612-373-8012
June 23,25	National Behavioral Pediatrics Conference, Earle Brown Center, U of M, St. Paul, CME 612-373-8012
June 29,30	Human Aging VI, U of M Campus, CME 612-373-8012



Minnesota Medical Foundation
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ADDRESS CORRECTION REQUESTED

*Here's your agenda for
the 50th reunion program of
the 1933 Medical Class*

Thursday, June 2, 1983

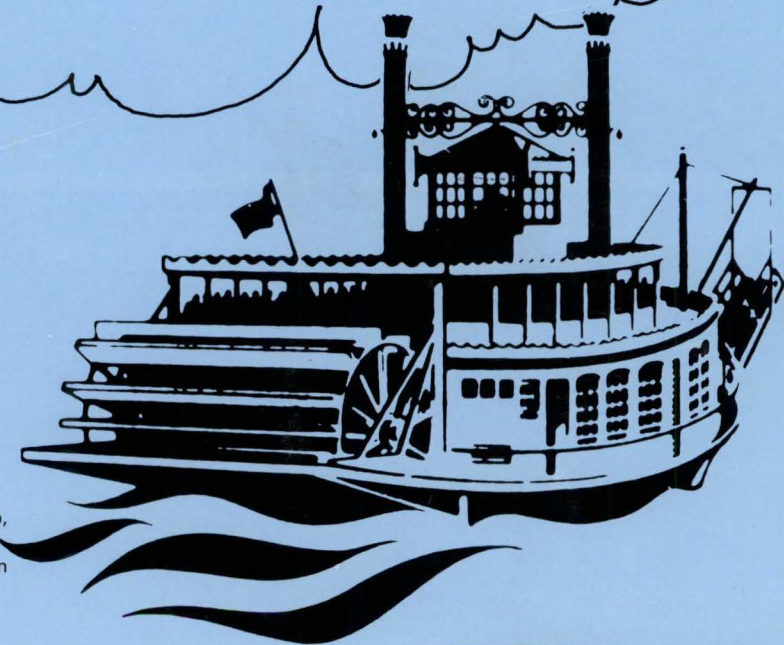
Boat trip down the Mississippi 1-4 p.m.
Cocktails, 6:30 p.m. at the Pool and Yacht Club —
St. Paul
Dinner, 7:30 p.m. at the Pool and Yacht Club —
St. Paul.

Friday, June 3, 1983

Tour of the Medical School, 9:30-11:30 a.m.
or
On your own, 9:30-11:30 a.m.
Medical Foundation luncheon at the Campus Club,
Noon
Commencement and Class of '33 recognition, 2 p.m. in
Northrup Auditorium
All class reception on the mall, 5 p.m.
Host's buffet at Somerset Country Club, 7 p.m.

Saturday, June 4, 1983

New Horizons in Medicine, Times TBA



JOIN US

ABOARD THE STERNWHEELER

JONATHAN PADEL FORD

*Thursday, June 2, 1 p.m.-4 p.m.
Departure — Harriet Island — St. Paul*

*INVITATIONS HAVE
ALSO BEEN SENT
TO THE CLASSES
OF '31, '32 & '58*

Dr. Harvey Beek
Chairman