



From the Institute of Technology, University of Minnesota

**ALUMNI REUNIONS**

IT's older grads are keeping busy. Pages 3-5.

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**GROUND BROKEN FOR NEW IT 'FLAGSHIP'**

Electrical Engineering/Computer Science Building. Page 7.

**TELESCOPE PROJECT UPDATE**

Astronomy begins fund-raising drive. Page 8.

**1985 OAA WINNERS**

Johannes Coetzee and George Parshall. Page 14.

# MRRC fires up new oven

**Director Ken Reid: "We're going to cook up a whole heap of things with it."**

**By Deane Morrison**

What do a chef at the Waldorf and a Blue Angel pilot flying loops have in common?

Both depend on ferrochrome, an iron and chromium-containing metal that lends strength and shine to stainless steel utensils and heat and corrosion resistance to aircraft engines that otherwise might fail in mid-loop.

But about half of the ferrochrome for U.S. industry comes from South Africa, where political unrest makes dependence on this strategic metal risky. Achieving independence is one goal of the Mineral Resources Research Center (MRRC), which in November unveiled a new furnace to smelt domestic chromite ore.

The furnace, called a transferred plasma arc furnace, uses an electric arc to heat gases to temperatures well over 2,000 C. The extreme heat knocks the gases into the highly ionized "fourth state of matter" known as plasma. As the plasma heats the ore, the metal oxides in the ore lose their oxygen atoms and separate as pure metal from the slag, or waste.

The electric arc heats gases to higher temperatures than are possible with fossil-fuel furnaces. This is also true of South African furnaces that prepare ferrochrome. But one important difference between furnaces in the two countries explains why the United States remains dependent on imports.

"Domestic ore is not pure enough to smelt in conventional furnaces, and that's why the U.S. has to import about 90 percent of its chromite, half of it from South Africa," said Kenneth Reid, director of the MRRC. "The African ore is of a higher grade and can be fed into furnaces in chunks. But domestic ore

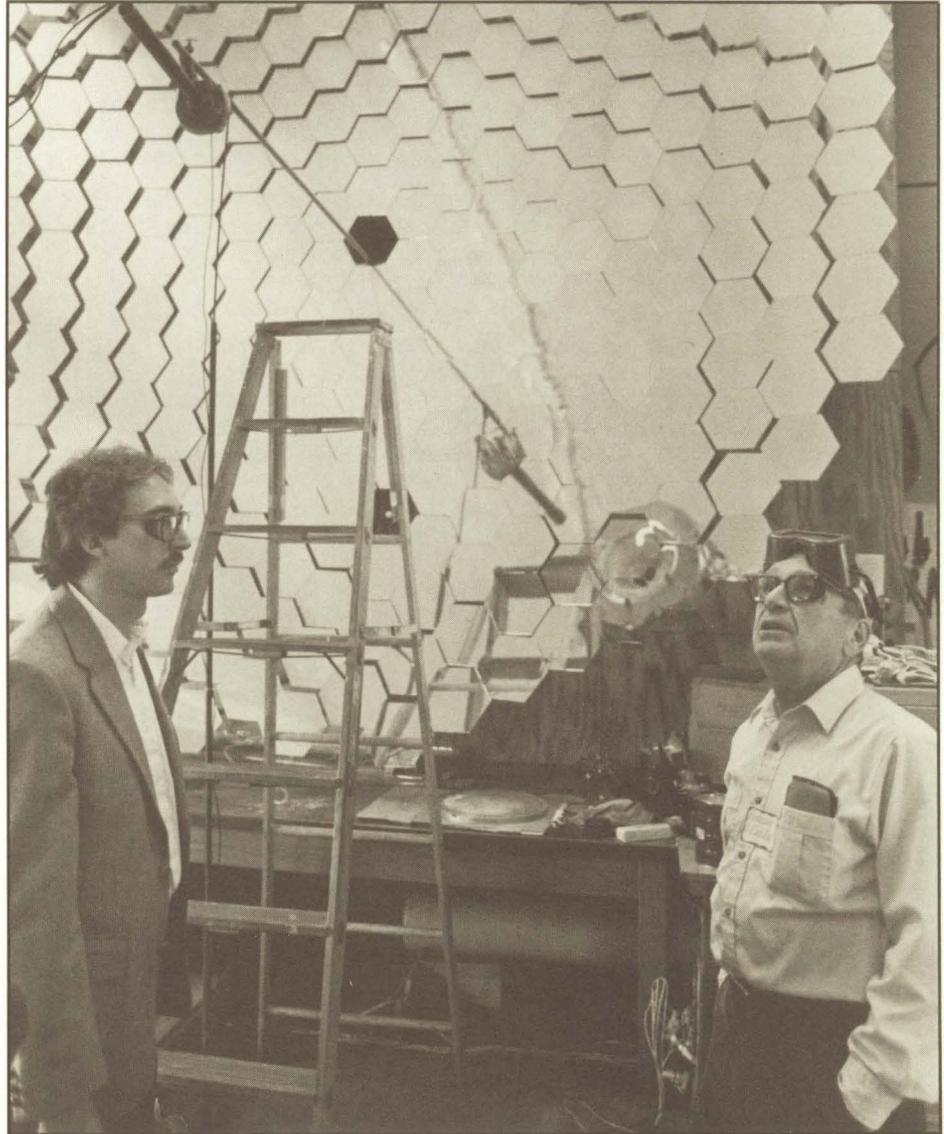


Photo by Mary Perkins

## Up In the Sky!

October's S&T Day became a special alumni weekend in 1985, beginning with Friday's special seminar honoring Regent's Professor Emeritus of Chemistry Bryce Crawford, followed by the annual S&T Day banquet. The next morning, visiting alumni toured their old departments, seeing new projects and improvements. Above, mechanical engineering professor Ed Fletcher (right) explained the department's new solar furnace to Frank Earl ('75, ME). During the afternoon alumni attended the Homecoming game, then joined their classmates for reunion dinners. For more details, see S&T Day, page 2, coverage of alumni reunions beginning on page 3, and comments from the national science policy symposium on page 6.

## Science and Technology Day 1985 saluted achievement

The Institute of Technology Alumni Society (ITAS) held its annual Science and Technology (S&T) Day meeting and banquet Oct. 24, 1985. The day's theme, "The Pioneering Spirit: Fifty Years of Individual Achievement," honored the fiftieth reunion of IT's extraordinary class of 1935.

About 600 alumni, corporate friends of IT, and University people gathered at the Radisson South Hotel in Bloomington for the evening ITAS meeting and banquet. During the meeting, 1985 president Greg Vandesteeg ('76 Ph.D., CHEM) of 3M Co. turned the gavel of office over to 1986 president Jim Sutherland ('61, AG ENG) of Specrotech International Inc. After dinner, Gifford Pinchot III, author of *Intrapreneuring: Why You Don't Have to Leave the Corporation to be an Entrepreneur*, described the process of individual innovation within organizations.

The S&T day celebration highlighted an event-filled weekend of special interest to alumni. The banquet followed the chemistry department's Friday afternoon national science policy seminar; on Saturday, alumni attended department tours, the University's Homecoming game with Ohio State, and evening reunions of the classes of '35, '45, '60, and '75 (see related stories in this issue).

S&T Day, ITAS' primary fundraising event, provides a rare opportunity for IT alumni, industrial friends, and internal people to meet one another. ITAS board members organize the banquet and sell patron tables to companies and other alumni. For S&T Day 1985, companies bought 70 tables, and 140 alumni purchased individual places. The proceeds support student activities and publications, student scholarships, and teaching awards, finance part of *Items* costs, and provide operating expenses for ITAS.

The ITAS board is already preparing for this year's S&T Day, planned for Oct. 17.

ITAS and the Institute of Technology thank the following members of the business and industrial community for their 1985 S&T day patronage and for their invaluable continuing interest in and support for the institute's activities:

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Department head Bob Collins (right) discussed changes in EE with (standing, from left) Carroll Elliott ('30), Oscar Schott ('34), Keith Bleuer ('35), and Frank King ('60), whose son is the third generation of his family in Pioneer Hall.



Alumni on EE's department tour were shown the "clean room" in which sensitive electronic research and fabrication take place.



Dean Ettore Infante and Sam Teresi ('35, EE) took a seat for a quiet discussion.

Photos by Mary Perkins

*They just don't take retirement lying down*

# Grads report on life in the fast lane

By Nancy Lewis

"Old heat treaters never die; they just lose their temper!"

That was the way way **Sam R. Calloway ('40, METALLURGICAL ENG)** announced his recent retirement in a note to *Items*.

The truth is, however, that many IT alumni seem to gain more than they lose as their years increase. Long after others of their generation have assembled their memoir-writing equipment and headed for a rocking chair, IT alumni are consulting around the world, running businesses, going back to school to learn new skills, traveling, and having fun.

For example, **I.L. McNally ('31, EE)**, wrote to bring us up to date on his career and to note that 1985 was the nominal 50th anniversary of radar. He is a former head of the search radar design branch in the Bureau of Ships, and was active at the Naval Research Laboratory in Washington D.C. during radar's initial development. Minnesotan Robert Page directed the effort which led to the first practical shipboard air-search radar in 1938.

McNally wrote that "one of the outstanding developments incorporated in this system was a duplexer which permitted the transmitter and receiver to operate on the same antenna. Skeptics, and radar had its share, stated that it would be impossible for a receiver to recover in a few microseconds after being subjected to the powerful transmitter pulse. This TR technique was shared with the British Technical Mission ... under the impetus of war, development was rapid."

He continued: "After the war, the branch was expanded to include such electronic aids to navigation as Loran, Omega, Tacan, IFF, GCA, and NTDS. The Navy Tactical Data System has extensive provisions for multiple sensor inputs, data computation, navigation, and display. It utilizes a computer developed in Minneapolis and the first two project officers were University of Minnesota alumni."

If one assumed that, with so much to look back on, McNally spends his time in happy reverie, one would be wrong. "Since 1970 I have been a consultant to the Department of Justice in litigations involving maritime disasters in which electronic aids to navigation were a

factor. The salt water in my blood keeps me sailing my 27-foot Ericson sailboat which is equipped with a variety of electronic aids to navigation, including a full-fledged ham radio station." He also spoke at the 1985 IEEE International Radar Conference that marked radar's anniversary.

The class of 1935's 50-year reunion, and reunions of the classes of 1945, 1960, and 1975 were held in conjunction with the Alumni Society's Science and Technology Day and University Homecoming last October. What follows is a sampling from those who attended a reunion or sent letters if too busy to attend, clearly demonstrating the energy and zest of our older alumni.

**Hubert Harmon ('35, AERO), and Elmer Bernard, Arnold Cohen, and Howard Newell ('35, EE)** all may be retired, but they weren't too relaxed to plan their 50-year reunion. They spent hours going over lists, racking their brains, calling and writing to people, and generally attending to the event's thousand details. They felt their efforts were amply rewarded when the evening arrived: in the warm environment of the new University Radisson Hotel, old friends greeted one

another, asked the piano player to play their favorite tunes, and caught up on each other's news. They reminisced together over a display of early yearbooks, newspapers, and class pictures, and examined the recently opened time capsule from the cornerstone of the old Experimental Engineering building.

The oldest, and perhaps the most energetic reunion attendee was **Raymond Ascher ('23, ME)**, who traveled from Birmingham, Mich., with his wife, Esther. After dinner and presentations by Dean Infante, electrical engineering head Bob Collins, new ITAS president Jim Sutherland, and new development officer Bob Hanle, Ascher hoisted his cane and danced a jig to the band's rendition of the "Rouser." (Incidentally, even though she is not a University alumna, Esther Ascher has been active in helping the women's Minnesota alumni group in Detroit organize a successful fundraising effort in which they import and sell Minnesota wild rice. See the November/December issue of *Minnesota* magazine for a story on this group.)

**REUNION to page 4**



'35 AERO grads Raymond Hoag (left), Orlando Kromer, and Hubert Harmon (standing) identified scrapbook pictures for Margaret Kromer.

**REUNION from page 3**

Ascher was a member of mechanical engineering's first post-World War I class, composed almost entirely of returning veterans. He recalled that in 1918, their freshman year, the engineering classes numbered over 500 students while mechanical and electrical engineering had labs for only 80. But only about 80 returned for their sophomore year, and by 1923 the graduating mechanical engineering class was down to just a dozen students. He added that Professor Cook, the dean of physical education and basketball coach, used to start class by jumping onto a 30-inch-high chemistry lab table and showing students exercises they should do to avoid developing "beer bellies at age 40."

**Orlando W. Kromer ('35, AERO)** was inspired by Dean Infante's presentation describing the IT of today and tomorrow to take a look back at his days as a struggling IT student during the Great Depression. He remembers pulling weeds from the stadium turf, waiting on tables, and washing dishes in the University hospital. He also drew soils maps on the "farm campus" for the princely sum of 55 cents an hour (the highest rate of pay at the University at that time) and a free intercampus streetcar pass.

Kromer took extra elective courses in drawing, preventive medicine, and architecture, and studied public speaking after he graduated. His advice for today's student: "An engineer, being creative, must be able to sell his creations as well as himself at all times to obtain the full benefit of his training. The old saying, invent a better mousetrap and the world will beat a path to your door, is not true in the real world nowadays." He took out several patents, but didn't get around to protecting two of his best ideas that are now in extensive use. His experience leads him to recommend that IT students take a course in patents and patent applications to avoid such problems.

**Arnold Cohen**, one of the event's organizers, is another example of IT's extraordinary alumni. After finishing his bachelor of science degree in electrical engineering in 1935, he worked in electron tube development for RCA until 1946. He then joined the newly formed Engineering Research Associates, Inc., a predecessor of today's Sperry Corporation, where he pioneered the development of storage techniques and

computer systems. He managed to squeeze in a doctorate in physics at IT in 1947. In 1971 he became IT's assistant dean for industry and professional relations, and in 1984 was awarded IEEE's Centennial Medal. And Cohen isn't ready to quit: he is now an active senior fellow in the Charles Babbage Institute for the History of Information Processing.

**F. Lowell Taylor ('35, Ph.D., ORGANIC CHEM)** and his wife, Grayce, also attended the reunion. They admitted that they haven't seen a copy of *Items* in several years: they've been traveling so much that their mail hasn't caught up with them. The Taylors said they may spend more time at home in Missouri for awhile and catch up on their reading.

Some alumni are continuing their education. **George F. Jorgenson ('35, EE)** wrote to say that he couldn't attend the reunion because he is putting all his time into a self-study training course in magnetic silencing of U.S. Navy ships (his area of expertise). Although he retired from federal employment in 1974, he is still working full time in his specialty. And **Helmer Holmstrom ('32, CME)** has been enrolled in art school at the University of Arkansas since 1982; his grandchildren serve as his portrait subjects.

**C.R. Burton ('35, EE)** tells us that from his 1937 start as an electrician in the Hull-Rust mine at Hibbing, Minn., he progressed through the ranks to the post of chief engineer in charge of design and construction of the world's largest taconite plant (MINNTAC) at Mt. Iron, Minn. In 1973, after supervising construction of the plant's third expansion, he retired. However, he didn't go home and take a well-earned nap; instead, he packed his bags and went to Montreal to consult for U.S. Steel, to Rio de Janeiro to consult for an iron ore mine and plant, and to San Francisco to solve some problems for a nickel mine and plant in Indonesia. Burton now lives in New Port Richey, Fla.

**Chester Larson ('35, EE)** sent a note to the reunion committee regretfully declining to attend because he was "awaiting an overdue telex to go to Praia, Republic of Cape Verde, to observe acceptance tests on a Siemens (Brazil) Cross Point telephone switching machine." He had already made six trips to the Cape Verde Islands since 1979 (two years after he retired from the Bell System) in connection with the project, and wrote that he thought this might be the last. As a telecommunications consultant he has worked in Jordan, Saudi Arabia, and four countries in Central and West Africa. He is vice

president of Morcom Systems Inc. in Washington, D.C.

**Len Ostergren ('35, EE)** was also too busy to attend, but wrote that he has been back several times and is amazed at the changes in the University. He spent 17 years in charge of the two Goodyear facilities in Australia, and now lives in the Phoenix area during the winter and a mountain home for the summer.

**Randolph Jensen ('40, Chem E)** and his wife, Mary, flew to the reunion from their home in Louisville, Ky. He retired in 1979 from his position as chief chemical engineer with the Rohm and Haas Co. and is now active in environmental protection as president of Jensen Consultants Inc. in Louisville. Both Jensens are pilots: Mary had a new instrument rating, so she was the pilot on their flight to the reunion.

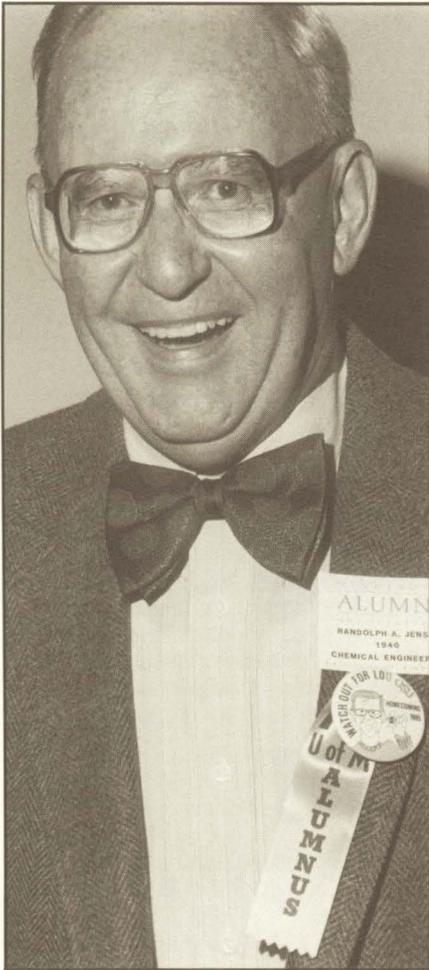
Sam Calloway, mentioned at the beginning, retired in July, ending his 45-year career with General Motors. Looking back, he wrote: "My decision to study metallurgical engineering was fortuitous and made without the benefit of guidance counseling. A summer job at General Motors research in 1939 opened the door to a career which has given me satisfaction beyond my wildest dreams. I met the giants of automotive engineering and metallurgy. Through their passion for excellence and accuracy, men like Kettering, Boegehold, Jominy, and Almen (to name a few) taught me lessons which have endured. Contrary to the widely heralded doctrine about educational obsolescence, their ideas and principles are as fresh and viable today as when I learned them."

Calloway included a short verse which sums up his intentions for the future:

"Silence the anvil and bank the fire:  
the 'village blacksmith' will soon retire  
and join the ranks of golfers and boaters  
after 45 years with General Motors."

This year marks the 50th anniversary of the class of 1936. Don't wait until the reunion to let us know what you're doing: drop us a line at 107 Walter Library, 117 Pleasant St. S.E., Minneapolis, MN 55455, so we can do articles like this more often. And you class of '36ers might begin planning your trip to the University for the reunion. We'll all be glad to see you.

# Reunion Memories



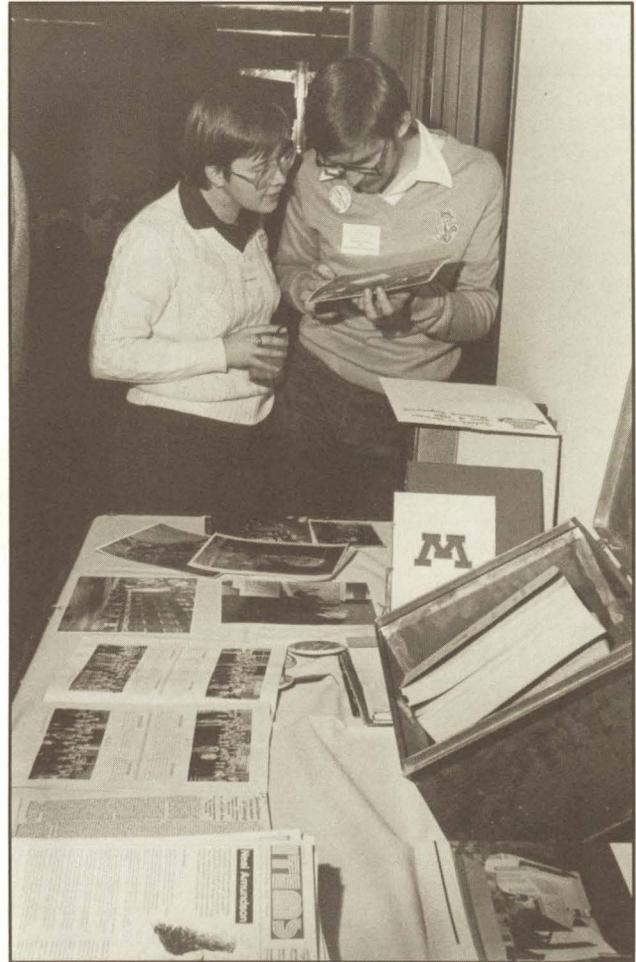
Randolph Jensen ('40, CHEM) appeared to enjoy the reunion.



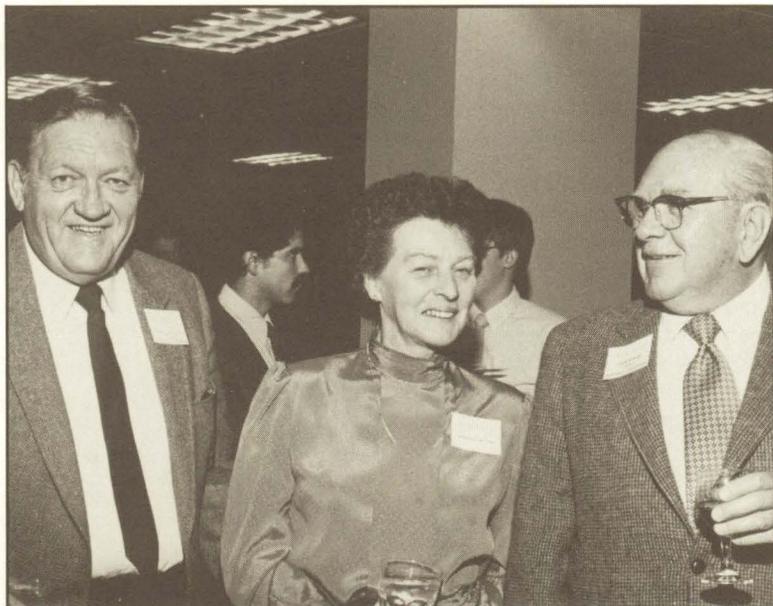
Eleanor Reusch and '35 EE grads Jack Reusch (left), Howard Newell, and Clyde Norton discussed reunion memorabilia.



Raymond Ascher ('23, ME).



Richard ('80, ME) and Mary Herman examined the exhibit table's display of yearbooks and pictures, which included the Experimental Engineering building's time capsule and other historical treasures.



Frolyn Weltzin ('60, CME), Georgette Weltzin, and Elmer Bernard ('35, EE).

# National science policy symposium honors chemistry's Bryce Crawford

By Darlene Gorrill

In the near future, experts say, scientific efforts will produce a potpourri of practical improvements: vacuum cleaners that zoom around furniture without human guidance or expert automatic systems that rapidly repair diesel motors without any greasy mess.

"Within a few years, you will be able to go to a video showroom, sit down at the console, and put a car together, choosing the color, what you want in it, everything," said Frank Press, science advisor to former President Jimmy Carter and current National Academy of Sciences president.

Press spoke at an October symposium honoring Bryce Crawford, Regents' Professor Emeritus of Chemistry, for his contributions as home secretary of the academy. Crawford, whose research interests center on molecular spectroscopy and molecular structure, has won the Priestley Medal of the American Chemical Society and the Pittsburgh Spectroscopy Award. Part of the Institute of Technology Alumni Society's annual Science and Technology Day, the symposium was sponsored by the chemistry department, the Institute of Technology, the Graduate School, and the academic affairs office.

"We are truly living in a golden age of science," Press told the more than 200 audience members. "Science and technology have changed the way the world does its business."

While to a certain extent each age considers itself golden, today's scientific advances outdistance past efforts because of the remarkable progress made in so many areas of science, including robotics, information processing, computer-aided design, biotechnology, and medical technology, he said.

To remain competitive and strong, agriculture, manufacturing, distribution, and processing need scientific and technological advances, Press said, adding that progress in science will fuel the nation's economic health.

"The scientific community realizes the tremendous potential, that the return on the investment is tremendous," said Press.



Photo by Mary Perkins

Frank Press, president of the National Academy of Sciences.

One important key to the future success of science and innovation in this country rests with the public policies that guide scientific development, Press and other symposium speakers emphasized. Faced with limited funding, policy makers need to make wise, carefully considered choices for the scientific dollar, they said.

"We must move to a more coherent yet flexible federal science policy," said Mary Good, president of Signal Research Center. Scientists and decision makers must start making some choices about priorities and policy options, she said.

The proliferation of agencies that regulate policies makes coordinating efforts difficult, Press said. "It's a wonder that we do as well as we do under this system."

Public policy does affect the cutting of the research pie, slices of which will continue to become fewer, said George C. Pimentel, chemistry professor at the University of California at Berkeley. Scientists need to actively use their

expertise to help non-scientific decision makers make good choices, he said.

In addition, scientists and non-scientists should also consider other areas that affect science.

"It is not enough to be a scientific power in this era," Press said. "The key to competitiveness will be the capacity of science and technology to infuse the whole of the economy."

To ensure scientific growth, citizens, scientists, and policy makers also must examine tax policies and regulations, innovation management, and larger economic issues, Press said.

Education is also crucial to scientific development: in large part, Japan's productivity gains have resulted from the education of its workers, Press said, adding that universities need updated equipment, even though it may be hard to explain the need to the public.

State governments, though, represent one bright spot for scientific and technological development, according to Press. "Minnesota is one of the states that recognizes the importance of [economic and scientific] issues."



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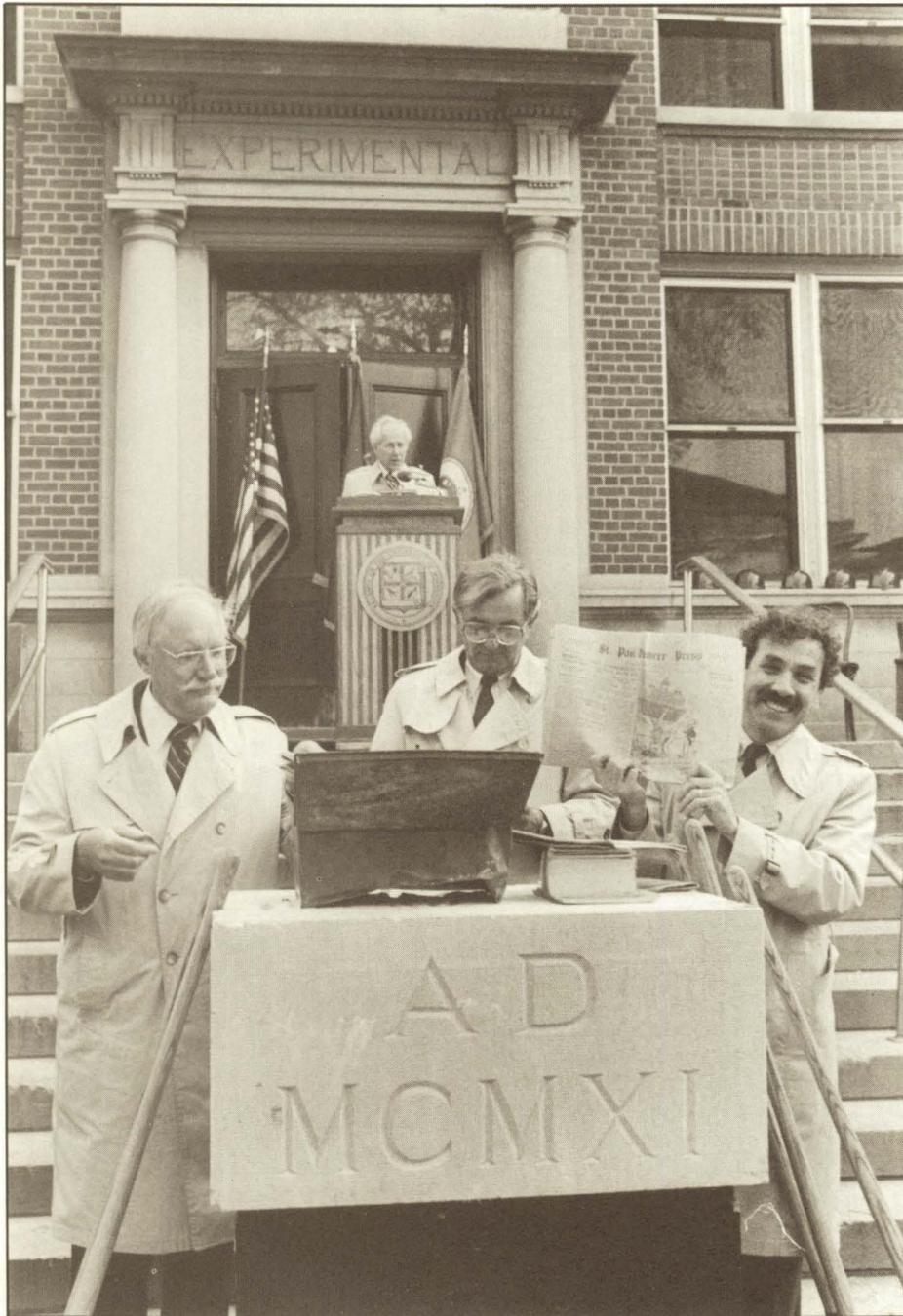
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# Groundbreaking

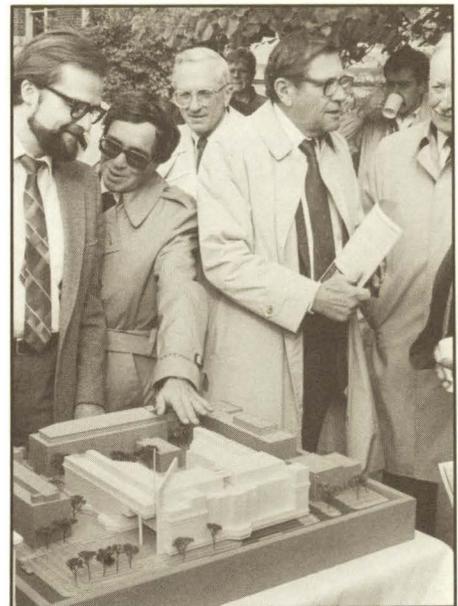
*Many celebrate start of new Electrical Engineering/Computer Science Building*



Herb Johnson (left), chairman of the Minnesota High Technology Council (MHTC), Governor Perpich, and UM president Ken Keller carefully unpacked the 74-year-old contents of a time capsule from the cornerstone of the old Experimental Engineering building (later demolished to make way for the new building), with encouragement from University Regent Charles McGuiggan at the podium. The shovels they used to break ground for the new building lean against the cornerstone, and their hard hats line the windowsill behind them.

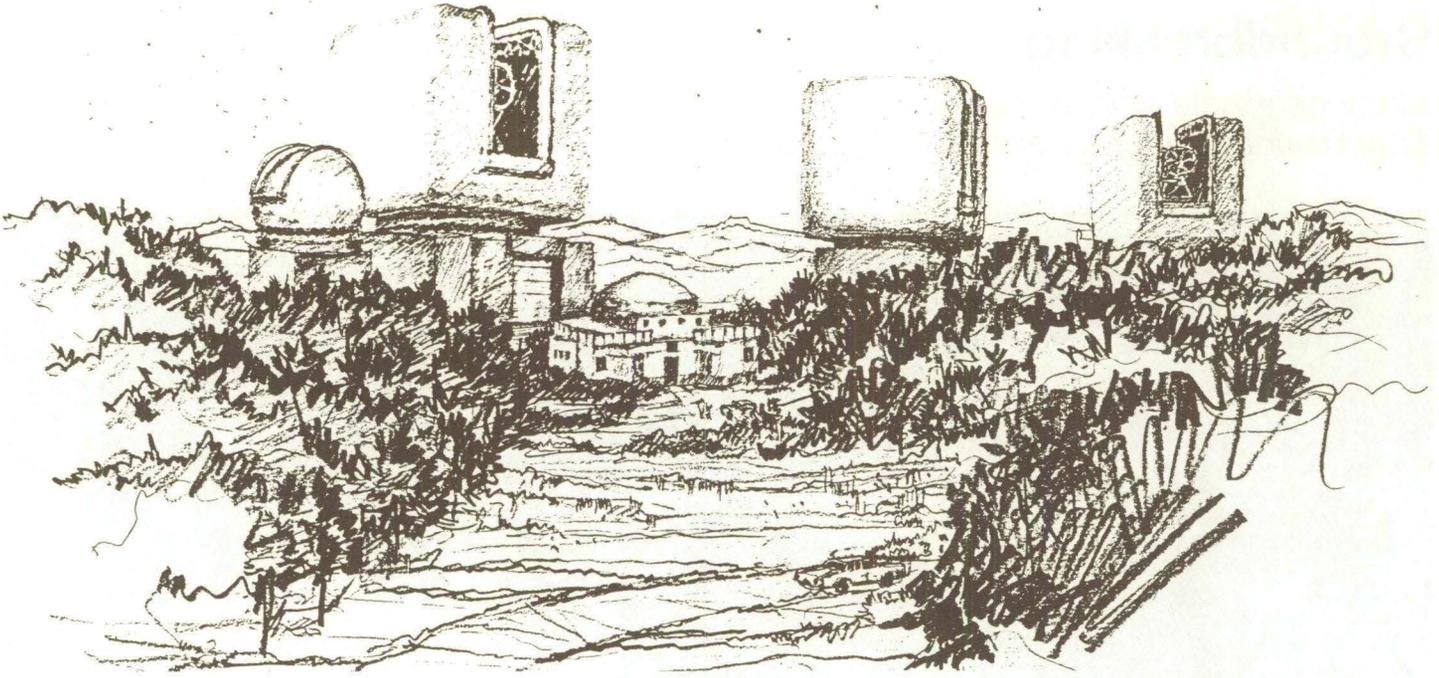


The sun appeared for a moment while President Keller spoke of IT's bright future, as if to confirm his forecast.



EE professors Rolf Schaumann (left) and Michael Shur examined the architect's model of the new Electrical Engineering/Computer Science Building as G. Donald Long of Honeywell looked over their shoulders and EE head Bob Collins discussed his department's future home with William G. Shepherd, professor emeritus.

*Photos by Mary Perkins*



The proposed multiple observatory project would ultimately look something like this. The telescope cluster would be the first in the U.S. (and possibly in the world) to be interlinked to allow both independent and combined use of the individual telescopes.

## Multi-telescope observatory project launched in January

By Deane Morrison

Sometimes you have to be in the dark in order to see the light.

Nowhere is this more true than in astronomy, a field in which the United States is rapidly losing its leadership position to light pollution, obsolescent technology and an aggressive telescope-building effort by European countries, scientists say.

But now the University of Minnesota and several other American universities are banding together to build new telescopes in an effort to restore U.S. competitiveness.

In January the University's astronomy department announced a \$10 million fund-raising campaign toward its goal of constructing a new state-of-the-art observatory housing one or more large telescopes. The department has taken the lead in organizing a consortium of major universities that will share the facility.

The consortium plans to build three or four 140-inch optical/infrared telescopes on a dark site in either New Mexico or Arizona that could be the leading observatory on the American mainland by the end of the century, according to astronomy professor Kris Davidson.

Not only will each telescope be powerful in its own right, but two or more could be

connected optically to enhance their power. No observatory in the world can yet connect big telescopes that way, added astronomy professor Roberta Humphreys.

New telescope designs have produced substantial improvements in telescope performance and major reductions in construction costs over those of only a few years ago. In addition, new devices and techniques for detecting and imaging light from faint astronomical objects, and new fields of astrophysics opened up by space astronomy have driven a growing demand for large-telescope access among University astronomers.

The number of suitable telescopes available is far too small to meet this demand.

The present national telescopes have "too many masters," according to astronomy department head Tom Jones. He said that use-time must be divided between so many researchers that, with only a few nights a year available, important projects based on sustained and/or repeated observations are delayed or cannot be completed.

"And when a sudden, one-time astronomical research event like a supernova occurs, our astronomers obviously cannot wait several months to observe it," Jones added.

The shortage poses particular problems for graduate students preparing to enter the competitive field of astronomy: they need to be able to schedule specific blocks of time on first-class telescopes. If IT is to continue to attract excellent astronomy students and faculty, the astronomy department needs to provide the high quality equipment their research requires.

The famous telescopes at Mount Palomar, Mount Wilson and Lick Observatory in California are no longer suitable for first-class astronomy, Davidson said. The obsolescent 200-inch Mount Palomar telescope, designed in 1935, has been weakened by the encroaching lights of San Diego. The 70-year-old, 100-inch Wilson instrument has been shut down, and the 120-inch Lick telescope also is old and threatened by the lights of San Jose.

The National Telescopes at Kitt Peak, Ariz., and Cerro Tololo, Chile, completed in the mid-1970s, are the most modern American design but are not as modern as new European telescopes, most of which were completed after 1975. And Kitt Peak is being washed out by light pollution from Tucson.

With few government funds expected, the consortium will try to raise most of the funds for the observatory from private sources. To date, the other consortium members include Indiana University, the University of New Mexico, Rutgers University, the University of Illinois and Cornell and Yale Universities.

*Nancy Lewis contributed to this story.*



Kenneth J. Reid, (right), director of the Mineral Resources Research Center, watched Gov. Perpich cut the ribbon for MRRC's new 500-pound, 200-kilowatt arc smelting furnace, part of a program to establish a plasma-based technology that could use low-grade domestic chrome ores to produce ferrochrome.

#### MRRC from page 1

must be crushed fine and concentrated before smelting, and the powdered product can't be treated in conventional furnaces."

Since tradition requires that furnaces be named after women, and since it was Gov. Rudy Perpich who did ribbon-cutting honors at the unveiling ceremony, the transferred plasma arc furnace took on the less cumbersome name of "Lola," after Perpich's wife. The governor operated the tilling mechanism and watched as the first batch of molten ferrochrome poured from the furnace in a white-hot stream.

The 500-pound and 200-kilowatt furnace is a fairly big investment. The ferrochrome project was started with a \$100,000 grant from the U.S. Bureau of Mines's Pyrometallurgy Center at the University of Missouri in Rolla. The project's objective is to develop a feasible and efficient ferrochrome technology in case of a crisis, such as may develop if South African President P.W. Botha makes good his threat to cut off supplies of chromium and platinum to the U.S.

"I don't think Botha's threat is practical, it's more political," Reid said. "South Africa relies heavily on its mineral wealth."

The more likely result of the project, according to Reid, is a more diversified mineral industry for Minnesota.

Montana supplied the ore smelted at the unveiling ceremony, but Minnesota also has deposits of platinum and chromium in the Duluth gabbro rocks in the Arrowhead region. Results so far, based on one drill core, show that the metals are not quite concentrated enough to mine, but further exploration may turn up richer deposits nearby.

"Chrome averages about 3.5 percent, with a peak of about 5.5 percent in the core. That's low, but a significant indicator," Reid said. "The question now is whether it exists in higher concentrations.

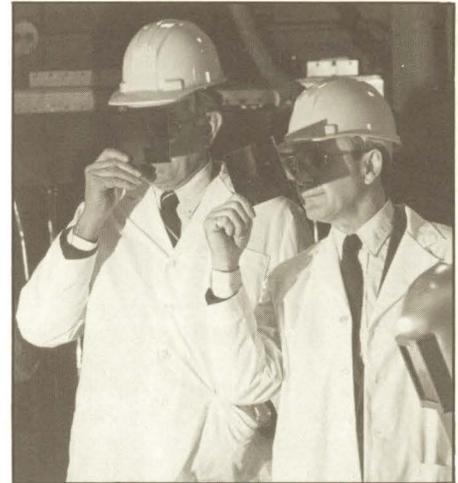
"But platinum is the more exciting finding in the core. Its peak is 9.5 grams per ton, and a deposit averaging higher than 10 grams per ton is potentially minable."

All this variation in metal concentrations is because ores lie in the ground like slices of turkey in a sandwich. The center of a sandwich will probably have more layers of turkey than the edges; the concentration of turkey will reach a peak and then decline as one bores holes through the sandwich from the top.

Similarly, it takes a bit of drilling to find the center of the ore "sandwich" where the metal is most concentrated. If the chromite deposits in the Duluth area turn out to be high enough to mine, then a ferrochrome facility may develop in Minnesota.

By the end of 1985, the first feasibility study on the MRRC furnace will have been completed. That study is a technical one, aimed at finding exactly how and under what conditions to add materials that remove impurities. Some ferrochrome will always be lost in the slag, but research will show how the loss can be minimized while removing the most impurities.

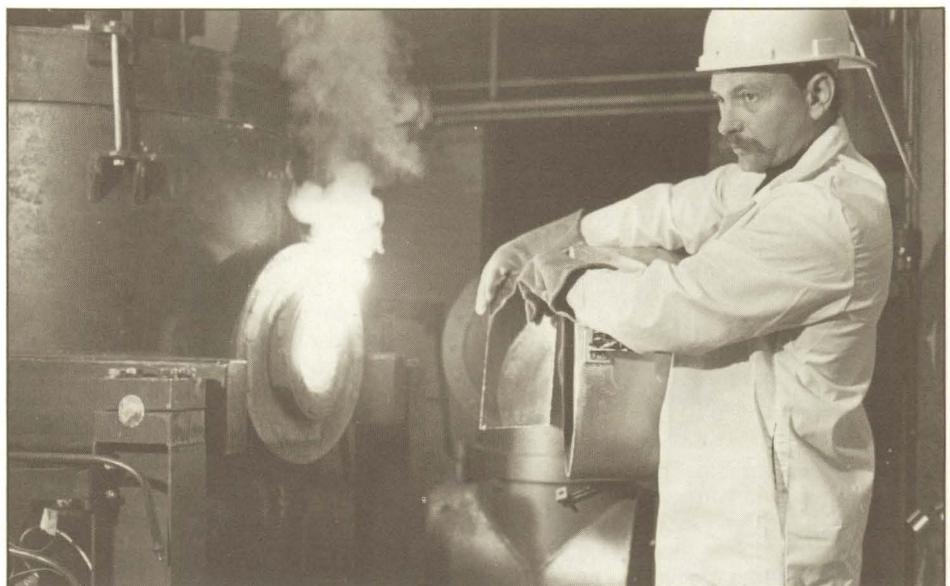
The MRRC engineers are also looking for the optimal amount of coke to add to the furnace. The carbon atoms of coke act as a sink for oxygen released from the metal oxides; the oxygen is captured and combined with the carbon to form carbon dioxide.



Gov. Perpich and Kenneth Reid observed a sustained shockwave plasma demonstration, a unique method of plasma generation that creates an expanded type of electric discharge with great potential for IN-FLIGHT processing of minerals.

If the MRRC receives continued funding from the Pyrometallurgy Center, a detailed process evaluation can be done. That study would look for the right operating conditions to do the best technical job with the resources at hand, Reid said.

One hopeful sign is that industry, which normally prefers to use higher-grade chrome in metal products, is now moving into technologies that can start with lower-grade chrome and still achieve the same percentage of chrome in the end products. Lower-grade chrome will naturally carry a competitive price, and so may help make a future Minnesota ferrochrome industry feasible.



MRRRC technician Jim Pridgeon assisted in an internal inspection of the operating plasma furnace.

## Milestones

Agricultural engineering professor **Donald Bates** helped plan beef housing facilities for collective farms in Yugoslavia in August, following up on an earlier trip. In September he presented an invited paper at the Fifth International Congress on Animal Hygiene in Hanover, Germany. □

Agricultural engineering professor **R. Vance Morey** spent most of September visiting grain storage projects in Kenya and Rwanda, East Africa. In Rwanda he was advisor to a USAID-sponsored University project to improve storage of edible beans and sorghum. □

**John L. Nieber**, associate professor of agricultural engineering, conducted soils research in Australia in October and November. He spent a week with Canberra researchers in the land and water and environmental mechanics divisions of the Commonwealth Scientific and Industrial Research Organization, and four weeks with Dr. Anthony Dexter in the soil science department of the Waite Agricultural Research Institute of the University of Adelaide, analyzing the mechanical strength of soil aggregates. ■

Architecture professor **Roger Clemence** has stepped down as director of graduate studies and taken a 25 percent leave to complete an independent study television series entitled "The Meanings of Place" with Professor Judith Martin, coordinator of CLA's Urban Studies Program. The series will be shown on ten consecutive Saturdays during spring quarter on Twin Cities public television. Clemence is also working on a book describing the landscapes of U.S. Route 20. □

**Robert Diedrich** and **Valerius Michelson** are now emeritus professors of the School of Architecture after 27 and 19 years, respectively, of teaching and service. They will devote their time to their professional practices. □

The work of **Dan Feidt ('75 Arch)**, director of the Built Environment Communication Center, and architecture lecturer **Sarah Susanka ('83 Arch)** were featured in *Better Homes & Gardens Remodeling Ideas*, Fall 1985. The articles are Feidt's "New Plans for an Old House," and Susanka's "From Open Spaces Come Private Places" and "Architect Sarah Susanka Talks About Remodeling Costs." □

**Lance LaVine**, assistant professor of architecture, spent spring 1985 in England in a teaching exchange with Professor Christopher Jones of Hull Polytechnic. LaVine moved to the Massachusetts Institute of Technology for fall quarter and has returned to IT for winter quarter. □

Architecture professor **Roger Martin**, chair of the landscape architecture program, has been elected president of the American Society of Landscape Architecture for 1987. He will serve for three years, as president-elect in 1986 and as past-president in 1988. □

**Dale Mulfinger**, assistant professor of architecture, was an invited speaker at the ACSA regional conference in New Orleans, and spoke and moderated a panel for Prairie Visions Convergence at International Market Square in Minneapolis, both in September. □

Architecture's former head and emeritus professor, **Ralph Rapson**, is now teaching an evening class in furniture design at the Minneapolis College of Art and Design, and serving as a "design czar" for the city of San Francisco, reviewing building design components and helping the city select architects for significant buildings. □

**Julia W. Robinson**, associate professor of architecture, represented the school at the October regional meeting of the Association of Collegiate Schools of Architecture in St. Louis, Mo. Robinson has been awarded \$8,000 by the Graduate School for her research project, "Perception of Housing Form." □

**Duane Thorbeck**, associate professor of architecture, is serving as the president of the Minnesota Society of the American Institute of Architects for 1986-87. □

**Susan Ubbelohde**, assistant professor of architecture, chaired both the education session of the Eleventh National Passive Solar Conference of the American Solar Energy Society and the annual meeting of the Society of Building Science Educators in October. In November she attended the Technology Conference of the American Collegiate Schools of Architecture. □

**J. Stephen Weeks**, associate professor of architecture, attended the annual Council of Educators in Landscape Architecture (CELA) in September, and made a joint symposium presentation with assistant professors Robert Sykes and Patrick Condon on "Narrative Inquiry and the Design Studio." ■

Regents' Professor of Chemical Engineering and Materials Science **Rutherford Aris** gave an invited lecture at the inauguration of the school of engineering in Cassino, Italy, in December 1985. While there he visited the nearby library of Montecassino, the monastery founded by St. Benedict in 589, and examined old manuscripts. Last May, Aris was awarded an honorary Doctor of Science degree by Clarkson University. □

Professor **Morris E. Nicholson** retired in June 1985 after 30 years of teaching and service to IT. He was head of the metallurgy department from 1955 until 1962 and later taught physical metallurgy and metals corrosion in the chemical engineering and materials science department. As IT's director of continuing education, he founded the UNITE program, which offers television broadcasts of engineering courses to industry locations. He is enjoying retirement with his wife in St. Paul. □

Chemical engineering and materials science professor **Arnold Fredrickson** is the O.A. Hougen visiting professor of chemical engineering at the University of Wisconsin-Madison from January through June. □

**Klavs Jensen**, associate professor of chemical engineering and materials science, traveled to the University of Delaware to deliver the annual Colburn Lecture in October. □

Chemical engineering and materials science professor **Chris Macosko** is spending a sabbatical year in France at the Université Louis Pasteur. ■

Chemistry professor **Robert C. Brasted** has been elected to a three-year term (1986-89) as one of the four chemistry delegates to the 84-person council of the electorate of the American Association for the Advancement of Science. Brasted has also been elected to represent Region V (ten Midwestern states) on the board of directors of the American Chemical Society. While Professor Bryce Crawford earlier served the board as an at-large member, Brasted's election marks the first time a Minnesota section member has represented Region V. He attended board meetings in December, both as newly elected regional director and as vice chairman of the council policy committee of the society. □

Regents' Professor Emeritus of Chemistry **Bryce Crawford** attended the meeting of the nominating committee of the National Academy of Sciences, worked with his staff in the office of the home secretary and the report review committee, attended a dinner briefing on the NRC report, "Opportunities in Chemistry," and a symposium on national science policy in his honor was held on IT's Science and Technology Day, all in October. □

**Margaret Etter**, assistant professor of chemistry, was recently awarded a \$16,510 research grant by Research Corporation, a nonprofit foundation that supports fundamental scientific research and the transfer of technology to benefit the public. Etter presented an invited talk at the University of Delaware in October, and attended the Pittsburgh Diffraction Conference in November. □

**John Evans**, associate professor of chemistry, presented results co-authored by T.R. Hayes on ion/electron interactions with surfaces at the Fifth International Conference on Secondary Ion Mass Spectrometry in Washington, D.C., last fall. □

Chemistry professor **Paul Gassman** presented lectures at the Tuscaloosa and Birmingham campuses of the University of Alabama and at the State University of New York at Buffalo in October. In November he attended a meeting of the Council for Chemical Research's program committee and an implementation meeting at Argonne National Laboratories. □

Chemistry professor **W. Ronald Gentry** attended a topical review in chemistry presented by the U.S. Department of Defense at the National Academy of Sciences in Washington, D.C., in October. □

**Wayne Gladfelter**, associate professor of chemistry, presented seminars for Amoco Corporation, Loyola University, and the University of Iowa in October. □

Chemistry professor **Maurice Kreevoy** presented a seminar and spoke to prospective graduate students at Hamline University and attended an ACS meeting in September. In October, he made a poster presentation at the Fourth Symposium on Separation Science and Technology for Energy Applications in Knoxville, Tenn. □

**Edmund Larka**, scientist in the chemistry department, traveled to Manchester, England, in October for a training course in the operation of a new mass spectrometer. □

**Timothy Lodge**, assistant professor of chemistry, presented a seminar at the department of chemistry at Louisiana State University in Baton Rouge in October. □

**Lawrence Que, Jr.**, associate professor of chemistry, attended an NIH study section meeting in Washington, D.C., and presented talks at Exxon and Princeton in New Jersey in October. □

**Marion Stankovich**, assistant professor of chemistry, presented a paper at the Midwest University Association of Analytical Chemists in Iowa City in October. ■

Civil and mineral engineering professors **Patrick Brezonik** and **Steven Eisenreich** and five of their graduate students presented papers at the eighth annual Midwest Water Chemistry Workshop, held in Madison, Wis., in October. □

Civil and mineral engineering assistant professor **Steven Chiesa** and associate professor **Michael Semmens** presented papers at the Water Pollution Control Federation meeting in Kansas City in October. □

Civil and mineral engineering professor **Cesar Farell** worked as a consultant in the mechanical engineering department of the University of North Sumatra, Medan, Indonesia, during July and August. The assignment, which was part of the Midwestern Universities Consortium of International Activities program, included evaluation of faculty, curricula, and laboratory needs for educational and research equipment. □

**Catherine French**, assistant professor of civil and mineral engineering, chaired a session at the ACI Conference in Chicago in September, and has been appointed faculty advisor for the University's student chapter by the American Society of Civil Engineers. □

Civil and mineral engineering professor **Theodore Galambos**, who chaired a session and presented a paper at the ASCE Structures Congress and presented a paper at the IABSE Symposium in Luxembourg in September, is co-author of a new text, *Basic Steel Design* (Prentice-Hall, 1986). Galambos has received a \$36,000 grant from the American Iron and Steel Institute for work on reliability of building construction, and, with assistant professor **Roberto Leon**, a \$21,000 grant from the NUCOR Corporation for testing of long-span steel joists with composite slabs. □

**Gerald Johnson**, associate professor of civil and mineral engineering, and colleagues from the University Remote Sensing Laboratory made the first detailed photo-maps of the Nazca Lines of the Peruvian desert last summer. Their expedition took them to the desert floor where they studied the man-made lines which stretch over 120 square miles and are believed to have been created by the Nazca Indians about 2,000 years ago. □

**Theodor Krauthammer**, associate professor of civil and mineral engineering, was elected vice chairman of the ASCE-EMD committee on experimental analysis and instrumentation last year. For his work in the industrial associates program, Krauthammer has won a \$10,000 grant from TRW Defense Systems Group. □

**Ray Sterling**, associate professor of civil and mineral engineering, attended the International Symposium on Earth Architecture in Beijing, China, in November. He also visited researchers in South Korea and Japan. ■

Regents' Professor of Geology **Herbert E. Wright**, director of the Limnological Research Center, was invited by the Swedish Natural Science Research Council to participate in an international evaluation group reporting on research projects in quaternary geology in Sweden in November. ■

Mineral Resources Research Center professor **Iwao Iwasaki** traveled to the Tangshan Institute of Technology and Beijing University of Iron and Steel Technology as an invited guest lecturer in October. □

Mineral Resources Research Center professors **John J. Moore** and **Iwao Iwasaki** presented a paper at the Department of Energy's November technology transfer workshop on grinding media wear for industrial and federal research personnel and academics in Washington, D.C. Later that month, Moore spoke at the first International Congress on Cast Steel, sponsored by the Steel Founders Society of America. □

Mineral Resources Research Center director and professor **Kenneth J. Reid** was invited to attend a national workshop in Dallas-Fort Worth in September to develop final research areas in the cement and concrete research section of the National Strategic Highway Research Program. He also attended meetings of the American Mining Congress education committee and the mineral resources committee of NASULGC, both in San Francisco in late September. □

**Alan Wassing** and **Karl A. Smith**, assistant professors in the Mineral Resources Research Center, were guests of IBM at the Tenth Annual IBM-Joint University Study Conference in Santa Clara, Calif., in November. They exhibited engineering application instructional software developed under an IBM contract. ■

St. Anthony Falls Hydraulic Laboratory professor emeritus **Edward Silberman** gave an invited talk at the annual conference of the Minnesota chapter of the American Public Works Association in November. □

St. Anthony Falls Hydraulic Laboratory associate director and professor **Heinz G. Stefan** presented the state-of-the-division address at the opening session of the hydraulics division of the American Society of Civil Engineers Specialty Conference in Orlando, Fla., in August. ■

## Awards

"A Search for More Effective Techniques to Build Professional Design Behaviors" by Professor **Roger Martin**, chair of landscape architecture, appears in the 1985 *C.E.L.A. Forum—Issues of Teaching and Instructional Development in Professional Education* (Ronald R. Stoltz, ed.), published annually by the Council of Landscape Architects. □

Professor emeritus **Ralph Rapson**, former head of the architecture school, has received the Richard Neutra Award from California State Polytechnic University at Pomona for outstanding contributions to architectural design, and an ACSA Award recognizing his many years of leadership in architectural education. □

**Garth Rockcastle**, associate professor of architecture and member of Meyer Scherer & Rockcastle Architects, was presented with the Minnesota Society of the American Institute of Architecture's Honor Award in November for his design of a children's museum. ■

**Klavs Jensen**, associate professor of chemical engineering and materials science, was named the Twin Cities' Young Chemical Engineer of the Year for 1985. □

Chemical engineering and materials science professor **Matt Tirrell** received the Colburn Award, and Regents' Professor Emeritus of Chemical Engineering **Neal Amundson** received the Founders Award at the annual meeting of the AIChE in Chicago. ■

**Lawrence E. Conroy**, associate professor of chemistry, received a certificate of appreciation for outstanding support of science teaching in public schools in Minnesota from the Minnesota Science Teachers' Association and the Minnesota Academy of Science at the MSTA annual meeting in October. □

Chemistry professor **Paul Gassman** was selected as one of the first recipients of the American Chemical Society's Arthur C. Cope Scholar Award, which includes a \$15,000 unrestricted research grant, in recognition of the excellence of his research in organic chemistry. Gassman has also received a Distinguished Alumni Award from Canisius College in Buffalo, N.Y. □

**Hung-Wen Liu**, assistant professor of chemistry, received a Junior Faculty Research Award from the American Cancer Society, effective July 1, 1985, and an unrestricted research grant from the Eli Lilly Company in recognition of his research's significant promise. □

Chemistry professor emeritus **I.M. Kolthoff** was the guest of the Royal Society of Great Britain at the September meeting of the International Union of

Pure and Applied Chemistry (IUPAC) in Manchester, England. After a dinner arranged in his honor by the analytical division of the Royal Society, he was presented with the Robert Boyle Gold Medal, becoming the second recipient of this prestigious award. ■

**Karl Smith**, assistant professor of civil and mineral engineering, received the Mikol Award at the 1985 ASEE meeting in October. ■

Mechanical engineering professor **Arthur G. Erdman** was presented with Oklahoma State University's South Pointing Chariot, a rotating trophy awarded for transferring mechanism technology at the practice level. The award was made at the Ninth Applied Mechanisms Conference in October. **Salaheddine Faik**, a graduate student advised by Erdman, received the Best Student Paper Award for "Design of a Torque Meter Mechanism" at the same conference. □

Mechanical engineering professor **Tarald O. Kvalseth**, faculty advisor to the University's chapter of the Institute of Industrial Engineers, reports that the chapter has won the IIE Chapter Development Program Award of Excellence for 1984-85. □

**Donald R. Riley**, associate professor of mechanical engineering, is the recipient of the AT&T Foundation Award for Excellence in Instruction of Engineering Students from the American Society for Engineering Education. □

In November, mechanical engineering professor **Ephraim Sparrow** received the Charles Russ Richards Memorial Award for Outstanding Achievement in Mechanical Engineering at the annual meeting of the Association of Mechanical Engineers. He may have set a new University record for fulfilling a professor's teaching mission: he oversaw nine successful Ph.D. theses in 1985, and has brought a total of 165 students through Ph.D. completion. Although grateful for his numerous awards, Sparrow says that his most profound satisfaction comes from teaching and helping students reach their goals. ■

Mineral Resources Research Center professor **Iwao Iwasaki** is the 1986 recipient of the Robert H. Richards Award, presented by the Society of Mining Engineers at its annual meeting in March. □

Mineral Resources Research Center assistant professor **Karl A. Smith** and educational psychology professor **David W. Johnson** were honored with the Helen Plants Award for Outstanding Special Event at the Frontiers in Education Conference in October in Golden, Colo. ■

Physics professor and associate IT dean **Russell K. Hobbie** has been awarded the Distinguished Service Citation of the American Association of Physics Teachers for the significant contributions he has made to the teaching of physics. This is the third time in four years that this citation has gone to a staff member of IT's School of Physics and Astronomy. Hobbie was also awarded a certificate of appreciation "for furthering science in Minnesota" by the Minnesota Science Teachers Association and the Minnesota Academy of Science at the MSTA annual meeting in October. ■

## Events & Visits

Several distinguished scholars are in residence in the **Institute for Mathematics and Its Applications** (IMA) during the current academic year under the Ordway Visiting Professors Program. Professor Kiyoshi Ito of the University of Tokyo, one of the most important probabilists active in the world today, is a year-long visitor. His many research accomplishments include the development of the stochastic calculus, an area of wide interest in contemporary probability theory fundamental to the theory of large deviations (he was a major participant in IMA's November Workshop on Large Deviations). A one-month winter quarter visitor, Professor Spencer Bloch of the University of Chicago, is a pioneer in the development of new techniques for algebraic geometry, and has become known as one of the strongest mathematicians in his field. Professor Harvey Friedman of Ohio State University will be here between March 15 and April 15. Friedman has made significant contributions to all areas of mathematical logic, including proofs of the logical independence of propositions not specializing in logic. ■

University/IBM shared programs and potential areas of mutual interest were examined during "University of Minnesota Day" at IBM-Rochester last September. At IBM's invitation, President Keller, Dean Infante, and key staff members of the **Microelectronics and Information Systems, Corrosion, and Productivity Centers** and the University's **Supercomputer Institute** traveled to Rochester for an information exchange. IBM and the University's representatives traded overviews of their shared and respective projects, technical capabilities, and expertise. Keller and Infante described their plans and goals for the University and IT, and research center staff discussed the University's research facilities and faculty consulting services. ■

1985's Big Event was the November 15 **inauguration** of IT's former chemical engineering professor **Kenneth H. Keller** as the twelfth president of the University of Minnesota. Led by mace-bearer Stanley Kegler, vice president for institutional relations, a procession of color guards and University regents, faculty, and distinguished visitors wearing the brightly colored robes of their alma maters escorted Keller across the mall. In his inaugural address, President Keller reaffirmed his intention to alter the University to suit changing times, saying that the University can be a great learning institution, but cannot be all things to all people. After the ceremony, more than 3,000 people toasted the University's new president at a public reception at the Radisson University Hotel. ■

## Grad Notes

'32 **Colonel (Ret) Helmer A. Holmstrom (CME)** has retired from the U.S. Army Corps of Engineers to Bella Vista, Ark., where he studies art and paints portraits of his grandchildren.

'35 **C.R. Burton (EE)** is retired and has consulted for U.S. Steel in Montreal and Quebec, for an iron mine in Rio de Janeiro, and for a nickel mine in Indonesia. He has lived in New Port Richey, Fla. since 1976.

'41 **Frederick G. Bordwell (CHEM E)**, a member of Northwestern University's faculty, is the recipient of the American Chemical Society's Petroleum Chemistry Award.

'42 **Arthur V. Dienhart (CME)**, the Minnesota Society of Professional Engineers' 1981 "Engineer of the Year," has retired from his position as vice president of Northern States Power Company after 38 years of responsibility for design and construction of generating plants, substations, transmission lines, and buildings.

'43 **William J. Bailey (CHEM)** is on the faculty at the University of Maryland and has received the American Chemical Society's Award in Applied Polymer Science.

'57 **Paul A. Seaburg (CME)**, former director of research and development activities at Armco Atlantic in Cincinnati, has been named head of the architectural engineering department at Pennsylvania State University. He received his Ph.D. from the University of Wisconsin-Madison in 1969.

'58 **Bernard Jacob (Arch)** is president of Bernard Jacob Architects, Minneapolis, which won the Minnesota Society American Institute of Architects' 1985 Interior Design Award for their design of the Land of Play toy store in Burnsville, Minn.

**Allan L. Nelson (EE)** is a senior member of RCA Corporation's engineering staff in the advanced development lab. Nelson has received the David Sarnoff Award for Outstanding Technical Achievement.

'61 **William J. Billett (ME)** is employed by Belle Vue Engineering in Fairmont, Minn., and received last year's \$750 Silver Award for the Advancement of Arc Welded Design, Engineering, and Fabrication from the James F. Lincoln Arc Welding Foundation of Cleveland, Ohio for his gooseneck trailer design.

'64 **John R. Lloyd (ME, Ph.D. '71)**, professor and chair of mechanical engineering at Michigan State University in East Lansing, has been named a fellow of the American Society of Mechanical Engineers.

'69 **Craig S. Armstrong (PHYSICS, UMD)** is space programs marketing manager for Digital Equipment Corp. in Colorado, and was recently promoted to Commander in the Navy Reserve.

**Larry J. Eriksson (EE, M.S.)** received his Ph.D. in electrical engineering in August 1985 from the University of Wisconsin-Madison for research on digital signal processing and adaptive systems.

'70 **Jeffrey H. Schott (CHEM E, Ph.D. '78)**, executive director of the Tile Council of America, has been elected to the board of directors of the R&D Council of New Jersey, a non-profit association promoting research and development efforts in the state.

'74 **Dick Hegg (AG ENG, Ph.D.)** has been named new head of agricultural engineering at Clemson University.

**Thomas A. Johnson (ME)** is marketing manager for McQuay, Inc., a leading manufacturer of commercial and industrial heating and air conditioning equipment. He lives in Plymouth, Minn.

'75 **John J. Feigal (C SCI)** received his MBA from the University in 1985 and has been awarded a Distinguished Technical Achievement by NCR Comten for his contributions to the VRX front-end project.

'76 **Rolf M. Kemen (ARCH)** graduated from New York University's MBA program in 1976 and has accepted a position as real estate analyst with Merrill Lynch in New York.

'79 **Michael Sivertsen (PHYSICS)** transferred to a new job as associate scientist in the nuclear training department of Northeast Utilities in Hartford, Conn. last May. He is responsible for teaching, administering, and developing nuclear-related general orientation courses for other employees.

**Catherine Wolfram (French) (CME)** earned both M.S. and Ph.D. degrees at the University of Illinois and received a 1985 Presidential Young Investigator Award as one of IT's most promising young faculty members (see the Spring, 1985 issue of *Items*). In 1984 she married Daniel French, an electrical engineer for Control Data Corporation.

'80 **Eric C. Yost (CME)** worked at SERCO in Roseville for two years as an environmental engineer, and is now earning a Ph.D. in water chemistry at the University of Wisconsin-Madison.

'81 **Susan M. Karlsson (Sagert) (EE)** left Control Data Corporation in the summer of 1984 for work in environmental testing for Martin Marietta-Denver Aerospace.

'83 **Warren B. Jokinen (EE)** recently accepted a position as a design and development engineer at Honeywell Space Operation in Clearwater, Fla. He currently leads HOL and 1750A software development for the NASA JSC ASCLSS program, which is the proposed control computer hierarchy for the life support and environmental control systems of the future manned space station.

'84 **David S. Toland (ME)** is a production engineer for ADC Telecommunications in Edina, Minn. In November, he was married to Kim Schuler.

'85 **Patrick Conlin (AG ENG)**, design engineer with Schwartz Manufacturing of Lester Prairie, Minn., and **Andrew Larson (AG ENG)**, project engineer with Hormel of Fremont, Neb., have won first place in the regional National Student Design Contest of the American Society of Agricultural Engineers for their design project, "Liquid Manure Pump Trailer to Permit Multiple Use in both Pit and Lagoon Applications." The department is displaying the plaque they received in room 219.

## Deaths

**Col. Jack Armstrong**, 1934 civil engineering graduate, died last summer at the age of 74. Armstrong pioneered the use of nuclear energy in space. Following 21 years of military service, he joined Rockwell International and helped develop the engines that were later used in the Apollo and Gemini space programs.

**Strathmore R.B. Cooke**, professor emeritus in the department of geology and geophysics, passed away at age 78 last June. Cooke joined the Mineral Resources Research Center in 1946.

# 1985 OAA winners: In finest IT tradition

By Nancy Lewis

The chemistry department's pride in its graduates was shown to be well-placed in 1985, when two alumni were chosen to receive University of Minnesota Outstanding Achievement Awards.

In October, George W. Parshall (B.S., 1951) received his award while visiting the University to deliver the fall quarter Kolthoff lecture. Johannes Coetzee (Ph.D., 1956) was presented with his award during the Science and Technology Day banquet later that month.

Descriptions of these men of science show many similarities: each is characterized by peers as a great scientist, an inspiring leader, and a genuine "nice guy." Parshall is known for his reserved manner, Coetzee is described as modest and unassuming. Each is noted for his scientific imagination, has pioneered important work in his own research, and has proved to be a capable administrator of research programs. And each finds time to work as an unselfish volunteer to the scientific community and to pursue a broad array of interests outside his field.

Their backgrounds, areas of research interest, and subsequent careers, however, are quite different. Parshall, a Minnesota native, is noted for his research in homogeneous catalysis. After earning a bachelor of science degree with highest distinction, he completed his doctorate in organic chemistry at the University of Illinois in 1954. That year he began his long career with Du Pont as a research chemist.

Parshall is now research director of Du Pont's chemical sciences division, overseeing the research of about sixty scientists. According to Du Pont vice president H.E. Simmons, Parshall is responsible for work ranging from organometallic to computational chemistry and organic synthesis to photopolymers, and helps guide the division's research.

In a 1984 letter supporting the award nomination, Professor Sir Geoffrey Wilkinson of the Imperial College of London stated that Parshall's contributions to the development of new materials and processes have been of enormous benefit to the United States.

Parshall's participation in workshops and advisory committees (such as the advisory panel to the chemistry division of the National Science Foundation in 1977-80) has affected the direction of

homogeneous catalysis and inorganic chemistry in this country, according to chemistry professor Wayland E. Noland.

Parshall has authored 100 publications, including two books, and 17 patents have proceeded from his research. His accomplishments have brought many awards, including the American Chemical Society's 1983 Inorganic Chemistry Award.

Coetzee, born and educated in South Africa, came to the University to do his graduate work under chemistry professor emeritus I.M. Kolthoff. In a letter nominating Coetzee for the award, Kolthoff described his student's keen interest in theoretical chemistry and the high quality of his research. Upon completing his doctorate in 1956, Coetzee returned to South Africa to serve as a lecturer at the University of Johannesburg. The following year, he was offered an assistant professorship at the University of Pittsburgh, where he now maintains a leading solution chemistry research program.

Regents' Professor Emeritus of Chemistry Bryce Crawford has followed Coetzee's career with interest. After hearing Coetzee's presentation at a 1983 symposium, he expressed pleasure at seeing and hearing such good science from a former student ("in the best traditions of Piet Kolthoff himself"), and noted the respect accorded Coetzee by his peers.

University of Florida professor emeritus Roger Bates, writing in support of the nomination, cited Coetzee's growing

international prestige as well as his conscientious and effective efforts as they "worked together very closely in running the affairs of the Commission on Electroanalytical Chemistry of the International Union of Physical and Applied Chemistry (IUPAC) for eight years."

Graduate research professor H.A. Laitinen of the University of Florida calls Coetzee "one of the world's leaders in his field, an international authority on non-aqueous solvents." He is one of this country's few pioneers in the field, according to professor Alexander Popov of Michigan State.

Coetzee has edited three books and authored 75 papers, is past secretary and chairman of the Commission on Electroanalytical Chemistry and currently a member of the analytical division committee of IUPAC, has held various offices in the Pittsburgh section of the American Chemical Society, was invited co-host of the Ninth International Conference on Nonaqueous Solutions in 1983, and is a regularly invited speaker at international conferences and symposia.

Regents' Professor Emeritus Crawford said that he thinks of the University's Outstanding Achievement Award as "a formal corporate embodiment of the sort of justifiable pride in former students which represents one of the greatest rewards of any individual teacher or of any teaching institution." IT graduates can share his pride in the remarkable achievements of former students Parshall and Coetzee.

## IT remembers Lee Ponto

Lee Ponto, director of student affairs and placement in IT, died October 2 of cancer. Lee graduated from the University of Minnesota in 1962, began his employment with the University in 1964, and had worked for IT administration in various capacities since 1968. Most recently he served in a dual capacity as director of placement and director of student affairs. He was also advisor to Plumb Bob and the IT Student Board.

He was tireless, compassionate, and dedicated to the welfare of IT students. His concern for all people was grounded in a strong Christian faith which shone quietly through everything he did. His good judgment was appreciated far beyond the University of Minnesota; he was a trustee of the Lutheran Bible Institute of California.

Lee loved golf, carried a six handicap, and was treasurer of the University's Men's Golf Club for many years. He also participated in the Faculty Golf League and was former league champion. We miss him greatly. At the suggestion of a number of students and staff, and with the concurrence of Lee's family, a memorial in the form of a scholarship fund has been established through the University Foundation. Recipients, to be selected by a student-faculty committee, will be good students who are also active in student organizations.

Russell K. Hobbie  
Associate Dean

*If you would like to join in remembering Lee through this scholarship fund, make your check payable to the University of Minnesota, mark it for the Lee Ponto Memorial Scholarship Fund, and send it to the University Foundation.*

## Robert Hanle joins institute staff

IT set itself what looked like a nearly-impossible goal last summer when it began the search for a new development officer: the ideal candidate would need to combine the professional qualifications and characteristics of five different people.

How, it could be asked, was IT going to find someone who combined all of the following:

- experience with academic administration
- expertise with money management and investments
- college-level teaching and research experience
- commitment to civic service
- and, staunch advocacy of high-quality public education?

The question was answered in October, when IT hired a person who combines academic, financial, and program-planning experience with the ability to conceive mutually-beneficial means for the community to assist IT in meeting its increasing needs.

Meet Robert Hanle, IT's new development officer.



Robert Hanle

A native of Pittsburgh, Pa., Hanle earned his bachelor's degree in 1962 at Elizabethtown College in Pennsylvania, taught high school courses, then returned to Elizabethtown in 1964 as director of alumni relations. Over the next 12 years he became a member of the faculty, and finally dean of faculty. In 1968, he completed a master's degree in education and, in 1974, a doctorate in the history of higher education at the University of Pennsylvania.

In 1976, Hanle and his wife, Rita, moved to the Twin Cities, where he joined the faculty of Metropolitan State University as an associate professor and director of inter-institutional programming and new program development. In 1979, he was appointed Metropolitan's vice president

and dean of academic affairs and finance. Hanle directed the studies that led to Metropolitan's successful reaccreditation in 1980 and to its first graduate program.

He also introduced a program-planning/budget-allocation system for improved academic management and decision making; developed and coordinated programs for articulated agreements and cooperation between Metropolitan and a variety of other educational institutions, business organizations, and community agencies; administered negotiations and instituted grievance procedures for faculty union contracts; and initiated and staffed four new academic majors, including one in computer science.

## From the IT Development Office

By Robert Hanle

Many of us do not realize the substantial personal benefits we can gain from a gift to the Institute of Technology if the gift is wisely planned.

My background in financial and tax-advantaged planning suggests that many unique opportunities can be explored to improve your own financial picture and, at the same time, make a meaningful contribution to one of your favorite projects within IT.

In other words, philanthropy can pay extra dividends. A sound program of giving to the University can mean giving more than you might otherwise be able to afford. It can provide greater security for your family and/or yourself. Under certain circumstances it can even mean increasing your after-tax income. It can help preserve a family business. But most important, it can be a means of carrying out your personal objectives.

The variety of programs needing your support here at IT is as plentiful as the variety of financial planning strategies which you can employ to achieve your giving objectives. However, the decision to explore the alternatives is really yours. That decision can make the real

In 1981, Hanle joined the staff at the St. Paul office of Paine Webber Jackson & Curtis, Inc. as an investment executive and manager of annuities and tax-qualified marketing services. He acquired expertise as the money manager and investment broker responsible for several million dollars belonging to Paine Webber's personal and institutional clients.

Hanle is also active in a number of local community organizations. He is a member of the board of directors of the St. Paul Rotary Club, a ruling elder and member of the session of the House of Hope Presbyterian Church, and personnel director and treasurer of the Medalist Concert Band of Bloomington.

difference. It can ensure that the stature of IT departments remains high among the leading teaching and research centers in the nation.

Alumni make vital contributions to IT, both personally, by their professional success, and financially, by making commitments to strengthen IT's teaching and research programs. The national prestige of these programs could not have been achieved and will not be maintained without the private support that makes it possible to meet the high cost of quality education in technology and the sciences.

In future issues of *Items* I will outline some specific methods by which you can benefit both your own financial situation and IT programs. In the meantime, if you have questions about how to plan for a prosperous and rewarding future, please drop me a line and I will be glad to respond.

Aristotle once wrote: "To give money is an easy matter and in any man's power. But to decide to whom to give it, and how much and when, and for what purpose and how, is neither in every man's power nor an easy matter."

It can pay to be charitable!

## WHAT'S NEW WITH YOU?

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## News Shorts

### ...George Piercy endows visitor's chair

Chemical engineering and materials science alumnus George Piercy (BS, '38) of Exxon Corporation has presented the department with \$250,000 to endow a visiting professorship. The University's Permanent University Fund will match the contribution, as outlined in the last issue of *Items*, for a total of \$500,000. The fund's earnings will finance lengthy visits by distinguished national and international scientists.



### ...IT searches for alumni relations officer

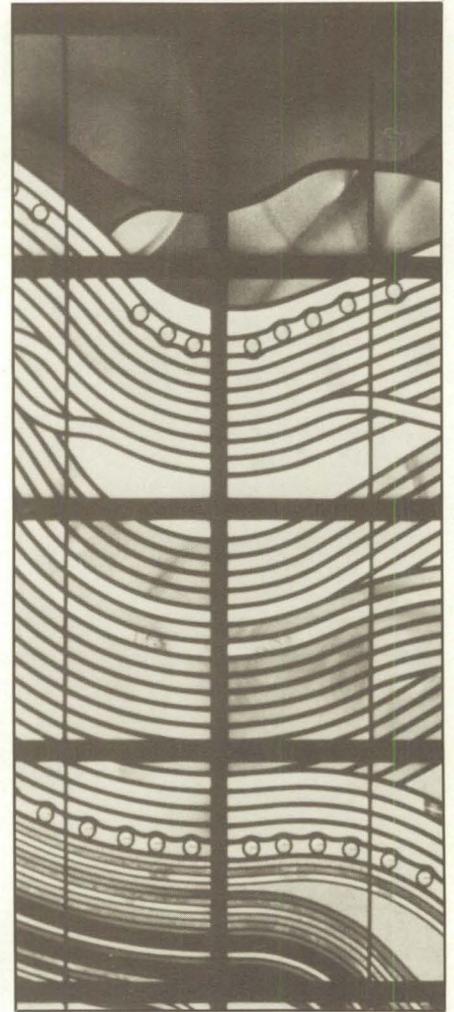
The Institute of Technology and the University's Alumni Relations office have jointly opened a position for a professional alumni relations officer who will work with Dean Infante, IT development director Bob Hanle, the Alumni Relations office, and the Institute of Technology Alumni Society (ITAS) to coordinate IT's alumni activities. The search committee, made up of Jim Day, Margaret Carlson, and Pam Burkley of University Alumni Relations, IT associate dean Russell Hobbie, and ITAS president Jim Sutherland, has conducted several interviews. The committee intends to recommend a candidate for Dean Infante's approval early in 1986.

### ...Project Woksape to aid computer literacy

IBM has donated \$7.5 million to purchase computer equipment and software for a University-wide program to develop and test microcomputer applications in teaching and research by putting microcomputers at the desks of undergraduates, graduate students, and faculty. Dubbed "Project Woksape" (which means learning or wisdom in the Dakota Indian language), the three-year endeavor is directed by Donald R. Riley, associate professor of mechanical engineering, with technical support from both IBM and the University. The project is designed to produce innovative and creative uses of workstation technology to improve students' educational experiences, a major University goal, and new software for instruction and research. For the first year, 41 projects have been selected from proposals submitted from throughout the University. Additional projects will be added in the second and third years. The microcomputer workstations eventually will be joined, forming a network through which departments can share resources and ideas.

### ...A special thanks to ITAS from students

From the student newspaper *I.T. Connection*, Oct. 29: "A very special thanks to the IT Alumni Society for providing the financial support which aided in the start of, and assures the continuation of this paper." The *Connection* means a lot to IT students; keep up the good work, ITAS!



This glass design was created for a swimming pool foyer by Professor Ludwig Schaffrath of Stuttgart University, key speaker at a two-part international conference, "Light and Glass in Architecture," cosponsored by the School of Architecture in Minneapolis last November.

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